21 SOCIO-ECONOMICS, TOURISM AND RECREATION

21.1 Introduction

21.1 The table below provides a list of all the supporting studies which relate to the socio-economic, tourism and recreation impact assessment. All supporting studies are provided on the accompanying CD.

Details of study	Location on supporting studies CD
Socio-economic Impact Assessment Report (RTP, 2011)	ONSHORE\Socio-economics

21.2 This section addresses the socio-economic, recreation and tourism impacts from the onshore and offshore aspects of the Project. This includes any potential adverse effects upon the local tourism economy, business interests and tourism and recreational interests; and any potential positive effects on the local economy in terms of income and job creation through the supply chain. The assessment has been undertaken by Roger Tym & Partners (RTP), but also draws on the findings of the following other Environmental Statement (ES) sections:

- Section 9: Physical Environment and Sediment Dynamics;
- Section 14: Commercial Fisheries;
- Section 15: Shipping and Navigation; and
- Section 19: Landscape, Seascape and Visual Assessment (LSVIA).

21.2 Assessment Parameters

21.2.1 Rochdale Envelope

21.3 In line with the Rochdale Envelope approach, this assessment considers the maximum ('worst case') Project parameters. Identification of the worst case scenario for each receptor (i.e. Environmental Impact Assessment (EIA) topic) ensures that impacts of greater adverse significance would not arise should any other development scenario be taken forward in the final scheme design. Table 21.1 summarises the maximum Project parameters that have been assumed for the impact assessment and explains why these are considered to be worst case. In addition, the economic impacts derived from the Project through the supply chain and employment etc. are not affected by the Power Conversion Centre (PCC) location, but rather related to the potential availability, capacity and capability of the supply chain businesses in the local area. For the purposes of the economic impact assessment it is assumed the worst case is where only 50% of the manufacturing and assembly employment and related economic benefits would be available to the local area. The potential impacts from alternative Project parameters have been considered in Section 21.9.

Project parameter relevant to the assessment		'Maximum' Project parameter for impact assessment	Explanation of maximum Project parameter
Onshore	Construction of PCC at Ness of Quoys or Ness of Huna and related HDD and cable works	Total potential onshore construction related jobs ~70 jobs over an accrued period of 14 months	Assessment of potential impacts associated with the construction new buildings at either the Ness of Huna or Ness of Quoys potential PCC locations and associated Horizontal Directional Drill (HDD)and cable works.
	Operation	Presence of Ness of Quoys or Ness of Huna PCC	The presence of the PCC at either of these locations could have a potential impact on the visitors and recreational users in the surrounding area.
	Decommissioning	Total potential onshore decommissioning related jobs	Assessment of potential impacts associated with the decommissioning of the PCC and all export cables.
		~70 jobs over an accrued period of 14 months	Based on the onshore infrastructure required by the Project, MeyGen has estimated the potential number of jobs during the onshore construction phase of the Project.
Offshore Project components	Construction	Operations and maintenance (O&M) employment offshore ~50 jobs	Assessment of potential impacts associated with the assembly and installation and long term operation and maintenance of the offshore infrastructure; Turbine Support Structures (TSS), turbines and cables. UK assembly of TSS and turbine components assumed. Published data on the potential job numbers generated by marine energy development quote a number of potential offshore installation jobs per MW (rather than turbine). MeyGen has estimated the potential number of jobs during the offshore operation and maintenance phase of the Project.
	Operation	Installation of 86MW and associated offshore infrastructure; O&M employment offshore ~50 jobs	Assessment of potential impacts associated with the assembly and installation and long term operation and maintenance of the offshore infrastructure; TSS, turbines and cables. UK assembly of TSS and turbine components assumed. Published data on the potential job numbers generated by marine energy development quote a number of potential offshore installation jobs per MW (rather than turbine). MeyGen has estimated the potential number of jobs during the offshore operation and maintenance phase of the Project.
	Decommissioning	Decommissioning of 86MW and associated offshore infrastructure; O&M employment offshore ~50 jobs	Assessment of potential impacts associated with the assembly and installation and long term operation and maintenance of the offshore infrastructure; TSS, turbines and cables. UK assembly of TSS and turbine components assumed. Published data on the potential job numbers generated by marine energy development quote a number of potential offshore installation jobs per MW (rather than turbine). MeyGen has estimated the potential number of jobs during the offshore operation and maintenance phase of the Project.

Table 21.1: Rochdale Envelope parameters for the socio-economics, tourism and recreation assessment

21.2.2 Area of assessment

21.4 It is also important to define the geographical extent of the assessment area. The focus of the economic assessment is all appropriate local business infrastructure and supply chain within Caithness and Pentland Firth and Orkney Waters (PFOW) strategic area. For the purpose of the tourism and recreation assessment a radius of 30km from the PCC locations has been used. The selection of the radius was

influenced by a number of factors including the Zone of Theoretical Visibility (ZTV) as defined in Section 19.

21.5 It should be noted that this assessment was completed on a larger project area that has since been refined to a smaller footprint at both the Ness of Quoys and Ness of Huna PCC sites and a single cable corridor to the SHETL substation option areas. The final Project is described in Section 5 and shown in Figure 5.2; the selection process for these is discussed in Section 4.

21.3 Legislative Framework and Regulatory Context

21.3.1 Assessment methodology

21.6 There are no statutory guidelines for the assessment of economic impacts. However, the approach adopted here follows UK Government guidelines and best practice for the production of such assessments. The methodology used to estimate the impacts of the Project follows the guidance set out in the HM Treasury's Green Book[1] and English Partnerships (EP) Additionality Guide[2], as well as taking into account the Department for Business Innovation and Skills (BIS) research on additionality[3].

21.7 In addition, the draft report on the preparation of a generic socio-economic methodology[4] for the assessment of marine projects in the Pentland Firth and Orkney Waters (PFOW) strategic area recently produced for The Crown Estate (TCE) outlines an approach, which is broadly reflected in this assessment, although the draft approach has not been refined to a sufficient level as to be fully reflected in this assessment. In addition, a number of the data-sets referred to in the draft report are currently not available for use in such assessments at a sufficiently fine-grained level. However, the generic list of potential impacts and effects derived from marine projects are a useful benchmark in that they have been used as a check-list against which this assessment has been undertaken.

21.8 In terms of establishing the potential impact on tourism and recreation within an area, there are no specific requirements or statutory guidelines for the assessment of tourism and recreation impacts and effects, neither set out by relevant EIA Regulations, nor in any other statutory guidance on the preparation of an ES.

21.9 However, in terms of the sub-elements of tourism and recreation, 'industry standards' for the production of such assessments are based around the following practice:

21.10 In terms of defining and assessing 'tourism impacts or effects' the 2008 Scottish Wind Farm Research study,[5] recommended the preparation of a Tourism Impact Assessment, which comprises an assessment of the:

- Number of tourists travelling past on routes to elsewhere;
- Impacts on views from tourist accommodation in the area;
- Relative scale of tourism impact – local to national;
- Potential positive impacts; and
- Impacts on outdoor activities in the area.

[1] http://www.hm-treasury.gov.uk/d/green_book_complete.pdf
[2] Additionality Guide – A Standard Approach to Assessing the Additional Impacts of Projects: English Partnerships (2008)
[3] http://www.bis.gov.uk/assets/biscore/economics-and-statistics/docs/09-1302-bis-occasional-paper-01
[4] A Socio-Economic Methodology and Baseline for Pentland Firth and Orkney Waters Round 1 Wave and Tidal Developments: ABPMer for the Crown Estate (in draft) (July 2011)
[5] The Economic Impacts of Wind Farms on Scottish Tourism: Scottish Government (2008) – section 13.4 http://www.scotland.gov.uk/Resource/Doc/214910/0057316.pdf

21.11 While it is accepted that this methodology is designed to answer the requirements of applications for onshore wind farms, the preparation of such an impact assessment incorporating these elements has become the industry standard of good practice. Hence, we have ensured that our approach reflects these requirements / recommendations.

21.12 In terms of assessing 'recreation impacts and effects' guidance on 'Outdoor Access Impact Assessment' is provided by Scottish Natural Heritage[6] (SNH). This guidance provides the approach to the assessment of recreation impacts and effects broadly adopted here, examples of which include:

- Loss / closure / extinguishment / diversion of links, routes, or walks etc;
- Reduction in amenity;
- Enhancement in amenity;
- Intrusion;
- Obstructing access routes;
- Enhancing access; and
- Changing to setting and context.

21.13 The guidance with reference to 'windfarms', which can be considered to be relevant to some elements of the Project in terms of energy generation and transmission infrastructure, highlights that these: "can change perception and amenity of both area and linear facilities through visual and noise impacts, access tracks can interfere with / or facilitate public access, general deterrent / attractor effects." This impact assessment highlights such effects and impacts.

21.3.2 Development plan policies

21.14 The Highland Council's Caithness Local Plan (2002)[7] and the Caithness and North Sutherland Regeneration Partnership: Vision for Caithness and North Sutherland, which will be replaced and/or supplement by the Highland-wide Local Development Plan (HwLDP)[8] (expected to be adopted in 2012) provide details of the economic aspirations for Caithness. Caithness is facing many challenges and opportunities and it is important these opportunities help to meet the challenges of regeneration in the area, providing local employment and sustainable economic growth. Specific aspirations are:

- be a regenerating place with a network of strong communities;
- be a competitive place connected to the global economy;
- be a connected and accessible place;
- be a place of outstanding heritage: safe in the custody of local people;
- be a centre of excellence for energy and engineering;
- have become an international centre of excellence for marine renewables;
- have a high quality tourist industry; and
- have a more diverse economy.

[6] SNH's publication 'A Handbook on Environmental Impact Assessment' (February 2006) Appendix 5.
[7] Still in force at time of EIA and ES compilation.
[8] Not adopted at time of EIA and ES compilation.

21.4 Assessment Methodology

21.4.1 EIA Scoping and Consultation

21.15 Since the commencement of the Project, consultation on socio-economic, tourism and recreational issues has been ongoing. Table 21.2 summarises all consultation relevant to socio-economic, tourism and recreation. In addition, relevant comments from the EIA Scoping Opinion are summarised in Table 21.3, together with responses to the comments and reference to the ES sections relevant to the specific comment.

Date	Stakeholder / stakeholder group	Consultation	Topic/specific issue
7th April 2011	Marine Scotland and SNH	Pre-Scoping meeting	EIA surveys and studies required and the data needs for each EIA study.
27th May 2011	Marine Scotland, statutory consultees and non-statutory consultees	Submission of EIA Scoping Report	Request for EIA Scoping Opinion from Marine Scotland and statutory consultees and request for comment from non-statutory consultees.
30th June – 2nd July 2011	Local stakeholders	Public Event - EIA Scoping	Public event to collate information/opinions on proposed EIA scope.
July 2011	Wide range of economic, tourism and recreation stakeholders	Submission of document for comment	Distribution of proposed scope of work for the socio economic, tourism and recreation impact assessment for comment and invitation for input from specific stakeholders. Specific issues raised during this consultation are summarised in the Table below. 45 consultees were contacted directly to obtain their comments on the method statement for the socio economic, tourism and recreation impact assessment. 12 responses were received, and the majority of responses had no issue with the methodology proposed for the Project.
August 2011	Local tourism businesses	Tourism business questionnaire survey	Questionnaire survey to inform baseline description and impact assessment.
September 2011	Potential supply chain	Supply chain questionnaire survey	Questionnaire survey to inform baseline description and impact assessment.
14th September 2011	The Highland Council (THC)	Meeting	Planning pre application meeting. Presentation on overall Project and results of EIA studies to date.
31st September 2011	Marine Scotland, THC, statutory consultees and non-statutory consultees	Receipt of EIA Scoping Opinion	Receipt of response to EIA Scoping Report and other comments from non-statutory consultees.
10th October 2011	THC	Receipt of pre application advice	Receipt of pre application advice from THC.
3rd October 2011	Marine Scotland	Project update meeting	Report on EIA progress and presentation of key findings of the impact assessment.
6th – 7th December 2011	Local stakeholders	Public Event – pre application consultation	Public event to communicate the findings of the EIA to local stakeholders.

Table 21.2: Consultation undertaken in relation to socio-economics, tourism and recreation

Name of organisation	Key Concerns	Response	ES section within which specific issue addressed
Marine Scotland	Economic Benefit – should include relevant economic information connected with the project, including the potential number of jobs, and economic activity associated with the procurement, construction, operation and decommissioning of the Project.	All such information is included.	Sections 21.6, 21.7 and 21.8 Impact Assessment
Marine Coastguard Agency (MCA)	The assessment should include details of possible effects on recreational craft. It should also assess recreational and other sport activities in the offshore environment.	The potential impacts referred to assessed in the recreational impact assessment.	Section 15 Shipping and Navigation and Sections 21.6, 21.7 and 21.8 Impact Assessment
Royal Yachting Association (RYA)	Should include loss of cruising routes, effects on sailing and racing areas.	The potential impacts referred to assessed in the recreational impact assessment and Navigational Risk Assessment (NRA).	Section 15 Shipping and navigation and Sections 21.6, 21.7 and 21.8 Impact Assessment
British Divers Marine Life Rescue	Agreed with the method statement but had concerns over the proximity of the Project to Scotland's Haven. This area has an important pupping colony for grey seals. They were concerned about any disturbances during the construction phase, particularly around the months of November and December, when the pups are born. Any type of disturbance could lead to pups being abandoned in that area. They would be satisfied if some sort of consideration could be taken around the pupping season. Also had concerns over whether seals could be injured or killed by vessels or dredgers. They presumed that every precaution will be taken to prevent injury to marine mammals including cetaceans during the construction phase of the Project.	Addressed in the Marine Mammal impact assessment.	Section 11 Marine Mammals
Sportscotland	Considered it important that governing bodies related to sailing, sea kayaking, surf sports, diving, recreational sea fishing, walking, mountaineering, horse riding and cycling be contacted. Examples of such bodies include RYA (Scotland), Scottish Canoe Association, Scottish Cycling and Horse Scotland. Also considered it important to consult with local sport and recreation clubs and organisations. The views of Local Authority access staff and sport and recreation staff should also be taken into account. Potential impacts on sport and recreation may include: Impede navigation Present a safety hazard Landscape/seascape impacts Impede terrestrial access rights Impact on marine processes which could impact on sport and recreation interests	All bodies referred to have been consulted in the process of the assessment, with the exception of the Scottish Sub Aqua Club, instead of which contact made the Caithness Diving Club. The potential impacts referred to assessed in the recreational impact assessment and navigation assessment.	Section 15 Shipping and Navigation and Section 21.4 Consultation
The Highland	Full range of economic and social benefits	All such issues are included in	Sections 21.6, 21.7

