



Exploring the State of Understanding and Practice used to Assess Social and Economic Risks and Benefits of Marine Renewable Energy Development

Sponsored by OES-Annex IV and ORJIP Ocean Energy

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Background

Preparing documentation to meet consenting (permitting) needs for deployment of marine renewable energy (MRE) devices in most nations requires an assessment of the social and economic risks and benefits of the development, analogous to examining environmental risks. Whether called Environmental Impact Assessments (EIAs) in Europe, or Environmental Impact Statements (EISs) in North America, the data and information needed to assess impacts are similar. Tables of data types required for social and economic baseline and impacts assessments were sent to the registered participants before the workshop, and are found in the Appendix to this report. The aim of this workshop is to bring together regulators, stakeholders, industry, and researchers to examine frameworks and practical aspects for collecting those data that define social and economic risks and benefits of MRE development. The social and economic data tables were the starting point for two groups to address data needs and limitations.

Workshop Objectives

- Explore the data and information needed to describe and understand the existing social and economic environment in locations proposed for MRE development; and
- Note significant challenges with gathering and applying these data and information

Presentations

The stage was set with three presentations:

Sandy Kerr, ICIT, Heriot-Watt University, UK. *What do community benefit packages tell us about social impact?*

Shelley MacDougall, Acadia University, Canada. *Framework & tools for collecting and analyzing MRE economic data: Tidal Energy in Nova Scotia*

Gareth Davies, Aquatera Limited, UK. *Case Study examples of the Data Collection Process to address Social and Economic Issues in Licensing and Consenting Decisions for Wave and Tidal Devices*

Breakout Groups

The workshop participants were divided into two groups with approximate mixes of researchers, regulators, and MRE industry personnel in each. One group addressed social data and information in support of MRE development, while the other addressed economic data and information.

The following sections provide a summary of the key points raised during the breakout group discussions at the workshop. These points will be used to inform the future development of a guidance note on considering social and economic effects during the consenting process. This guidance note will be produced following a further workshop at EIMR in Orkney in April 2018.

Economic Data and Interactions

Ian Hutchison (Facilitator); Shelley MacDougall (Technical Lead); Jennifer Fox (Scribe)

Summary of key points raised in breakout group discussions

- Often, positive impacts affect urban areas and negative impacts affect rural areas – not often captured in Impact Assessment
- Economic benefits include those in relation to local supply chain and businesses (hotels, pubs, flights, etc.) – other industries (offshore wind, aquaculture) have multipliers for calculating this/accounting for increase in jobs, supportive services, etc. that may be able to look to
- It is difficult to determine who is responsible for data collection/assessment i.e. developers, government, etc, particularly in;
 - Determining the accuracy of projected benefits/impacts should be assessed to inform future developments and projections
 - Collecting long-term baseline data, especially when costs can be incurred
 - Determining if an issue is a consenting issue or a public perception/strategic issue (determining this will help decide who takes responsibility for data collection and who should collect data)
- Trade associations can play an important role by gathering data and publicizing results
- Demonstrating benefits from one project can be relevant for the next project, but can't put ultimate cost of this on developer who is first in the water
- Growth/change in industry is not being tracked in a coordinated way – the onus is currently on developers to show that benefits anticipated at the assessment stage are delivered at the project level. Important to have strategic trackers set up to track progress.
- Efforts are being made at the strategic level with Marine Spatial Planning, Strategic Environmental Assessment etc, but will take time for these to be fully in place
 - Responsibility often falls to developer to fill the gaps
- Important to come to a consensus on what expectations are on the developer versus a larger strategic responsibility to capture data, case studies, and stories (i.e., what is relevant to impact assessment and what actually belongs in industry-wide outreach/awareness campaigns)
- Developers are interested in training and capacity programs – can this be captured in a quantitative way in assessments?
- Metrics are required to measure change e.g.:
 - Number of business start-ups
 - Number of employed graduates