Name of organisation	Key Concerns	Response	ES section within which specific issue addressed
Council Access Team	should be addressed. Considered that the impacts are all likely to be short term with respect to recreational access rights. Any impacts likely will be associated with the construction phase. Public access should be managed during the construction phase for the cable route where it crosses public roads and other tracks. National Cycle Route 1, general recreational access rights, and the John o' Groats – Thurso route corridor are recognized as important issues for assessment..	the assessment.	and 21.8 Impact Assessment
Caithness Access Forum	The Caithness Access Forum consulted the local community as part of the Core Paths process. All paths put forward as candidates were adopted. The Forum is not currently aware of any other paths used by the public in the vicinity of the proposed development area.	Potential impacts on local paths and routes addressed in the recreational impact assessment.	Sections 21.6, 21.7 and 21.8 Impact Assessment
SNH	Considered that it may be more applicable for Local Authorities and Marine Scotland to comment on the methodology of the study, and that it may be worthwhile contacting Sportscotland. Advised they are interested in impacts (positive or negative) on people's ability to enjoy the natural heritage and that they would be able to comment further on this during the EIA process.	Sportscotland consulted with (see above). Impacts associated with people's ability to enjoy the natural heritage, considered as part of the tourism and recreation impact assessments.	Section 21.4 Consultation
Mountaineering Council of Scotland	Advised that their main concerns were about impacts on landscape/seascape rather than economics. Also advised that the Project would pose no physical barrier to mountaineering.	Potential impacts on landscape and seascape addressed in LSVIA.	Section 19 LSVIA
Scottish Mountaineering Club	Advised they had no issue with this type of energy scheme as it was visually more preferable than wind farms. Also felt that the Project would not interfere with any climbing party requiring access to sea cliffs in the area. However, they advised that views of coastal fishermen and yachtsmen should be considered as they might consider the scheme to be of extreme interference.	Addressed in the navigation assessment and recreational impact assessment. Fisherman and yachtsmen have been included in the consultations. The developer has organised a series on face-to-face meetings and / or workshop involving relevant organisations.	Section 15 Shipping and Navigation and Sections 21.6, 21.7 and 21.8 Impact Assessment
Dounreay Stakeholder Group	Advised that they held a substantial contact lists and would be happy to provide information on key consultees and local stakeholders if required. They advised that the Caithness Chamber of Commerce may hold contacts for the business supply chain. For socio-economic impacts they advised looking at baseline study carried out in 2006 by the Caithness & North Sutherland. Regeneration Partnership. In terms of transport capacity they advised speaking to the Caithness Transport Forum.	Suggested consultees contacted. 2006 study reviewed as part of the assessment to test the comprehensive detail of our own baseline assessment. Transport capacity issues addressed in the onshore transport and access impact assessment.	Section 21.4 Consultation and Section 22 Onshore Transport and Access
The British Horse Society (BHS)	Agreed with the assessment approach and wish to engage in the consultation process at a later stage. Provided standard BHS guidance for energy related development.	Guidance followed by assessment.	Section 21
Historic Scotland	Advised they had no comments to make on the proposed methodology. Provided a copy of correspondence they sent to Marine Scotland with their initial views of the Project. Advised consideration of the on-shore impacts on cultural heritage features such as scheduled monuments, category A listed buildings and Inventory designed landscapes. Off-shore effects on historic marine features must also be taken into account.	Addressed in the onshore and offshore cultural heritage impact assessments.	Section 20 Onshore Cultural Heritage and Section 16 Marine Cultural Heritage
Royal Yachting Association (RYA) Scotland	Agreed with the scope of works and method of the assessment as proposed.	N/A	N/A
Pentland Canoe Club	Advised that the business supply chain survey of businesses be carried out in conjunction with the Caithness Chamber of Commerce; and that the assessment of likely impact should include users of all relevant recreational facilities within the area.	Caithness Chamber of Commerce consulted (see below). Recreation impact assessment covers all of these impacts and issues raised.	Section 21.5 Baseline Description
Scottish Surfing Federation	Advised that a number of surfing locations are present in the Gill's Bay area and that the presence and alignment of any cable route might affect the wave and surfing environment.	Assessment covers all of these impacts and issues raised.	Sections 21.6, 21.7 and 21.8 Impact Assessment
Caithness Chamber of Commerce	Considered that the overall scope of work was comprehensive. Interested to see how training needs can be identified for the supply chain, including those of the younger people in the area.	Assessment covers all of these impacts and issues raised. The issue of skills and labour and whether or not this is a constraint is recognised in the assessment. MeyGen has been actively consulting with the Caithness Chamber of Commerce since initial; interest in the area and are in close dialogue with inward investment groups such as Highlands and Islands Enterprise and Scottish Enterprise on this topic. Moreover links have been forged with both Dounreay regeneration partnership and The Highland College in Thurso in trying to identify how their state of the art training facility can be used in order to assist with vocational youth and apprentice training.	Sections 21.6, 21.7 and 21.8 Impact Assessment
Natural Retreats	Considered that the Project would be immensely helpful to the attraction of the area particularly as a feature of renewable energy investment, which Natural Retreats	Assessment covers all of these impacts and issues raised. MeyGen propose to have a	Sections 21.6, 21.7 and 21.8 Impact Assessment

Name of organisation	Key Concerns	Response	ES section within which specific issue addressed
	intends to interpret and promote around the area. Satisfied with the approach to the assessment.	visitor attraction/interpretation boards as part of Natural Retreats program for regeneration of John o 'Groats whereby the wider marine energy industry in the region is intended to be represented.	
Public Event – EIA Scoping	Public events held in Mey and Thurso 30th June – 2nd July 2011. An estimated 192 people attended the event in total. Of this, 48 people returned questionnaires. 33% of respondents to questionnaires identified renewable energy as positive with 31% opportunities for local businesses and 29% local job opportunities. Least positive aspects identified – 29% on construction phase disruption, and 19% disruption to fishing and shipping.	All issues identified addressed in the assessment.	Sections 21.6, 21.7 and 21.8 Impact Assessment
Public event – pre application consultation	Public events held 6th and 7th December 2011 to inform the public of the content of the ES prior to submission of the application.	All issues identified addressed in the assessment.	Sections 21.6, 21.7 and 21.8 Impact Assessment

Table 21.3: Scoping comments relevant to socio economic, tourism and recreational impact assessment

21.4.2 Overview methodology

21.16 The overall assessment is based upon a robust and well tested methodology employing a combination of web-based/desk-based information assessment and site visits. The assessment also makes use of the Physical Environment and Sediment Dynamics (Section 9), Commercial Fisheries (Section 14), Shipping and Navigation (Section 15) and LSVIA (Section 19) as inputs to determine the impact of the Project both on and offshore within the study area. This approach has been previously robustly tested and accepted as valid through various stages of the project development process and at public inquiry, and has also been the subject of testing with consultees as part of this process. The method of approach adopted in this appraisal is as follows.

Sources of information

21.17 The assessment includes an extensive review of information sources to establish existing conditions and to identify current tourism and recreation businesses and resources as well as tourism and recreational activities within the study area. The datasets used in this document are those sources of socio-economic and demographic data from standard available datasets, including the Census, NOMIS, along with sources of tourist and visitor data found on VisitScotland's website on www.scotexchange.net**,** and other individual research, reports, and studies referenced throughout the chapter. A list of references and sources of information is provided at the end of the section.

Socio-Economic

21.18 A socio-economic baseline of the study area is provided covering key issues, trends and the performance of the Highlands and Orkney economies, relative to Scotland and the UK. The assessment focuses upon the Caithness area onshore, and the PFOW offshore, with the Orkney Islands included within the socio-economic baseline as the area has the business infrastructure, and necessary labour market skills to provide goods and services for the Project. In addition, the datasets used in the baseline cover all or part of Caithness and all or part of Orkney, as a definable socio-economic study area, and as such are included within the analysis.

21.19 In addition, the supply chain assessment was undertaken at a local, wider Highlands and Islands Enterprise (HIE), and wider Scotland level.

21.20 The datasets used in the socio-economic assessment relate to different spatial and geographic areas, with these covering as appropriate all of the local authority's administrative area, or are provided on a census ward basis. The study area therefore is incorporated within these, but does not necessarily make a precise spatial fit.

21.21 To undertake the baseline socio-economic assessment a review of socio-economic and demographic data was carried out, on the profile, trends, infrastructure, and labour market in the study area, set in context at a wider Highlands and all of Scotland

21.22 An estimation of the likely potential economic benefits from the Project to the local and regional economy in terms of construction, operation & maintenance, and decommissioning employment has been undertaken. This is based upon data on the employment and economic output likely to be generated by the Project from both MeyGen and also from industry benchmark research. Further, an economic model was established to assess the scale and nature of the resulting economic impacts.

21.23 In addition, the results of the supply chain survey of local businesses and also those within the wider HIE area undertaken as part of the assessment provided a profile of the industry indicating its capacity and capability to support the Project, and other marine based renewable energy projects. The basic survey population list was provided by HIE, and enhanced by further desk based research into the presence of such businesses. This was further supported by a summarised supply chain analysis of the industry in wider Scotland provided by Scottish Enterprise (SE).

Tourism

21.24 The study area for the assessment has been taken as a 30km radius from the likely location of the proposed PCC. This includes the principal towns and settlements within the surrounding area, including Thurso, Wick, John o' Groats and the intermediate areas, and settlements. While the 30km study radius would also include the southernmost part of the Orkney Islands, the Islands have been excluded as none of the Project related facilities would be visible from any point on Orkney, and hence no tourism or recreation effects would be experienced in this area (see Figure 19.2 and 19.3). However, the study area assessment is set in a strategic context at both a wider tourism market and Highlands tourism region level.

21.25 The datasets used in the tourism assessment relate to different spatial and geographic areas, with these covering as appropriate all of the local authority's administrative area, the wider tourism region, or are provided on a census ward basis. The study area therefore is incorporated within these but does not necessarily make a precise spatial fit.

21.26 The baseline assessment of tourism comprises an assessment of tourism volume and value, tourism employment and, the drivers currently impacting upon the industry. The profile of tourism activities, patterns, trends, and facilities at a Highlands level have been reviewed. This sets a context for the remainder of the assessment, and against which any impact can be set. The baseline review draws upon standard available VisitScotland and other tourism related and economic statistic datasets supplemented by a website and database search for additional supporting information on tourism in the local area. A summary of the key factors which impact upon tourism trends and the key drivers influencing the market has been provided.

21.27 The appraisal covers the aspects which make up the tourism product in the area, act as a focus or attraction for visitors, and lead to expenditure by tourists and visitors. It is this expenditure, which acts as the measurement in terms of economic impact upon the tourist sector in the area. The level of impact is derived from the tourism business survey undertaken providing an understanding of tourism impacts as a result of the Project (both positive and negative) on tourism providers across the study area.

21.28 In addition, regarding tourism and visitor facilities and locations, an assessment has been provided on how likely the Project is to influence visitor and tourist attitudes, based upon the visibility of the proposed onshore and offshore development, and any impacts resulting from temporary construction activities.

Recreation

21.29 The study area for the recreation assessment is similar to that for tourism, in covering a local area extending to a 30km radius from the PCC location, but excluding the Orkney Islands (as described above). An assessment of recreation facilities and resources has been undertaken. This includes all those both onshore including walking, cycling and riding routes and paths, rock-climbing, golf, fishing, outdoor sports and leisure activities, and offshore including sailing, sea-fishing, surfing, and kayaking/canoeing, among others. These resources act as attractors to leisure and recreation visitors alike and lead to expenditure in the local economy.

21.30 In terms of the definition and estimation of recreational impact, a potential negative recreational effect is judged to arise, in the absence of mitigation, where there is either a substantial visual effect experienced by the visitor to or user of the resource, or where there is physical interruption of the recreational resource, which in turn would affect the visitor or user receptor. This might represent the recreational user / receptor visiting a specific attraction or location, or indeed those visitors travelling to, through or out of the local area, and which are exposed to views of the Project and related infrastructure, or their visit is in some way physically affected or disturbed, and which might result in a negative effect upon their enjoyment of their visit or trip. Alternatively the negative effect might result in the visitors / receptors not returning to the area in the future.

21.31 The recreational impact is assessed through a combination of the use of the LSVIA to establish potential visual impacts, and by means of assessment of whether or not physical change or disturbance of recreational resources would occur temporarily or permanently as a result of the Project.

21.4.3 Questionnaire survey methodology

21.32 The following section sets out the work undertaken to establish the potential impacts of the Project through the use of questionnaire surveys including socio-economic impacts (through means of the Supply Chain Business Survey) and tourism impacts (through the Tourism Business Survey). The detailed results of the survey questionnaires are provided on the accompanying CD (RTP, 2011).

Supply chain business survey

21.33 A supply chain survey was undertaken in order to inform the assessment of impact upon the local and wider HIE area business infrastructure and economy. The results of the survey indicate the level of support for and available absorption capacity of local businesses. This provides the potential to benefit from the Project that exists within the local business community. In total 106 businesses were surveyed via 'Surveymonkey' and also with the assistance of Energy North, which contacted their business membership, with 36 responses (34% response rate). The businesses provided profile information on their size, business sector, service category, skill profile, current and past business performance, future prospects, turnover, and likely impact derived from the Project for both construction and post-construction phases. However, no distinction was made in the survey between O&M and decommissioning phases of the Project, as this is regarded as being too far into the future to be able to obtain an accurate response from the businesses.

21.34 Further, a qualitative view as to the degree of potential impact and the potential wider benefits to the local economy was also provided by respondents to the survey.

Tourism business survey

21.35 Tourist behaviour will only be affected where the impact of the Project either changes the visitor / user pattern in terms of numbers, and/or where patterns of expenditure may change either positively or negatively. Opportunities for tourist/visitor expenditure, any potential variation in expenditure/visitor numbers, and consequent effect upon turnover or employment, are of key importance. The tourism assessment highlights such impacts and effects, and indeed their likelihood or otherwise through the Tourism Business Survey.

21.36 The overall Tourism Business Survey study area was similar to that as defined above and included those facilities or notable points of focus of visitor attraction and recreational activities, which might be considered to have linked visitor patterns, and indeed to determine the local tourism 'catchment' of the area.

21.37 Tourism businesses across the study area were identified by means of a website search, providing coverage of accommodation providers, visitor attractions, indoor and outdoor facilities, restaurants and other food and drink providers, public houses, and specialist tourist shops / outlets. The survey was undertaken on a telephone basis and a total of 251 tourism businesses were consulted, overall 96 responses (38.2% of total consulted) were received. All the issues raised by the businesses are addressed in the assessment.

21.4.4 Significance criteria

21.38 ***Where appropriate the methodology used follows that outlined in Section 8. Variations from this are explained below.***

21.39 The definition of the sensitivity of receptor and magnitude of impact in terms of economic, tourism and recreation factors are set out in Table 21.4 and Table 21.5.

Sensitivity of receptor	Economic	Tourism	Recreation
Very High	N/A.	International status or high visitor nos.	International status or high visitor nos.
High	N/A.	National status or high visitor nos.	National status or high visitor nos.
Medium	N/A.	Regional status or medium visitor nos.	Regional status or medium visitor nos.
Low	N/A.	Local status or few visitor nos.	Local status or few visitor nos.
Negligible	N/A.	Local status or few visitor nos.	Local status or few visitor nos.

Table 21.4: Definitions for sensitivity of receptor

Magnitude of Impact	Definition			
	Economic - employment	Economic – supply chain	Tourism	Recreation
Severe[9]	N/A	N/A.	N/A.	N/A.
Major	Greater than local scale or which exceed recognised standards. Impact likely to occur.	>15% turnover change or substantial new job nos. Impact likely to occur.	>15% turnover change. Impact likely to occur.	Major visual impact or physical interruption / severance. Impact likely to occur.
Moderate	Noticeable and judged to be important at a local scale. Impact will possibly occur.	10-15% turnover change or numerous new job nos. Impact will possibly occur.	10-15% turnover change. Impact will possibly occur.	Moderate visual impact or physical interruption / severance. Impact will possibly occur.
Minor	Limited or very localised raised as local issues. Impact unlikely to occur.	5-10% turnover change or some new job nos. Impact unlikely to occur.	5-10% turnover change. Impact unlikely to occur.	Minor visual impact or physical interruption / severance. Impact unlikely to occur.
Negligible	Virtually no local scale or wider impact or effect. Impact highly unlikely to occur.	<5% turnover change or very few new job nos. Impact highly unlikely to occur.	<5% turnover change. Impact highly unlikely to occur.	Negligible visual impact or physical interruption / severance. Impact highly unlikely to occur.
Positive	An enhancement in the availability or quality of a resources to the extent of potentially benefiting the wellbeing of the persons utilising that resource benefiting from it in some way.			

Table 21.5: Definitions for magnitude of impact

21.40 While there are no standard significance criteria defined in guidance for socio-economic impacts and effects, Table 21.4 and Table 21.5 above set out those derived from extensive experience of undertaking

[9] Severe category impacts are not relevant to define from a socio economic, tourism and recreational perspective

energy based infrastructure assessments. These levels of significance apply to both adverse and beneficial effects. In addition, qualitative judgement has been made in relation to overall impacts assessed as occurring as a result of the Project.

21.41 Sensitivity has not been assigned to the economy as a single receptor as it is made of many component parts which make it difficult to qualify accurately. The broad economic impact is focussed on the outcomes or results from sensitivity of and magnitude of impact on the various component parts. The definition of tourism sensitivity is based on the qualitative assessment of attractions/resources visitor levels compared to that of other sites in the same study area.

21.42 As described in Section 8, magnitude is a function of the duration, timing, scale and size of the impact as well as the frequency/probability of the impact occurring (likelihood). It is therefore necessary to include likelihood within the magnitude based on applying professional judgement/past experience.

21.43 However, where the magnitude of the impact has been derived from the survey results the likelihood of the impact taking place has not been accounted for. In these instances, impact magnitude determined by the survey results is combined with the likelihood of that impact occurring to provide the overall magnitude (Table 21.6). The assessment continues based on consequence of the impact considered from Table 8.1 and the significance of that impact defined in Table 8.2.

Impact magnitude from survey	Likelihood			
	Likely	Possibly	Unlikely	Highly unlikely
Major	Major	Major	Moderate	Minor
Moderate	Major	Moderate	Minor	Negligible
Minor	Moderate	Minor	Minor	Negligible
Negligible	Minor	Negligible	Negligible	Negligible
Positive	Positive	Positive	Positive	Positive

Table 21.6 Overall magnitude

21.5 Baseline Description

21.5.1 Socio-economic baseline

21.44 This section profiles the socio-economic structure of Caithness and Orkney, compares this profile with Scotland overall. In the context of this assessment the Caithness and Orkney areas are defined as the local economy, as recent data at a disaggregated sub-regional level are not available. The most recent information available has been used where possible. Full details of the socio-economic baseline are set out in the MeyGen Socio Economic Impact Assessment - Technical Appendix, provided on the supporting studies CD (RTP, 2011).

Socio-economic key features

21.45 The study area surrounding the Project contains a growing population. The greatest increase in population will be seen in those over 65 years. Whilst the Highlands are also likely see an increase in the number of children (+8%) and those of working age (+9%), it is projected that Orkney will see a decline in numbers of children (-1%) and a modest increase in working age population (+2%) over the period to 2033.

21.46 Generally the area is economically strong when compared to the Scottish average. However some areas do have significantly lower levels of economic activity. Despite this all wards within the study area have lower levels of benefit claimants than the national average which also indicates the strength of the economy in the area.

21.47 The greatest proportion of jobs within the Highlands and Orkney Islands are in distribution, hotels and restaurants. In particular, those employed in tourism in the Highlands over the past 15 years has been significantly higher than the Scottish average. This is substantiated by both areas having high levels of self-employed people in relation to the national average. This suggests that there are a greater number of independently run businesses which could be perceivably correlated to tourism. This emphasises the particular importance of tourism to the local economy of the Project's surrounding area.

21.48 As a whole both Orkney and The Highlands have lower levels of average earnings than those of Scotland however the male population in Orkney are likely to have considerably higher earnings than the rest of the country. This could possibly be linked to the oil and gas industry and Orkney's involvement in the development of marine renewable energy industry.

The socio-economic context of Dounreay

21.49 Within the socio-economic context of the study area and wider hinterland, of key significance is the presence of the Dounreay fast-breeder nuclear reactor originally commissioned in the mid-1950s, and which ceased operation by being taken off-line in the mid-1990s, and is now passing through the process of de-commissioning, which is likely to extend for another 20 years. The existence of the reactor has led to the area developing a highly skilled labour force, particularly in engineering skills. While at peak operation the reactor employed between 2,000 and 3,000, it currently still employs around 1,900 people, however this number is expected decline over the coming years as decommissioning work reduces.

21.50 In addition to the direct employment at the facility, the presence of the reactor in the area has resulted in and supported a number of specialist supply chain businesses, which are also appropriate for providing the necessary precision engineering, construction, contracting and related skills required by the marine renewable industry.

21.51 Further support infrastructure exists in the form of the presence of a number of facilities and resources in both the local and wider Caithness and Sutherland area including the post-decommissioning activities of the Dounreay Site Restoration Ltd. (DSRL) and the Caithness & North Sutherland Regeneration Partnership, the skills development and diversification programme 'Make the Right Connections', the momentum to develop the local business capacity and capability through the recent series of supply chain and other events, the Highlands and Islands Environmental Research Institute (ERI) in Thurso, Thurso College, and UHI's focus upon renewable energy and low carbon technologies, among others.

Harbour and port facilities

21.52 Further, investment in upgraded harbour and port facilities are also planned to service the needs of the marine and offshore industry, MeyGen has been fully involved in consultation with and participation in such local business and community stakeholder events in the process of developing the Project.

21.53 Scrabster Harbour Trust (Scrabster) and Orkney Marine Services (Lyness) are currently upgrading their facilities including deep water access and heavy lift quay services. Both Wick Harbour Authority and Gill's Bay Harbour Trust has development plans that include expansion for the renewable energy industry.

Scottish Enterprise area excluding HIE area

21.54 Data on the Scottish wide supply chain has drawn on data available from SE, but excluded consideration of the HIE area (to avoid double accounting/consideration of the supply chain in this area). The data provided by SE were drawn from their 'self-registered' database and hence are not necessarily comprehensive. However, the SE analysis does provide a contextual understanding of the make-up and distribution geographically of supply chain businesses elsewhere in Scotland. The businesses which have expressed interest in providing goods and services for marine based projects extend to 144, and these businesses provide expertise and services to the industry across the following broad category headings:

- Construction & Installation;
- Devices and Components;
- Balance of plant manufacture;
- Deployment;

- Grid installation;
- Operation & Maintenance; and
- Decommissioning.

21.55 The detailed activities and services provided within these categories are set out in the MeyGen Socio Economic Impact Assessment (RTP, 2011).

21.56 Table 21.7 sets out the distribution of businesses within the SE area outside the Highlands across the supply chain categories, with the majority operating in the engineering services (19%), component manufacturing (15%), and other services (13%) categories.

21.57 Figure 21.1 sets out the geographic distribution of these supply chain businesses across Scotland, with most located in either Aberdeen / Aberdeenshire (31.4%) or Greater Glasgow (26.5%) as a result of the former location's existing markets in offshore oil and gas, and the latter location's current focus on renewable, aerospace, defence and marine markets.

Business category	Number of businesses	% of all businesses
Engineering Services	27	19%
Component Manufacturers	21	15%
Marine Services	14	10%
Fabrication	11	8%
Environmental Services	10	7%
Cabling Services & Installation	10	7%
Onshore infrastructure	9	6%
Control Systems	7	5%
O&M Services	4	3%
Monitoring Services	4	3%
Civil Engineering	3	2%
Electrical Services	3	2%
Freight Transport	2	1%
Other Services	19	13%
Total	**144**	**100%**

Table 21.7: Supply chain businesses by category (SE area outside the Highlands)

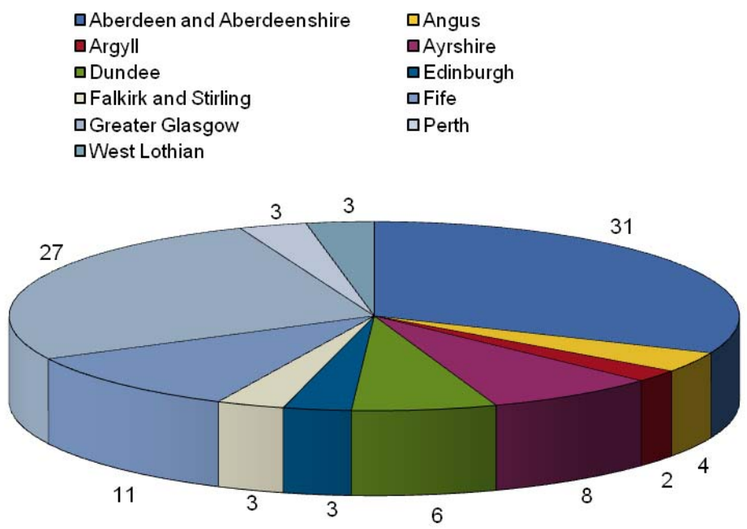


Figure 21.1: Marine supply chain company location

Highlands and Islands Enterprise area

21.58 Supply chain business data from HIE show businesses to be largely distributed across the Highlands area, with some businesses located further afield. Hence there might be some duplication between the two datasets. However, these data show that the business population used for the supply chain survey extended to 106 businesses interested in providing services and expertise in the marine sector.

21.59 The distribution of these businesses is shown in Figure 21.2 below, with the key concentrations of all relevant business located in Inverness (10%), Invergordon, Ross-Shire (9%), Thurso, Caithness (9%), Stornoway, Isle of Lewis (8%) and Wick, Caithness (7%).

21.60 In terms of responses to the supply chain survey, 36 businesses provided detailed information on their profile, activities, services and expertise offered to the industry, and views on business prospects (34% response rate). The distribution of activities and services across the industry categories is set out in Table 21.8 below, with the greatest concentration being in the construction (14%) and marine (14%) categories.

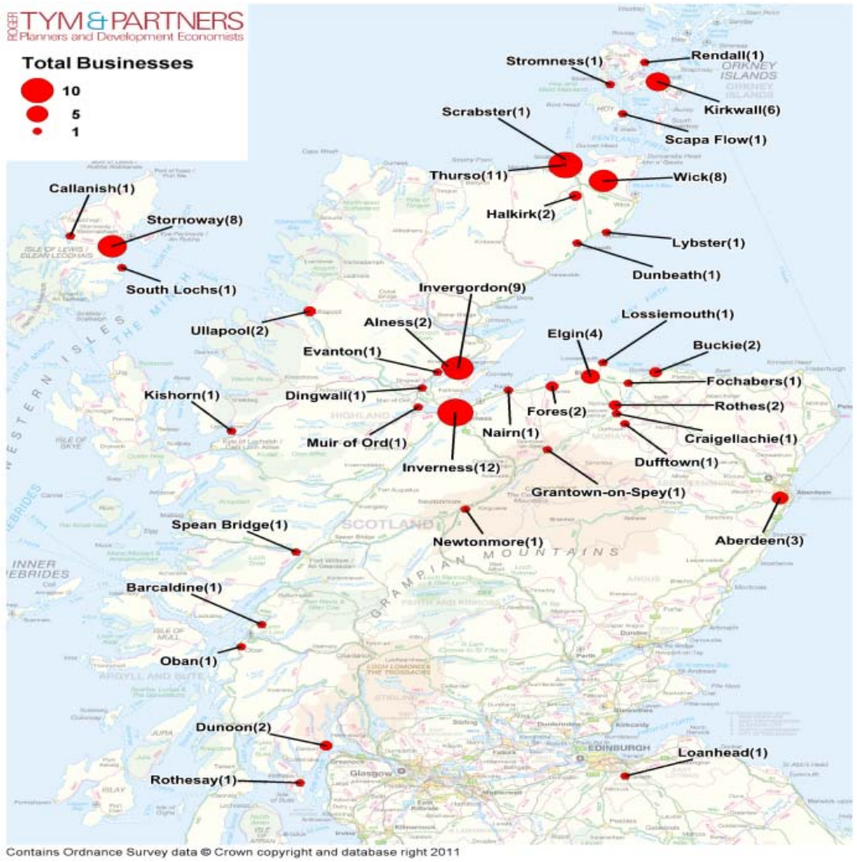


Figure 21.2: Geographic distribution of potential supply chain businesses (HIE based business list)

Sector	Respondent no.	%
Construction	5	14%
Marine	5	14%
All sectors	3	8%
Engineering	3	8%
Oil and gas (various incl. instillation services and maintenance)	3	8%
Ports and harbours	3	8%
Renewable energy, offshore oil & gas, nuclear and power generation	3	8%
Manufacturing	2	6%
Commercial diving	1	3%
Electrical wholesaler supplier	1	3%
Insurance broking	1	3%
Marine renewable	1	3%
Marine, oil and gas	1	3%
Oil and gas and renewable	1	3%
Renewable energy, power distribution	1	3%
Renewables	1	3%
Renewables, construction	1	3%
Total	**36**	**100%**

Source: RTP MeyGen Supply Chain Survey (2011)

Table 21.8: Respondent business sector

Employees and skills

21.61 Respondent businesses typically have a workforce with full-time (91%) skilled (85%) employees (Table 21.9). Over half (53%) of the businesses were small enterprises (i.e. less than 50 employees) while over a third (38%) were medium sized enterprises with between 50-249 employees. The remaining 9% of respondent businesses were large enterprises with 250 employees or more.