- Social acceptance (awareness/acceptance not the same but can be collected using the same means)
- Not enough information readily available and no standard approach for presenting job creation potential, and inward investment potential (at each stage of development)
 - Useful to have formulae to calculate this
 - Requirements of impact assessment could change from specific number of jobs to a numerical range of jobs created
 - Previous case studies should be used as reference points for these data as a reliable way to make an estimate (i.e., if previous project reported X number of jobs and new project is twice size, then new project will have higher number of jobs)
- Should products/services, GVA, job creation, etc. for demonstration projects be looked at? Can there be thresholds around when it is necessary to examine this?
- Data collection examples:
 - Cape Sharp Tidal – two public opinion polls by developer showed increase in support for industry, potentially result of increased awareness and knowledge of the project
 - DP Energy Experience – InvestNI tracked apprenticeships in anticipation of construction/monitoring when agreements for lease completed in 2012; talked to fishing community to gather data couldn't have gained otherwise (used compensation to help)
- Important to engage with public and have public support (especially fishing industry/community)
 - Can be helpful to involve community (site selection, consenting, etc.) but can lengthen the process
 - Information/data on project (even if not vital to impact assessment) is important to gain support
 - Can be challenging to engage with community/gain support if full details aren't available
 - Need to relay accurate information and avoid misinterpretation of information
 - Make sure public understands the phased approach, adaptive management, and monitoring plans
 - Collaborative working groups can be useful to gain support/increase understanding in community
 - Examples: aquaculture industry – actively pursue letters of support from suppliers to show benefits from development; nuclear power industry – active mail-outs to public in 50 mile radius of development
 - Interesting to compare case studies of Oregon, EMEC and FORCE – see how fishermen have engaged, been engaged, and reacted
- Critical to understand social dynamics, culture, and values in a particular community/stakeholder groups to fully understand impacts
- Need narrative included in impact assessment as well as quantitative analysis
- Success stories are not well documented and are not always used after projects conclude to demonstrate what has gone before; could be very important to future impact assessments
- Suite of new tools may be required to do assessment. May be best to ask community what information they need/what is important to them
- Impact assessments for multi-stage projects are challenging for developers
- Important to consider design envelopes, which gives developers flexibility in consenting stage of projects
 - Both DP Energy and FORCE used these
- Impacts need to be strongly correlated to the sensitivity of the receptor (i.e., if fishing jobs will be lost, but the community is not reliant on that industry then maybe the loss is less important than a community reliant on that industry)
- General consensus: consenting process should be proportional to project size. If project is smaller, negative impacts will be small and requirements for positive impacts to offset should be smaller too
- Impacts should be determined at scoping stage if possible; but if measuring baseline data and forecasting cost/benefit won't have an important effect on consenting, then no need to do this
- Regulatory environment driven by need to respond to legislation, focused on numerical data when possible, but might not be best way for doing these assessments

- Since raw data doesn't always yield useful conclusions, there is a worry that these can be extrapolated, leading to incorrect conclusion. Would be useful to regulators to have published papers demonstrating impacts

Data Needs

- Baseline data at all scales (including difficult data on small/local scale) and long-term data
- Project specific public support data, surveys done by independent group (instead of developers) so no bias
- Measure/fully capture jobs (not just net loss/gain) and include jobs that come through the supply chain
- Success stories/narratives in addition to quantitative data collected

Social Data and Interactions

Andrea Copping (Facilitator); Sandy Kerr (Technical Lead); Genevra Harker-Klimes (Scribe)

Summary of key points raised in breakout group discussions

- Need to understand drivers and have a broad understanding of the background of a project
- Underwater proposals are more difficult than terrestrial, have multiple challenges, and are different everywhere
- Developer should present baseline status and likely effects from proposal
- Government should conduct a social assessment, using existing information and additional social data
 - [UN Sustainability Goals](#) has good measures for assessment
- Social assessment
 - Need to understand social structure of a community to inform assessment, especially geographical extent of studies
 - Review of how assessments should be approached within the regulations; this needs to assess the social impact on a community
 - Need social characterization to be able to include spatial and temporal factors into assessment
 - Put in context of the larger picture – how can renewable energy benefit the country at different scales and how can a specific development benefit the local community
 - Hard to define “success” and difficult to formulate guidance, esp. with very specific permitting requirements
 - Need a wider social definition to put potential effects into context and
 - Approach by regulators needs to change to fully understand social consequences
 - Review what tools are available to promote consistent approaches to assessment and better understanding of social context
- Useful for government to produce ‘value maps’ of different stakeholders, cultures, jobs, scenery, that can be used to understand an area, potential conflicts, and for social assessment
 - Can be used as resource feasibility assessment to judge if development is suited to an area
- Community perception
 - Need cultural context and history of events, in addition to common parameters used (employment, demographics, etc.), to understand perception
 - Acceptance depends on community's and government's tolerance for change
- Engagement is vital, the type and degree will vary based on community and audience
 - Understand scale of engagement needed
 - Hard to define who “stakeholders” are – ID main groups and make sure local community is involved
 - Lessons learned from offshore wind industry, esp. wide geographical interest with at sea projects than land-based projects
 - Spread media message early

- Identify best mode of communication
- Terminology and consistency of message is important for positive engagement
- Balance needed for information distribution and frequency of sharing
- To prepare for individual developments:
 - Increase general knowledge and acceptance with greater communication about other projects, esp. success stories/positive case studies (tracking needs to be done throughout the development to document perception changes)
 - Link communities that live near developments to those where there is a proposed development
 - Involve local people as proponents for the project
- Adaptive management should be defined and clearly explained for each scenario