Employees	Employee no.	%
Full-time	3,452	91%
Part-time	359	9%
Total	3,811	100%
Skills		
Skilled	3,245	85%
Unskilled	551	15%
Total	3,796[1]	100%
Organisation size	**Business No.**	
Small (1-49 employees)	18	53%
Medium (50-249 employees)	13	38%
Large (250 + employees)	3	9%
Total	**34**	**100%**

Source: RTP MeyGen Supply Chain Survey (2011)
[1]A company with 15 employees did not complete this section

Table 21.9: Employees and skills

Business performance

21.62 Respondent businesses reported relatively strong business performance both recently and over the past three years. The majority (83%) of businesses stated their current business performance was 'good' while almost half (47%) indicated their business performance had been increasing over the last three years. Only 8% stated their business had been declining (Table 21.10 and Table 21.11).

Performance	Respondent no.	%
Good	30	83%
Fair	2	6%
Poor	1	3%
Did not answer	3	8%
Total	**36**	**100%**

Source: RTP MeyGen Supply Chain Survey (2011)

Table 21.10: Current business performance

Performance	Respondent no.	%
Increasing	17	47%
Stable	13	36%
Declining	3	8%
Did not answer	3	8%
Total	**36**	**100%**
Source: RTP MeyGen Supply Chain Survey (2011)		

Table 21.11: Recent business performance (last 3 years)

21.63 A number of factors were identified as influencing business performance. Growing corporate reputation (69%) and improving market opportunities (58%) were identified as the two most significant factors, followed by price and value for money (56%) and improving business and economic conditions within their business sector (53%) (Table 21.12).

21.64 A growing number of renewable developments coming on-stream were identified by exactly half of business respondents while around a third identified their product (39%) and promotion and marketing (31%) as key influencing factors (Table 21.12).

Factor	Respondent no.	%
Reputation	25	69%
Market opportunities	21	58%
Price & value for money	20	56%
Business and economic conditions	19	53%
Renewable energy developments	18	50%
Product	14	39%
Promotion & marketing	11	31%
Source: RTP MeyGen Supply Chain Survey (2011)		

Table 21.12: Factors influencing business performance

21.65 Two-thirds (67%) of respondents predicted increasing future business performance while a fifth (19%) considered their future business prospects to be stable. Only one business (a construction firm) predicted declining future performance (Table 21.13).

Performance	Respondent no.	%
Increasing	24	67%
Stable	7	19%
Declining	1	3%
Did not answer	4	11%
Total	**36**	**100%**
Source: RTP MeyGen Supply Chain Survey (2011)		

Table 21.13: Future business prospects

21.66 Businesses were asked to provide an indication of their annual turnover. Slightly less than half (44%) of respondent businesses have a turnover in excess of £5 million while a further third (31%) have a turnover of £1 - £5 million (Table 21.14). An extrapolation of these turnover figures provides a broad estimate of the value of respondent businesses at approximately £92.6 - £139.3 million, the median of which is £115.9 million. Assuming the respondents are representative of the industry overall, the total turnover of the supply chain population from the survey would be approximately £341 million.

Turnover (£)	Respondent no.	%	Min (£m)	Max (£m)
Less than £50,000	0	0%	£0.0	£0.0
£50,000 - £100,000	3	8%	£0.2	£0.3
£100,000 - £500,000	4	11%	£0.4	£2.0
£500,000 - £1,000,000	2	6%	£1.0	£2.0
£1,000,000 - £5,000,000	11	31%	£11.0	£55.0
£5,000,000 plus	16	44%	£80.0	£80.0
Total	**36**	**100%**	**£92.6**	**£139.3**

Table 21.14: Annual turnover

21.67 Respondent businesses were asked to identify the services they could provide to the Project. The services were broken down into the broad service groups and sub-groups shown in Figure 21.3, Figure 21.4 and Figure 21.5.

- ***Design Services***

21.68 A quarter of businesses can provide component design and a further quarter can provide infrastructure design services, while a fifth (19%) is able to provide marine services operations. 'Other' design services mentioned by respondents include:

- Specialist design facilities for back-up power supplies and potential for energy storage banks;
- Control System & SCADA Design; and
- Sensor design for measuring processes or operations.

Onshore infrastructure

21.69 A relatively high proportion of firms are capable of supplying onshore infrastructure services. Almost half (42%) can provide construction services while around a third of respondent businesses are capable of providing maintenance (36%); load out quay (31%) and ports facilities (31%).

21.70 Around a quarter of firms stated they can provide electrical equipment such as converters, transformers and cabling (28%); control system hardware and software (25%) and onshore cable laying (25%). Grid connection and site investigation services can only be supplied by a small proportion of firms in the survey (11% and 6% respectively). 'Other' onshore infrastructure services include:

- Marine equipment supply;
- Ancillary steelwork associated with construction;
- Storage facilities;
- Testing and supply services;
- Coating services - marine grade paint on top of galvanized steel;
- Supply of equipment for back-up supplies and potential energy storage, e.g. station batteries; and
- Non-destructive testing, rope access and working from height solutions.

Offshore infrastructure

21.71 Turbine Support Structure (TSS) installation services can be provided by around a quarter (28%) of respondent businesses while site surveying and cable connector services can be supplied by around a fifth of respondent businesses (22% and 19% respectively). There was a limited supply of directional drilling (3%) and subsea cable supply (11%) services available through respondent businesses. No respondent businesses provide site investigation services. 'Other' offshore infrastructure services include:

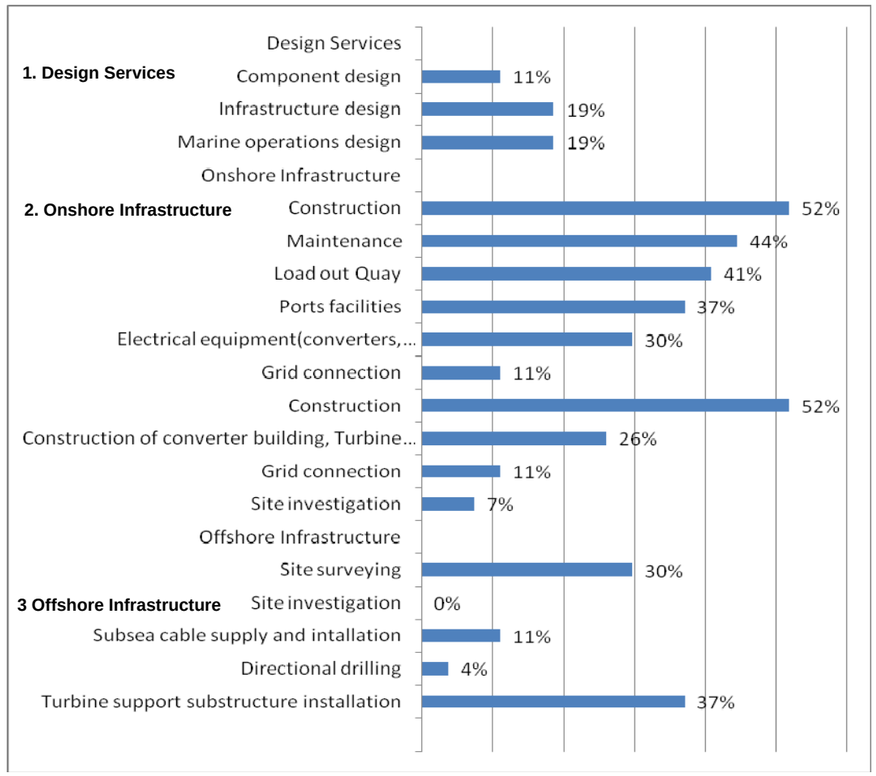
- The supply of equipment to commercial diving companies; and
- Offshore cable testing and termination.

Turbine assembly

21.72 Storage facilities for the turbine assembly stage can be provided by around a quarter of respondent businesses (22%). Testing and commissioning services (17%); final assembly services (14%) and component supply services (11%) can also be supplied by the survey group.

Turbine Support Structure fabrication

21.73 Around a quarter of respondent businesses can provide load out to quayside services (25%) and painting services (22%) while a similar proportion can provide assembly services (17%) fabricated plate services (14%) and testing services (14%). One firm can also provide mooring/ seabed fixing design and supply services.



Source: RTP MeyGen Supply Chain Survey (2011)

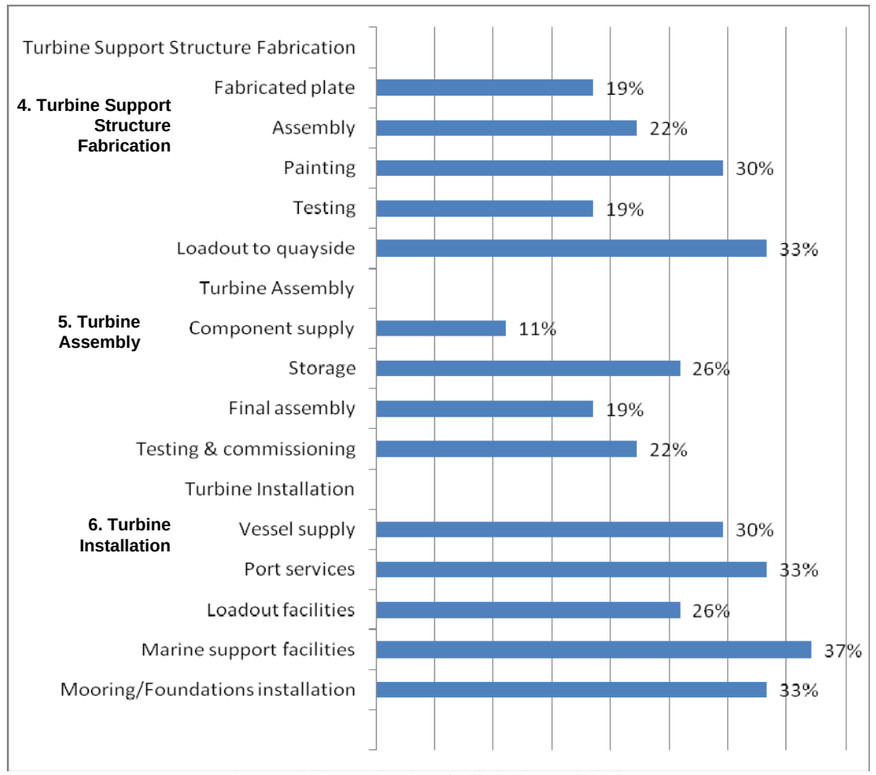
Figure 21.3: Services provided: design; onshore and offshore infrastructure

Turbine installation

21.74 There is a relatively strong supply of turbine installation services within the survey sample. Around a third of business respondents (31%) can provide marine operations services while around a quarter can provide marine support facilities (28%); port services (25%); mooring/ foundation installations (25%) and vessel supply services (22%).

Operations, maintenance and decommissioning

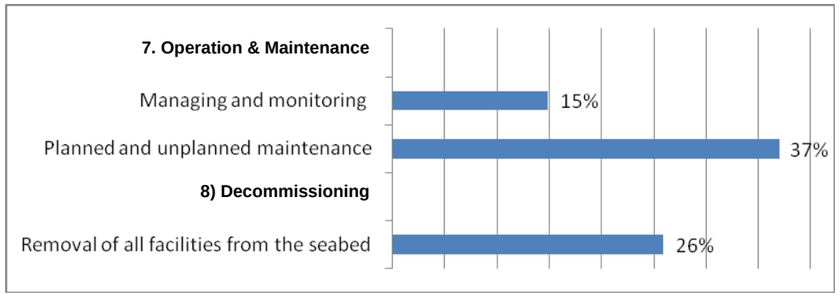
21.75 Over a quarter (28%) of respondent businesses can supply planned and unplanned maintenance (which requires local workshops, storage facilities and quayside space). 11% of businesses stated they can manage and monitor the ongoing environmental impact of the Project.



Source: RTP MeyGen Supply Chain Survey (2011)

Figure 21.4: Services provided: turbines

21.76 A fifth (19%) of businesses can supply decommissioning services which involve the removal of all facilities from the seabed. One business has a licensed decommissioning facility in Lerwick and can supply a reception point for decommissioned plant.



Source: RTP MeyGen Supply Chain Survey (2011)

Figure 21.5: Services provided: operation and maintenance and decommissioning

21.5.2 Summary

21.77 The survey of the supply chain industry in the study and the wider surrounding area has demonstrated that there is an extensive range of businesses able to provide the necessary onshore and offshore services potentially required by the Project. These extend from fabrication and construction to operation and maintenance, and decommissioning capacity and capability.

21.5.3 Tourism and recreation baseline

21.78 This section profiles tourism and recreational volume, value and employment of the local area. It identifies the key drivers behind the tourism economy and identifies patterns and trends to set a baseline for the Project impact to be assessed against.

Geographic context

21.79 The baseline review of the wider tourism market sets out the context of the Project in relation to the defined study area. The Caithness tourism area relative to the rest of Scotland is illustrated in Figure 21.6.

21.80 The analysis is conducted at regional tourist board level (Highlands of Scotland) and is considered against the Scottish average. The most up to date complete datasets on tourism for this area is for the 2009 season, and more up-dated information has been added where available. Full details of the tourism and recreation baseline context at a Highlands level are set out in the MeyGen Socio-economic, Tourism and Recreation Impact Assessment Report (RTP, 2011) as is the detailed profile of the local tourism business community derived from the Tourism Business Survey as part of this assessment.

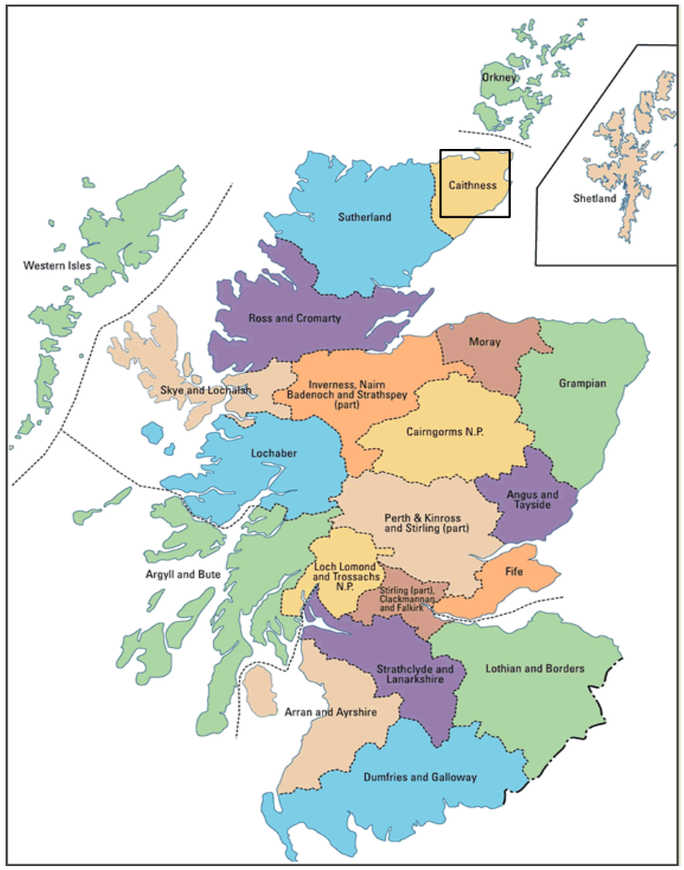
Highlands tourism profile

21.81 The Highlands are more dependent upon tourism as an economic sector that the average for Scotland as a whole, with a much higher proportion of the population employed in this sector (13.2%) than Scotland (8.6%). The Highlands have also experienced an increase in the number of jobs relating to tourism over recent years.

21.82 The profile of Highlands tourism demonstrates that domestic tourist trips account for the significant majority of the total number of trips to the region. In terms of visitor trips and expenditure, for both UK based and overseas visitors these increased in the Highlands over the period between 2005 and 2008. The assessment demonstrates that more visitors, both domestic and from overseas, visit the area for a holiday, compared with the Scottish average. 21% of overseas visitors stay with friends or relatives when they come to the region, lower than the Scottish average of 27%.

21.83 In terms of accommodation used by visitors, between 2005 and 2009 there was a significant move of visitors from traditional accommodation e.g. Hotels, B&Bs etc to staying with friends and relatives, with occupancy rates for all accommodation in the region being highest between April and September. Between 2005 and 2009 there was also a slight increase in occupancy levels during the off-peak season, mainly from October to December perhaps due to a rise in the number of Christmas breaks.

21.84 In respect of visitor attractions, none of the top 5 visitor attractions in the Highlands are located within the study area, with the Castle of Mey being the main visitor attraction.



Map Source: Heritage Paths - http://www.heritagepaths.co.uk/mapsearch.php

Figure 21.6: Tourism map of Scotland with focus on Caithness

Local tourism business profile

21.85 The following local tourism business profile is derived from the Tourism Business Survey, which identified and surveyed 251 businesses within 30km of the PCC location(s). This business total comprised 160 accommodation providers (including hotels, B&Bs, self-catering, caravan and camping sites, and youth hostels), 49 visitor attractions, sports and leisure, and outdoor activities, and 42 restaurants, public houses, specialist tourist shops, and post offices. Of this total 96 businesses provided a response as follows:

- The most popular visitor activities were stopping over in the area before heading on to Orkney (29%) and for visitors not travelling to Orkney, most visitors went sightseeing to attractions including Dunnet Head and Duncansby Stacks (23%) and visits to the Castle of Mey (13%);
- 38% of tourism business respondents were currently experiencing good levels of trading, 36% felt their business was trading at a fair level, while more than a quarter were experiencing poor levels of trading;

- 37% of tourism business respondents had experienced stability in trading over the past 3 years, 36% had recorded a decrease in business levels and 27% had seen an increase in trading level; and

- The future outlook appears positive with 83% of tourism business respondents envisaging either stable (34%) or increased (49%) business performance in the future, with only 17% predicting a decline in future prospects.

21.86 In assessing the tourist, visitor and recreational facilities within the study area, it is those which register most frequently or readily within tourist or visitor websites, brochures, guidebooks, and other media that are taken to represent the principle tourism resources in the area. This is a standard approach taken as a proxy for tourists or other visitors assessing the potential attraction of an area. Therefore the principal attractions and other facilities are set out below, including settlements, tourist routes, walking routes, rights of way, core paths, climbing routes, cycle routes, golf and fishing (i.e. lochs and rivers), forest parks/nature reserves, estates, events, visitor attractions, activity centres and accommodation providers present.

21.87 The area is attractive with wide open spaces and dramatic sea cliffs being among the popular visitor attractions. Caithness has long been a popular destination for tourists around Scotland's Highlands and Islands with popular attractions such as the Castle of Mey and John o' Groats, the start of the road to Land's End. Other activities promoted within the area include walking, climbing, mountain biking, water sports and fishing among many others.

21.88 Those principal tourism and recreation resources within close proximity of the Project's onshore facilities include the Castle of Mey (6km), the services and activities focus of John o' Groats (3km), the A836 coastal route, the Sustrans National Cycle Route (NCR) 1, and the Wick Circular Cycle Route, each of which pass the PCC location; and promoted cycle routes including, the Keiss Corridor, and the Brough to Canisbay Circular (each within 2km), and Duncansby Head and Duncansby Stacks (4km). Offshore / marine activities include sailing trips from John o' Groats, surfing locations in and around Gill's Bay (2km), and beyond both east and west, sea-kayaking and canoeing around Gill's Bay and the Isle of Stroma and wildlife watching (including John o' Groats wildlife tours in the summer months). The Inner Sound is also used as a transit route for sailing craft (see Section 15 for more details). Further afield in the local area there are Dunnet Head, the concentrations of facilities around Castletown, Thurso and Wick, and many walks, footpaths, other cycle routes, the local wildlife and birdlife, and the local beaches, which offer extensive opportunities for recreational activities and leisure

21.89 While none of the Highlands top visitor attractions are located within Caithness, the Castle of Mey attracted 29,000 visitors during season 2010, making it the key visitor attractor locally, not only for onshore visitors, but also for cruise ship visitors who land at Scrabster Harbour as a cruise port of call. In addition, the proposals by Natural Retreats to redevelop the John o' Groats House Hotel into a major visitor, recreation and accommodation facility and attractions, offers major potential to act as a catalyst for enhancing the visitor draw of the local area.

21.90 Figure 21.7 and Figure 21.8 for the Ness of Quoys and Ness of Huna PCC locations illustrate the presence of tourism and recreation resources / receptors in and around the local area close to the PCC location and the wider area up to and including a 30km radius.

21.91 A full audit and detailed description of tourism and recreation facilities and resources is included in the MeyGen Socio Economic Tourism and Recreation Impact Assessment Report (RTP, 2011).

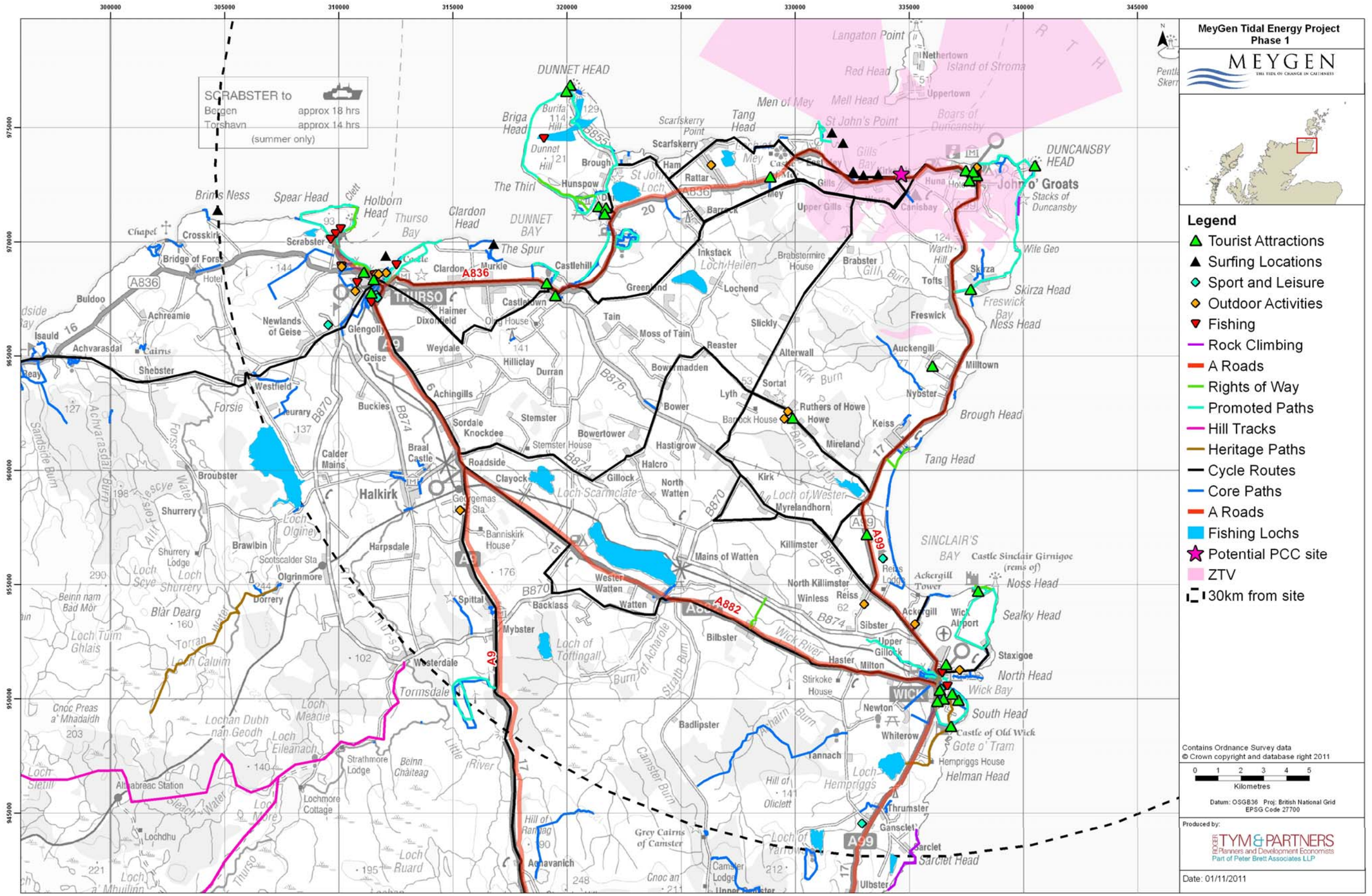


Figure 21.7: Ness of Quoys - tourism and recreation receptors

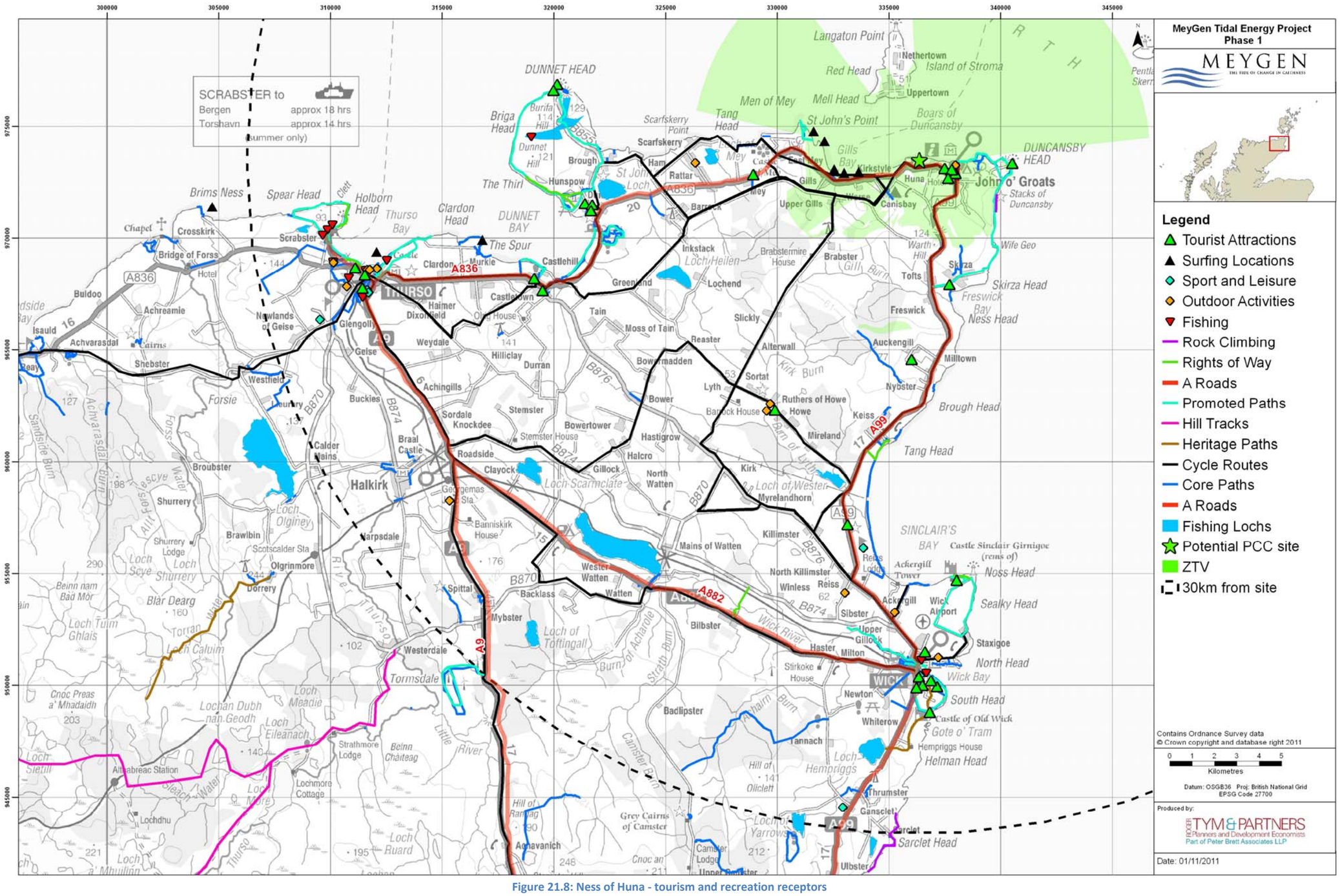


Figure 21.8: Ness of Huna - tourism and recreation receptors

21.6 Impacts during Construction and Installation

21.6.1 Defining socio-economic impacts and effect

21.92 The principal economic impacts, which will result from the Project can be categorised under the following headings:

- Direct economic impacts: Employment and economic output / Gross Value Added (GVA) that are wholly or largely related to construction, operation and maintenance and eventual decommissioning of the Project;
- Indirect economic impacts: Employment and GVA generated in the economy of the study area in the chain of suppliers of goods and services to the direct activities;
- Induced economic impacts: Employment and GVA created by direct and indirect employees' spending in the study area or in the wider economy; and
- Wider economic (catalytic) impacts: employment and income generated in the economy related to the wider role of the Project in influencing economic activities (including wider socio-economic effects). This will include the effects on the tourism sector, on inward investment, elsewhere within the construction sector (e.g. as a result of worker supply) and on other sectors of the economy.

21.93 In addition, the wider socio-economic impacts on local communities due to changes in social conditions and the surrounding environment, together with the direct and indirect effects on recreational and tourist resources.

21.94 The convention for economic appraisals is that construction/decommissioning employment is quoted as 1 Full Time Equivalent (FTE) job is equal to 10 years of temporary employment. This assessment estimates the FTE job basis but also sets out the temporary 'one off' impact or effect of the construction/decommissioning activity in terms of total temporary employment. The latter definition is used in the assessment as a comparison between the output/demand for labour of the Project and the 'absorption capacity' of the local area to meet this demand.

21.6.2 Impact 21.1 Local employment and GVA impacts during construction

21.95 In estimating the economic impacts, which would result from the Project's construction and installation phase of the Project, it is necessary to make use of a number of industry research reports and sources, as full details of potential employment numbers are not available from the MeyGen at the current time.

21.96 Industry estimates for the total CAPEX of the Project at a total for Phase 1 of 86MW maximum, can be established through application of a £pounds per MW factor to the Project as shown in Table 21.15 below.

21.97 This cost range as set out in Table 21.15 is generally supported by other recent research into the costs of marine development10, within which the CAPEX/MW costs for 'tidal stream shallow' (<40m) demonstration projects for a 1st 10MW project were estimated at £4.1-5.7m; and for commercial projects after 50MW deployed at £2.8-3.9m. 'Tidal stream deep' (>40m) equivalent costs were estimated at £3.0-4.1m for demonstration projects and £2.8-4m for commercial projects.

CAPEX per MW[11]	Industry average	MeyGen equivalent
Minimum	£4m	£344m
Median	£5.5m	£473m
Maximum	£7m	£602m

Table 21.15: Estimated CAPEX for the Project

21.98 In determining potential job numbers generated by marine development, available data are currently limited due to the small number of comparative examples. However, research for the Scottish Government's Marine Energy Group[12] suggested a 'marine industry standard' of 20 jobs created per MW.

21.99 Using these data the Project could have the potential to generate a total of 1,720 jobs on a 'jobs/MW installed capacity' basis for the manufacturing, construction and installation phase only.

21.100 The prototype tidal turbines and foundations of the candidate manufacturers that are considered in this application have been assembled in the UK. It is the ambition of MeyGen to work with local supply chain via organisations such as the Caithness Chamber of Commerce, HIE and SE in order to assist and best place the industry supply chain to support the Project. It is too early to state as to whether turbines themselves will be manufactured in the local vicinity / study area but it is the ambition of MeyGen that Scotland directly benefits from this activity.

21.101 In addition, if the percentage of the total CAPEX cost of the turbine nacelles is some 50%[13], and installation/foundations approximately 30%[14], the remaining export cables and onshore infrastructure, etc will represent some 20% of total CAPEX. Thus, a worst case scenario for this assessment is based on a maximum of 50% of the total CAPEX potentially being available to the local and wider area economy, where the turbine manufacturing and assembly is not included within the available supply chain. It should be noted that some of the manufacture and assembly of the prototype turbine nacelle has been undertaken in the UK e.g. heavy metal works and assembly of components. If this 50% factor is applied to the total potential workforce of 1,720 jobs, this represents some 860 jobs.

21.102 The average construction workforce estimated by MeyGen for the onshore components of the overall Project (construction of the PCC and permanent road, temporary HDD site and cable to grid connection point) represents approximately 67-70 jobs over an accrued period of approximately 14 months. Based on this an estimated further 790 temporary jobs would be involved in the fabrication and construction of the offshore works over a period of 3 years. Were these total 860 temporary jobs able to be taken up within the local labour market, this is equivalent to 15.75% of the total employed population at a local level and 5.4% at a Caithness and Orkney level. In terms of temporary GVA these jobs would represent a potential of some £38.8 million.

21.103 For the purposes of understanding the 'absorption capacity' of the area's industry supply chain and its capability in benefiting from these Project outputs, Table 21.16 shows the levels of local capacity and capability available at a Caithness level, which has been derived from the supply chain survey.

Timescale construction phase	Minimum	Maximum	Median
Confirmed Survey Responses			
Temporary Jobs supported	51	66	58
Temporary GVA	£2.03m	£2.61m	£3.0m

[10] 'Cost of and financial support for wave, tidal stream and tidal range generation in the UK: DECC and Scottish Government (October 2010), http://www.decc.gov.uk/assets/decc/what%20we%20do/uk%20energy%20supply/energy%20mix/renewable%20energy/explained/wave_tidal/798-cost-of-and-finacial-support-for-wave-tidal-strea.pdf

[11] Marine Energy Technology Roadmap: Energy Technologies Institute & UK Energy Research Centre (October 2010) http://www.energytechnologies.co.uk/Libraries/Related_Documents/ETI_UKERC_Roadmap.sflb.ashx

[12] Scottish Government's Marine Energy Group – the Marine Energy Supply Chain Survey (2009)

[13] Tidal & Wave power – a diversification opportunity: SSE Renewables (2011) - http://www.subseauk.org/documents/2011-02%20subseauk%20-%20ian%20innes%20presentation%20%28issued%29.pdf

[14] Source: MeyGen

Timescale construction phase	Minimum	Maximum	Median
Confirmed Survey Responses			
Total Supply Chain Population			
Temporary Jobs supported	139	179	158
Total temporary GVA	£6.25m	£8.09m	£7.11m

Table 21.16: Caithness area absorption capacity: temporary employment & GVA[15]

21.104 It is evident that even the maximum job numbers available (66) within the local level supply chain are considerably less than the potential construction job requirement of the Project (860), and the local Caithness area would only be able to absorb some 7.7% of the available labour requirement at this level.

21.105 Given this capacity relates to 36.8% of the supply chain business population, even were these job figures to be pro-rated to 100%, this would represent a maximum of 179 local temporary jobs or 20.9% of the temporary construction labour force requirement.

21.106 The conclusion is that while there is substantial 'headroom' and potential to attract further business investment in the construction sector into the local economy to satisfy this requirement, this would only be on a temporary basis during the construction period and such new investment would require this and other projects to sustain permanent operational capacity. More likely the Project will be required to attract a substantial number of temporary construction capacity and workers from outside the Caithness area during the course of the construction and installation phase, potentially from the wider Highlands area and elsewhere.

Impact significance

21.107 In terms of levels of significance the potential creation of a maximum of 860 temporary jobs would be assessed as of major positive impact (and hence significant) at a study area / local level, where the existing potential local 'absorption capacity' is likely to be able to accommodate between 66-179 temporary jobs, and the impact is assessed as being of 'greater than local scale or which exceed recognised standards.' In addition, this is assessed as a minor impact at an all Highlands level the impacts being 'limited or very localised raised as a local issue'.

Impact title	Sensitivity of receptor	Magnitude of impact	Consequence	Significance
Construction Employment	N/A	Major positive	Major positive	Positive
860 temp jobs				
£38.9m temp GVA				

MITIGATION IN RELATION TO IMPACT 21.1

- There are a number of national, regional and local initiatives involving the Scottish Government, regional and local development agencies and the Caithness and North Sutherland Regeneration Partnership with the aim to work towards enhanced skills training, supply chain enhancement, and support for business improvement working in the marine renewables industry, including Caithness. These will assist in realising and maximising the opportunities in the local and wider areas and where appropriate MeyGen will support these initiatives.

[15] Source: GVA at a Scottish Highlands Council level (2009) - GVA per Employee per annum: Manufacture of Basic and Fabricated metals, Machinery, Motor Vehicles and Other transport equipment (£37,356); Construction / Civil engineering (£52,876); and average for activities (£45,116)

21.6.3 Impact 21.2: Wider qualitative economic benefits during construction

21.108 It is considered feasible that during the construction process there will be opportunities where those employed would develop skills that will be of benefit to the local economy in the longer term, and indeed would be transferrable to other projects in the area. Examples might include the development of project management skills, which could be beneficial in terms of ensuring that local companies or individuals are much better placed to compete for future construction work in the wider area, or increasing the number of new starts and supporting small businesses that can benefit from work related to the Project in establishing a business. Once established, these firms or individuals will be in a stronger position to survive and prosper from ongoing work elsewhere.

Impact significance

Sensitivity of receptor	Magnitude of impact	Consequence	Significance
N/A	Moderate positive	Moderate positive	Positive

MITIGATION IN RELATION TO IMPACT 21.2

- There are a number of national, regional and local initiatives involving the Scottish Government, regional and local development agencies and the Caithness and North Sutherland Regeneration Partnership with the aim to work towards enhanced skills training, supply chain enhancement, and support for business improvement working in the marine renewables industry, including Caithness. These will assist in realising and maximising the opportunities in the local and wider areas and where appropriate MeyGen will support these initiatives.

21.6.4 Impact 21.3: Local tourism business impacts during construction

21.109 In terms of local tourism business impacts and effects (that is where the impacts and effects are experienced by individual tourism businesses within the local area), these generally only relate to the construction phase of the Project, with the general view that permanent operation & maintenance will have negligible adverse impacts upon tourism in the area. The business community are aware of the potential benefits which might accrue from the temporary construction labour force requirements for accommodation and for other related goods and services, and through the course of consultation this is an issue which has been raised and recognised widely. A substantial proportion (38%) of the tourism business respondents to the tourism survey of 251 such businesses across the local area, considered there to be a major positive benefit, and given the low sensitivity of the local accommodation provider receptors, with relatively limited numbers of visitors and visitor capacity, the impact significance of such impacts is assessed as moderate positive.

Impact significance

Impact title[1]	Magnitude of impact from survey response	Likelihood	Impact magnitude	Sensitivity of receptor	Consequence	Significance
6% of businesses	Minor	Possible	Minor	Low	Minor	Not Significant
2% of businesses	Major	Possible	Moderate	Low	Moderate	Significant
38% of businesses	Major positive	Possible	Positive	Low	Moderate positive	Positive

Note: [1]The '% of businesses' is the percentage of the businesses surveyed who considered the impact to be of that magnitude.

MITIGATION IN RELATION TO IMPACT 21.3

- Consultation with local businesses to manage traffic flows during major events.
- During the temporary HDD activities, screening measures may be implemented to reduce impacts on passing visitors.
- For the potential positive construction impacts there are a number of national, regional and local initiatives involving the Scottish Government, regional and local development agencies and the Caithness and North Sutherland Regeneration Partnership with the aim to work towards enhanced skills training, supply chain enhancement, and support for business improvement working in the marine renewables industry, including Caithness. These will assist in realising and maximising the opportunities in the local and wider areas and where appropriate MeyGen will support these initiatives.

Residual impact

Impact title[1]	Magnitude of impact from survey response	Likelihood	Impact magnitude	Sensitivity of receptor	Consequence	Significance
2% of businesses	Major	Unlikely	Minor	Low	Minor	Not Significant

Note: [1]The '% of businesses' is the percentage of the businesses surveyed who considered the impact to be of that magnitude.

21.6.5 Impact 21.4: Wider tourism impacts during construction

21.110 For wider tourism across the area (that is where impacts and effects are experienced not by individual businesses but generally across the study area), there is a small proportion of the respondents to the tourism business survey, which consider the construction phase to result in adverse impacts. While the 2% of business respondents, which consider there to potentially be a major adverse impact as a result of the works. This is similarly the case with the 1% who consider there to be a moderate adverse impact.

21.111 There are a very substantial proportion of business respondents (72%) which consider that there would be a major positive benefit as a result of the Project. This is also set in the context of a healthy tourism sector in the local area, with 74% being satisfied with current trading performance, 64% having experienced stable or increasing trade over the past 3 years, and 83% anticipating stable or increasing trading conditions in the future.

Impact significance

Impact title	Magnitude of impact from survey response	Likelihood	Impact Magnitude	Sensitivity of receptor	Consequence	Significance
9% of businesses	Minor	Possible	Minor	Medium	Minor	Not Significant
1% of businesses	Moderate	Possible	Moderate	Medium	Moderate	Significant
2% of businesses	Major	Possible	Major	Medium	Major	Significant
72% of businesses	Major positive	Possible	Positive	Medium	Major positive	Positive

MITIGATION IN RELATION TO IMPACT 21.4

- Consultation with local businesses to manage traffic flows during major events.
- During the temporary HDD activities, screening measures may be implemented to reduce impacts on passing visitors.
- For the potential positive construction impacts there are a number of national, regional and local initiatives involving the Scottish Government, regional and local development agencies and the Caithness and North Sutherland Regeneration Partnership with the aim to work towards enhanced skills training, supply chain enhancement, and support for business improvement working in the marine renewables industry, including Caithness. These will assist in realising and maximising the opportunities in the local and wider areas and where appropriate MeyGen will support these initiatives.

Residual impact

Impact title	Magnitude of impact from survey response	Likelihood	Impact Magnitude	Sensitivity of receptor	Consequence	Significance
1% of businesses	Minor	Unlikely	Negligible	Medium	Negligible	Not Significant
2% of businesses	Moderate	Unlikely	Minor	Medium	Minor	Not Significant

21.6.6 Impact 21.5: Recreation impacts during construction

21.112 In terms of recreation impacts and effects these generally relate to the onshore construction phase of the Project, with the assessment taking the view that permanent operation & maintenance will have negligible adverse impacts upon recreational resources / receptors in the area. Potential adverse impacts and effects would result from construction works interrupting recreational routes and paths, and noise or congestion similarly causing inconvenience to recreational users of routes, facilities and activities in the local area.

21.113 In terms of offshore impacts these relate to the disruption of recreational traffic moving through the Inner Sound. The Inner Sound is known as the preferred route through the Pentland Firth for sailing craft however transits are estimated as 1-2 per month (Section15).

Impact significance

21.114 The majority of recreational receptors even those which are in close proximity to the PCC or make use of offshore waters close to the array itself are assessed as only experiencing minor or negligible impacts. The Sustrans National Cycle Route 1 due to their heightened sensitivity as a result of their national or regional status and their number of users is assessed as having a moderate significant impact.

Impact title	Sensitivity of receptor	Magnitude of impact	Consequence	Significance
John o' Groats	Medium	Minor	Minor	Not Significant
A99	Medium	Minor	Minor	Not Significant
A836	Medium	Minor	Minor	Not Significant

Impact title	Sensitivity of receptor	Magnitude of impact	Consequence	Significance
Duncansby Head	Medium	Minor	Minor	Not Significant
Puffin Express (tours)	Low	Minor	Minor	Not Significant
Nordwall Farm	Low	Minor	Minor	Not Significant
Duncansby Head to John o' Groats promoted path	Low	Minor	Minor	Not Significant
Dunnet Head promoted path	Low	Minor	Minor	Not Significant
St Johns Point promoted path	Low	Minor	Minor	Not Significant
Duncansby Head and Stacks CP207.009	Low	Minor	Minor	Not Significant
Tresdale Track CP207.018	Low	Minor	Minor	Not Significant
Canisbay Roadside CP207.019	Low	Minor	Minor	Not Significant
Freswick to Duncansby Head promoted path	Low	Minor	Minor	Not Significant
Black Hill Peat Track CP207.005	Low	Minor	Minor	Not Significant
John o' Groats Shore CP207.013	Low	Minor	Minor	Not Significant
John o' Groats Roadside Footway CP207.015	Low	Minor	Minor	Not Significant
Old Road CP207.020	Low	Minor	Minor	Not Significant
Sustrans Cycle NR1	High	Minor	Moderate	Significant
Brough to Canisbay Circular cycle route	Low	Minor	Minor	Not Significant
Thurso to Inverness cycle route	Medium	Minor	Minor	Not Significant
Offshore				
John o' Groats Wildlife Cruises	Low	Minor	Minor	Not Significant
Sailing routes	Low	Minor	Minor	Not Significant
Kayaking routes	Low	Minor	Minor	Not Significant

MITIGATION IN RELATION TO IMPACT 21.5

- Consultation with local businesses to manage traffic flows during major events.
- Temporary interruption of recreation routes during construction will be carefully managed and any diversions clearly sign-posted; information on construction works circulated to recreational businesses and public notices distributed.
- During the temporary HDD activities, screening measures may be implemented to reduce impacts on passing recreational users or from recreational focal points.
- Marine Safety Information broadcasts will be issued by HM Coastguard to inform mariners of the activity at the MeyGen site.
- The Project will be depicted on Admiralty Charts produced by UKHO.
- Navtex and Notice to Mariners will be issued including details of MeyGen works.
- Information on the work activity at the site will be circulated directly to local ports, ferry operators and recreational clubs and businesses.

Residual impact

Impact title	Sensitivity of receptor	Magnitude of impact	Consequence	Significance
Sustrans Cycle NR1	High	Negligible	Minor	Not Significant

21.7 Impacts during Operation and Maintenance

21.7.1 Impact 21.6: Local employment and GVA impacts during O&M

21.115 Data are available from MeyGen for the estimated operation & maintenance (O&M) employment required by the tidal array. The estimated employment for the O&M employment onshore is approximately 27-30 jobs, with a further 20-22 jobs offshore; a total of 47-52 jobs (or a median of approximately 50 jobs).

21.116 To estimate net additional direct employment impacts, a series of factors must be applied to the base direct employment figure. These rates are as follows:

- Dead-weight - 0%;
- Leakage - 10%; and
- Displacement - 10%.

21.117 There would be no dead-weight effect in the local labour market as without the Project no equivalent employment would be created through other means. The 'leakage' is taken to be at a low level, given that the nature of the labour market is such that permanent high value employment of this type is in short supply in Caithness and Sutherland, and in the Northern Isles, and therefore few of these permanent jobs would pass outside the local or wider labour market to elsewhere. Equally, the 'displacement' effect would be limited given the nature of the supply chain and its ever increasing development (addressed in more detail below).

21.118 There is currently no agreed multiplier for marine energy type power generation. However, it is considered that the Scottish Government's established Type II multiplier for mechanical power transmission equipment of 1.714 is appropriate for application as a proxy to estimate indirect employment.

Using this method, direct and indirect employment generated from operation and maintenance is estimated to be approximately 69.4 FTE local jobs.[16]

21.119 The GVA generated through these 69.4 FTE local jobs would be approximately £3.67million per annum, as shown in Table 21.17 below.

Factor	Factor value	Total
Total estimated direct jobs	-	50
Dead-weight factor	0%	0
Leakage factor	-10%	-5
Displacement factor	-10%	-4.5
Total local direct jobs	-	40.5
Employment Multiplier (Type II)	x1.714	-
Total local direct and indirect jobs	-	69.4
Total GVA	£52,876	£3.67m

Table 21.17: Total operation & maintenance impacts (Jobs and GVA)

21.120 For the purposes of understanding the 'absorption capacity' of the industry's supply chain and its capability in benefiting from these O&M project outputs, Table 21.18 shows the levels of capacity and capability available in the post-construction phase. These figures have been derived from the supply chain survey.

Timescale post-construction phase	Minimum	Maximum	Median
Responses			
Jobs supported (FTEs)	55	69	62
Total GVA	£2.91 m	£3.65 m	£3.28 m
Total Supply Chain Population			
Total Jobs supported (FTEs)	149	188	168
Total GVA	£7.9m	£9.9m	£8.9m

Table 21.18: Caithness area absorption capacity: direct FTE employment and GVA[17]

21.121 Within the local Caithness industry supply chain there is sufficient capacity to accommodate the potential O&M job requirements of the Project, it representing approximately all of the local maximum capacity. Given this capacity relates to 36.8% of the supply chain business population, were these job figures to be pro-rated to 100%, this would represent between 149-188 local FTE jobs capacity.

21.122 There would also be an additional pool of a further 361-486 FTE job capacity within the wider Highlands labour market area upon which to draw. In addition, there will be a pool of highly skilled labour available from Dounreay as the process of decommissioning that site continues to its conclusion. These skills will potentially be available to the Project and other marine projects in the Pentland Firth and Orkney Waters area. Thus the conclusion is that there is available capacity within the local labour market to satisfy the Project's requirements, during the O&M phase.

Impact significance

21.123 In terms of levels of significance the potential creation of some 69.4 FTE jobs would be assessed as of moderate impact (and hence significant) at a study area / local level, with the impact being assessed as 'noticeable and judged to be important at a local scale;' and assessed as a minor impact at an all Highlands level being of 'limited or very localised raised as a local issue'.

Sensitivity of receptor	Magnitude of impact	Consequence	Significance
N/A	Moderate positive	Moderate positive	Positive

MITIGATION IN RELATION TO IMPACT 21.6

- There are a number of national, regional and local initiatives involving the Scottish Government, regional and local development agencies and the Caithness and North Sutherland Regeneration Partnership with the aim to work towards enhanced skills training, supply chain enhancement, and support for business improvement working in the marine renewables industry, including Caithness. These will assist in realising and maximising the opportunities in the local and wider areas and where appropriate MeyGen will support these initiatives.

21.7.2 Impact 21.7: Wider qualitative economic benefits during operation and maintenance

21.124 The Project will also provide opportunities for the involvement of local, regional and Scottish suppliers in a range of activities, including research and development, design, project management, civil engineering, component fabrication/manufacture, installation and maintenance. The Project will have positive spin-off effects in terms of the development of the renewables sector in Caithness and the Northern Isles as well as the Highlands, and more generally in Scotland.

21.125 Demand resulting from development of the Project would further support production and employment in Scotland, providing a boost to Scottish industry and Scotland's production capacity. Strengthening Scotland's industrial base, particularly in an industry where global demand is growing, improves the ability of Scottish firms to compete in world markets, in turn boosting Scotland's economy.

21.126 With an increasing number of marine energy projects either under development, or passing through the consenting process in Scotland, the commercial viability and with it job prospects amongst Scottish firms improve. Cluster benefits in the industry increase where firms are supported by final demand and intermediate demand. The net effect is to increase business and employment opportunities within both the local and regional renewable energy sector, boosting the performance of local and national economies. The majority of marine array developers in Scotland have expressed an intention to source from local suppliers where possible, and would welcome increased capacity on the supply side.

Impact significance

Sensitivity of receptor	Magnitude of impact	Consequence	Significance
N/A	Moderate positive	Moderate positive	Positive

MITIGATION IN RELATION TO IMPACT 21.7

- There are a number of national, regional and local initiatives involving the Scottish Government, regional and local development agencies and the Caithness and North Sutherland Regeneration Partnership with the aim to work towards enhanced skills training, supply chain enhancement, and support for business improvement working in the marine renewables industry, including Caithness. These will assist in realising and maximising the opportunities in the local and wider areas and where appropriate MeyGen will support these initiatives.

[16] It should be recognised that this estimate is based on the assumption that operations and maintenance staff are available locally; it may be the case that a higher leakage rate is appropriate if specialist staff are required from outside the area.

[17] Source: GVA at a Scottish Highlands Council level (2009) - GVA per Employee per annum: Manufacture of Basic and Fabricated metals, Machinery, Motor Vehicles and Other transport equipment (£37,356); Construction / Civil engineering (£52,876); and average for activities (£45,116)

21.7.3 Impact 21.8: Tourism and recreation impacts during operations and maintenance

21.127 The assessment concludes that impacts upon tourism and recreation, where these occur, are likely only during the construction and / or decommissioning phases of the Project (see Impact 21.5 above). Responses to the tourism business survey indicate an expectation that any benefits would be generated through these phases, as would any potential adverse impacts. During the ongoing operation and maintenance phase such businesses do not expect notable impacts – either adverse from the presence of the Project offshore or onshore – or positive, due to the limited scale of permanent employment and also limited requirements for accommodation.

21.128 The visual impact of the PCC on the tourist attractions and tourist routes that pass near to the two sites has been assessed in the LSVIA section (Section 19). The LSVIA concludes that while there are some significant impacts on the landscape and seascape and significant visual impacts, these are generally contained within a localised area, with no extensive impacts on tourist attractions.

21.129 Viewpoint 9, 11, 14, and 27 (Section 19) are reflective of transient receptors along the key tourist route of the A836. The visual impact is only assessed as significant when you are close to the PCC site (e.g. viewpoint 11 for Ness of Quoys).

21.130 Key tourist attractions, John o' Groats, St John's Point and Duncansby Head (viewpoint 17, 23 and 25 section19.6.5) are all assessed as not having significant visual impacts from either PCC site, with only Canisbay Kirk (viewpoint 11) considered as significant based on the proximity to the Ness of Quoys site.

21.131 The impact of the operating turbines on offshore access and indirect impacts on recreational resource has been assessed in Section 15 (Navigation) and Section 9 (Physical Environment and Sediment Dynamics).

21.132 In terms of recreational craft using the Inner Sound it is considered that these are vessels of typically shallow draft so transiting the site would not be impacted by the presence of the turbines, albeit in significant weather and waves conditions when recreational craft are very unlikely to transit the Inner Sound. Section 5 concluded that there was a low (broadly acceptable) risk for all traffic using the Inner Sound.

21.133 Sea kayaking trips along the coast and around Stroma are considered to have no physical impact from the presence of turbines. Whilst the modelling completed in Section 9 concluded that there would be only minor spatial changes to the tidal and wave patterns in the Inner Sound which are not expected to have any perceived impact on sea kayaking or the surfing in the area.

Impact significance

Impact title	Sensitivity of receptor	Magnitude of impact	Consequence	Significance
Recreational craft	Medium	Minor	Minor	Not Significant
Sea kayaking	Low	Minor	Minor	Not Significant
Surfing	Medium	Minor	Minor	Not significant

MITIGATION IN RELATION TO IMPACT 21.6

- No mitigation measures proposed as no significant impact predicted.

21.8 Impacts during Decommissioning

21.8.1 Impact 21.9: Local employment and GVA impacts during decommissioning

21.134 Estimates of the scale of jobs involved in the onshore decommissioning component of the Project extend to a total of some 4 years[18] of temporary employment or equivalent to 0.4 FTE jobs.

21.135 In terms of the offshore component, the following activities may be undertaken during the decommissioning phase: project management, rigging, turbine removal, foundation removal, cutting activities, port activities, disposal of environmentally sensitive material, and sub-sea survey on completion

21.136 The most recent research as to values relating to the decommissioning of marine devices[19] estimates the cost per MW to be in the range of £25,000-100,000, and assuming that costs will reduce from the higher points in the range as commercialisation of marine arrays is achieved. Hence the assessment has taken the median point of this cost range at £62,500 per MW to estimate decommissioning employment impacts.

21.137 At 86MW the estimated offshore decommissioning cost of the Project would be approximately £5.375 million. This would result in an estimated 119 years of temporary employment.

21.138 Thus the combined economic benefit generated through the decommissioning phase would be a total of 123 years of temporary employment or equivalent to 12.3 FTE jobs. In terms of levels of significance the potential creation of some 123 years of temporary employment or 12.3 FTE jobs would be assessed as of moderate impact at a study area / local level, with the impact being assessed as 'noticeable and judged to be important at a local scale'; and assessed as a minor impact at an all Highlands level being of 'limited or very localised raised as local issues'.

Impact significance

Sensitivity of receptor	Magnitude of impact	Consequence	Significance
N/A	Moderate positive	Moderate positive	Positive

MITIGATION IN RELATION TO IMPACT 21.9

- There are a number of national, regional and local initiatives involving the Scottish Government, regional and local development agencies and the Caithness and North Sutherland Regeneration Partnership with the aim to work towards enhanced skills training, supply chain enhancement, and support for business improvement working in the marine renewables industry, including Caithness. These will assist in realising and maximising the opportunities in the local and wider areas and where appropriate MeyGen will support these initiatives.

21.8.2 Impact 21.10: Wider qualitative economic benefits during decommissioning

21.139 It is considered feasible that during the decommissioning process there will also be opportunities where those employed would develop skills that will be of benefit to the local economy in the longer term, and indeed would be transferrable to other projects in the area. Examples might include the development of project management skills, which could be beneficial in terms of ensuring that local companies or individuals are much better placed to compete for future decommissioning (and construction) work in the wider area, or increasing the number of new starts and supporting small businesses that can benefit from work related to the Project in establishing a business. Once established, these firms or individuals will be in a stronger position to survive and prosper from ongoing work elsewhere.

[18] Based upon 10 jobs for 3months, plus 6 jobs for 2months, plus 2 jobs for 1month; a total of 44months or approximately 4years of temporary employment. HM Treasury guidance indicates this to represent 0.4FTE jobs.

[19] It is assumed that 1 temporary job is equivalent to approximately £164,427. This value is derived from the average sales per employee in the economy construction sub-sector inflated to 2010 prices. Source: UK PLC, A Financial Analysis of Corporate Britain (2005).

Impact significance

Sensitivity of receptor	Magnitude of impact	Consequence	Significance
N/A	Moderate positive	Moderate positive	Positive

MITIGATION IN RELATION TO IMPACT 21.10

- There are a number of national, regional and local initiatives involving the Scottish Government, regional and local development agencies and the Caithness and North Sutherland Regeneration Partnership with the aim to work towards enhanced skills training, supply chain enhancement, and support for business improvement working in the marine renewables industry, including Caithness. These will assist in realising and maximising the opportunities in the local and wider areas and where appropriate MeyGen will support these initiatives. These initiatives will contribute to enhancing the likelihood of these construction employment and output impacts occurring.

21.8.3 Impact 21.11: Local tourism business impacts during decommissioning

21.140 It is assumed that the impacts and effects experienced during the decommissioning phase will be similar in scale and type to that of the construction phase.

Impact significance

Impact title[1]	Magnitude of impact from survey response	Likelihood	Magnitude of impact	Sensitivity of receptor	Consequence	Significance
6% of businesses	Minor	Possible	Minor	Low	Minor	Not Significant
2% of businesses	Major	Possible	Major	Low	Moderate	Significant
38% of businesses	Major positive	Possible	Positive	Low	Moderate positive	Positive

Note:
[1]The '% of businesses' is the percentage of the businesses surveyed who considered the impact to be of that magnitude.

MITIGATION IN RELATION TO IMPACT 21.11

- Consultation with local businesses to manage traffic flows during major events.
- For the potential positive decommissioning impacts there are a number of national, regional and local initiatives involving the Scottish Government, regional and local development agencies and the Caithness and North Sutherland Regeneration Partnership with the aim to work towards enhanced skills training, supply chain enhancement, and support for business improvement working in the marine renewables industry, including Caithness. These will assist in realising and maximising the opportunities in the local and wider areas and where appropriate MeyGen will support these initiatives.

Residual impact

Impact title[1]	Magnitude of impact from survey response	Likelihood	Magnitude of impact	Sensitivity of receptor	Consequence	Significance
2% of businesses	Moderate	Unlikely	Minor	Low	Minor	Not Significant

21.8.4 Impact 21.12: Wider tourism impacts during decommissioning

21.141 It is assumed that the impacts and effects experienced during the decommissioning phase will be similar in scale and type to that of the construction phase.

Impact significance

Impact title	Magnitude of impact from survey response	Likelihood	Magnitude of impact	Sensitivity of receptor	Consequence	Significance
9% of businesses	Minor	Possible	Minor	Medium	Minor	Not Significant
1% of businesses	Moderate	Possible	Moderate	Medium	Moderate	Significant
2% of businesses	Major	Possible	Major	Medium	Major	Significant
72% of businesses	Major positive	Possible	Positive	Medium	Major positive	Positive

MITIGATION IN RELATION TO IMPACT 21.12

- Consultation with local businesses to manage traffic flows during major events.
- For the potential positive decommissioning impacts mitigation as above for economic impacts will increase the likelihood of occurrence.

Residual impact

Impact title	Magnitude of impact from survey response	Likelihood	Magnitude of impact	Sensitivity of receptor	Consequence	Significance
1% of businesses	Minor	Unlikely	Minor	Medium	Minor	Not Significant
2% of businesses	Moderate	Unlikely	Minor	Medium	Minor	Not Significant

21.8.5 Impact 21.13: Recreation impacts during decommissioning

21.142 It is assumed that the impacts and effects experienced during the construction phase will be similar in scale and type to that of the decommissioning phase.

Impact title	Sensitivity of receptor	Magnitude of impact	Consequence	Significance
John o' Groats	Medium	Minor	Minor	Not Significant
A99	Medium	Minor	Minor	Not Significant
A836	Medium	Minor	Minor	Not Significant
Duncansby Head	Medium	Minor	Minor	Not Significant
Puffin Express	Low	Minor	Minor	Not Significant
Nordwall Farm	Low	Minor	Minor	Not Significant
Duncansby Head to John o' Groats promoted path	Low	Minor	Minor	Not Significant
Dunnet Head promoted path	Low	Minor	Minor	Not Significant
St Johns Point promoted path	Low	Minor	Minor	Not Significant
Duncansby Head and Stacks CP207.009	Low	Minor	Minor	Not Significant
Tresdale Track CP207.018	Low	Minor	Minor	Not Significant
Canisbay Roadside CP207.019	Low	Minor	Minor	Not Significant
Freswick to Duncansby Head promoted path	Low	Minor	Minor	Not Significant
Black Hill Peat Track CP207.005	Low	Minor	Minor	Not Significant
John o' Groats Shore CP207.013	Low	Minor	Minor	Not Significant
John o' Groats Roadside Footway CP207.015	Low	Minor	Minor	Not Significant
Old Road CP207.020	Low	Minor	Minor	Not Significant
Sustrans Cycle NR1	High	Minor	Moderate	Significant
Brough to Canisbay Circular cycle route	Low	Minor	Minor	Not Significant
Thurso to Inverness cycle route	Medium	Minor	Minor	Not Significant
Offshore				
John o' Groats Wildlife Cruises	Low	Minor	Minor	Not Significant
Sailing routes	Low	Minor	Minor	Not Significant
Sea kayaking routes	Low	Minor	Minor	Not Significant

21.143 Mitigation will be put in place to minimise and reduce the potential disruption caused by onshore and offshore decommissioning works.

MITIGATION IN RELATION TO IMPACT 21.13

- Consultation with local businesses to manage traffic flows during major events.
- Temporary interruption of recreation routes during construction will be carefully managed and any diversions clearly sign-posted; information on construction works circulated to recreational businesses.
- During the temporary HDD activities, screening measures may be implemented to reduce impacts on passing recreational users or from recreational focal points.
- Marine Safety Information broadcasts will be issued by HM Coastguard to inform mariners of the activity at the MeyGen site.
- The Project will be depicted on Admiralty Charts produced by UKHO.
- Navtex and Notice to Mariners will be issued including details of MeyGen works.
- Information on the work activity at the site will be circulated directly to local ports, ferry operators and recreational clubs and businesses.

Residual impact

Impact title	Sensitivity of receptor	Magnitude of impact	Consequence	Significance
Sustrans Cycle NR1	High	Negligible	Minor	Not Significant

21.9 Potential Variances in Environmental Impacts

21.144 The assessment has considered two alternative location options for the PCC, one at Ness of Quoys and the other at Ness of Huna. These two options have slightly different catchments of recreation resources/receptors and marginally different impacts and effects. As only one PCC location will be developed, impacts identified from a recreational perspective will reduced from those presented in this assessment.

21.145 Socio economic and tourism and recreation impacts are not influenced by the potential project alternatives.

21.10 Cumulative Impacts

21.10.1 Introduction

21.146 MeyGen has in consultation with Marine Scotland and THC identified a list of other projects (MeyGen, 2011) which together with the Project may result in potential cumulative impacts. The list of these projects including details of their status at the time of the EIA and a map showing their location is provided in Section 8; Table 8.3 and Figure 8.1 respectively.

21.147 Having considered the information presently available in the public domain on the projects for which there is a potential for cumulative impacts, Table 21.19 below indicates those with the potential to result in cumulative impacts from a socio economic perspective. The consideration of which projects could result in potential cumulative impacts is based on the results of the project specific impact assessment together with the expert judgement of the specialist consultant.

Project title	Potential for cumulative impact	Project title	Potential for cumulative impact	Project title	Potential for cumulative impact
MeyGen Limited, MeyGen Tidal Energy Project, Phase 2	✓	SHETL, HVDC cable (onshore to an existing substation near Keith in Moray)	×	OPL, Ocean Power Technologies (OPT) wave power ocean trial	×
ScottishPower Renewables UK Limited, Ness of Duncansby Tidal Energy Project	✓	Brough Head Wave Farm Limited, Brough Head Wave Energy Project	✓	MORL, Moray Offshore Renewables Ltd (MORL) offshore windfarm	✓
Pelamis Wave Power, Farr Point Wave Energy Project	✓	SSE Renewables Developments (UK) Limited, Costa Head Wave Energy Project	✓	SSE and Talisman, Beatrice offshore Windfarm Demonstrator Project	×
Sea Generation (Brough Ness) Limited, Brough Ness Tidal Energy Project	×	EON Climate & Renewables UK Developments Limited, West Orkney North Wave Energy Project	✓	BOWL, Beatrice Offshore Windfarm Ltd (BOWL) offshore windfarm	✓
Cantick Head Tidal Development Limited, Cantick Head Tidal Energy Project	✓	EON Climate & Renewables UK Developments Limited, West Orkney South Wave Energy Project	✓	Northern Isles Salmon, Chalmers Hope salmon cage site	×
SSE, Caithness HVDC Connection - Converter station	×	ScottishPower Renewables UK Limited, Marwick Head Wave Energy Project	✓	Northern Isles Salmon, Pegal Bay salmon cage site	×
SSE, Caithness HVDC Connection - Cable	×	SSE Renewables Developments (UK) Limited, Westray South Tidal Energy Project	✓	Northern Isles Salmon, Lyrawa salmon cage site	×
RWE npower renewables, Stroupster Windfarm	✓	EMEC, Wave Energy test site (Billia Croo, Orkney)	×	Scottish Sea Farms, Bring Head salmon cage site	×
SSE, Gills Bay 132 kV / 33 k V Substation Phase 1: substation and overhead cables (AC)	✓	EMEC, Tidal energy test site (Fall of Warness, Orkney)	×	Northern Isles Salmon, Cava South salmon cage site	×
SSE, Gills Bay 132 kV / 33 k V Substation Phase 2: HVDC converter station and new DC buried cable	✓	EMEC, Intermediate wave energy test site (St Mary's Bay, Orkney)	×	Scottish Sea Farms, Toyness salmon cage site	×
SHETL, HVDC cable (offshore Moray Firth)	×	EMEC, Intermediate tidal energy test site (Head of Holland, Orkney)	×	Northern Isles Salmon, West Fara salmon cage site	×

Table 21.19: Summary of potential cumulative impacts

21.148 The following sections summarise the nature of the potential cumulative impacts for each potential project phase:

- Construction and installation;
- Operations and maintenance; and
- Decommissioning.

21.10.2 Potential cumulative impacts during construction and installation

21.149 While there is limited data available on the timescales for these projects, it is not considered likely that the MeyGen Tidal Energy Project, Phase 1 together with any of these projects would result in significant negative impacts either in terms of economic, tourism or recreation during the construction and installation phase.

21.150 The only project likely to be in construction at the same time as the Project is the SSE Gills Bay 132kV/33kV substation, Phase 1 as this is required to provide increased grid capacity for the MeyGen Project. The cumulative disruption of construction works are not considered to be significant for the area and both projects will provide positive opportunities for local businesses to be directly involved in the construction works or indirectly with accommodation and secondary effects.

21.151 When construction timescales are better understood, MeyGen will ensure that any potential simultaneous works will be managed appropriately to minimise disruption to the local area.

21.10.3 Potential cumulative impacts during operations and maintenance

21.152 While there are limited data and information on these projects, it is not considered likely that the MeyGen Tidal Energy Project, Phase 1 together with any of these projects would result in a significant negative impact either in terms of economic, tourism or recreational impact during operation and maintenance.

21.153 In terms of the landscape, seascape and visual impact of other projects, in combination and cumulatively with the MeyGen Project, Phase 1 and the impacts that could have on key tourist attractions, these are considered in Section 19.

21.154 However, while the level of assessed impact from the Project is limited in tourism and recreational terms, the economic impact of the other marine and offshore wind projects in total are likely to provide considerable opportunities to the local area's businesses, where they have capacity and capability to provide for these types of energy generation and transmission infrastructure projects; and also provide opportunities for the transference of engineering and related skills from the decommissioning of Dounreay to these developments.

21.155 Phase 2 of the MeyGen Tidal Energy Project will comprise the deployment of a further 312 MW offshore and associated cables to shore and onshore infrastructure. The exact geographical location, extent and nature of the onshore facilities required for Phase 2 are not yet defined and will incorporate lessons

learned from and technology advancements beyond, Phase 1 of the Project. These factors will influence the potential for, nature of and significance of any cumulative impacts. From an economic perspective the expansion of the Project could generate further economic impacts on the local and regional economies. From a tourism and recreational perspective, potential cumulative impacts will be very much dependent on the location of onshore infrastructure, but potentially may occur.

21.156 All Pentland Firth and Orkney Waters projects are engaging with national, regional and local initiatives involving the Scottish Government, regional and local development agencies and the Caithness and North Sutherland Regeneration Partnership with the aim to work towards enhanced skills training, supply chain enhancement, and support for business improvement working in the marine renewables industry, including Caithness. These will assist in realising and maximising the opportunities in the local and wider areas and where appropriate MeyGen will support these initiatives.

21.10.4 Potential cumulative impacts during decommissioning

21.157 Impacts during decommissioning are expected to be broadly similar to the construction and installation of the Project. While there are limited data and information on the other projects, it is not considered likely that the MeyGen Tidal Energy Project, Phase 1 together with any of these projects would result in a significant negative impact either in terms of economic, tourism or recreational impact during decommissioning.

21.10.5 Mitigation requirements for potential cumulative impacts

21.158 No mitigation is required over and above the Project specific mitigation.

21.11 Proposed Monitoring

21.159 No monitoring has been proposed for this section.

21.12 Summary and Conclusions

21.160 The Project offers major potential in acting as an economic driver and boost to the local Caithness and Northern Isles, and also the wider Highlands economy, in an area, which has historically been dependent upon Dounreay and tourism to a large extent. With the continuing decommissioning of the Dounreay nuclear facility it is imperative that alternative employment and economic opportunities are realised in the local area. The Project, together with other marine projects in the Pentland Firth and Orkney Waters and offshore wind projects present such an opportunity to retain both population and skills.

21.161 The nature of the Project is such that the offshore element will not result in any visual impact either during the temporary construction or decommissioning phases, or indeed once it is in permanent operation.

21.162 The onshore elements will potentially have a limited number of adverse tourism and recreational impacts but these are assessed as not being significant following the proposed mitigation.

21.163 In terms of economic impact the Project will have positive impacts at a local level during all phases of the Project. These positive impacts will occur both within the wider industry supply chain and also within the tourism business economy through the supply of accommodation, and other goods and services.

21.164 The decommissioning phase of the Project is not assessed as having any significant impacts on the local economy, although some minor positive economic impact might occur.

21.165 The overall conclusion of the socio-economic assessment is that the Project will have some positive economic impacts and no major residual significant tourism or recreation impacts on the local study area.

21.13 References

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