Data Needs

- Baseline data to be collected by developer, with government role for adding sufficient detail
 - Existing information from government studies included, but need more specific social data (most current data are too high level, too large scale)
- Social assessment/information at government level, including qualitative data
- Broad social context/analysis from government (can include quantitative values)
- Value maps developed by government (different stakeholders, cultures, jobs, scenery, etc.)
- Real social stories are added value
- Cultural context and history of events to understand community response and best approach
- Social characterization to include spatial and temporal factors into assessment
- Case studies of proposed development success stories
- Tools available to promote consistent approaches to assessment and better understanding of social context

Conclusions and Next Steps

Based on the presentation and the results of the breakout groups, it is clear that there is a lack of clarity on how data on social and economic risks and benefits of MRE development are collected, analyzed, and presented. There was a sense from the group that this topic needs additional focus as the processes, examples, and guidance for social and economic data use in consenting/permitting is not as well developed as that for environmental assessment. There is an opportunity to develop best practices for collecting and using these data.

Appendices

Appendix A: Types of data and information required for Socio-Economic baseline assessment

Appendix B: Types of data and information required for Socio-Economic impact assessment.

Appendix C: Workshop Agenda

Appendix A: Types of data and information required for Socio-Economic baseline assessment.

Baseline information required	Possible types and sources of data
Employment Statistics	<ul style="list-style-type: none"> • Level of employment/unemployment from local Censuses • Key industries and employers • Employment trends and projections
Gross wages	<ul style="list-style-type: none"> • From Annual Business Statistics
Gross Value Added (GVA)	<ul style="list-style-type: none"> • From national statistics databases
Exports	<ul style="list-style-type: none"> • Key local products and services • Export value from national statistics databases
Local population demographics and community structure	<ul style="list-style-type: none"> • From census data (including people with special needs) • Consideration of indigenous communities (sources of income, cultural norms etc.)
Local services	<ul style="list-style-type: none"> • Education • Healthcare and social care
Ports and harbours	<ul style="list-style-type: none"> • Existing infrastructure
Transport links	<ul style="list-style-type: none"> • Current limitations and proposed developments i.e. from National Infrastructure Plans
Communications (e.g. broadband)	<ul style="list-style-type: none"> • Transmission line capacity and any current development/upgrade plans
Cables (e.g. grid)	
Commercial fisheries	<ul style="list-style-type: none"> • Landing data (key species, number of vessels, number of fishermen) including trends, value • Supply chain value (onshore processing etc.) • Fishing grounds for key target species • Spawning/nursery grounds for key target species • Aquaculture sites (existing and proposed), value
Commercial Shipping	<ul style="list-style-type: none"> • Commercial vessels • Recreational vessels • Fishing vessels • Naval/defence vessels • Economic value to region
Coastal tourism value	<ul style="list-style-type: none"> • Number of visitors • Value to the local community • Key activities • Seasonal trends
Oil, gas, pipelines and gas storage	<ul style="list-style-type: none"> • Existing projects and infrastructure • Proposed developments

	<ul style="list-style-type: none"> • Areas zoned for future development • Economic value to region
Renewable energy developments	<ul style="list-style-type: none"> • Existing projects • Proposed developments • Areas zoned for future development • Economic value to region
Landscape and seascape	<ul style="list-style-type: none"> • National/local landscape designations • UNESCO sites
Leisure and recreation	<ul style="list-style-type: none"> • Core path designations • Marine recreation areas • Sailing routes • Recreational fisheries
Protected areas	<ul style="list-style-type: none"> • Conservation areas (ecological, geological, cultural etc.)

Appendix B. Types of data and information required for Socio-Economic impact assessment

Impact/benefit	Information required regarding the development
Economic	
Local employment and business opportunities	<ul style="list-style-type: none"> • Project capacity • Job creation potential at each stage of the development • Inward investment potential at each stage of the development • Existing local and regional supply chain structure, e.g. number of companies operating in; <ul style="list-style-type: none"> ○ Technology development ○ Applied research, innovation and testing ○ Consultancy ○ Engineering ○ Manufacturing and components ○ Vessels ○ Surveying ○ Deployment ○ Ports, port operations and land-based support • Job creation potential • Inward investment potential
Increase in Gross Value Added (GVA)	<ul style="list-style-type: none"> • Project expenditure – CapEX and OpEX <ul style="list-style-type: none"> ○ Nationally ○ Regionally ○ Locally
Export of products and services	<ul style="list-style-type: none"> • Products created i.e. electricity, technology • Existing and new services • Potential value to the local/regional economy
Social	
Improvements to infrastructure	<ul style="list-style-type: none"> • Port, road and grid upgrades • Improvements to local communications
Increased knowledge of the industry	<ul style="list-style-type: none"> • Location of construction and O&M base(s)
Clustering effect	<ul style="list-style-type: none"> • Engagement with local suppliers/new businesses
Energy security	<ul style="list-style-type: none"> • Installed capacity and availability of power to the local community
GHG and pollutants avoided	<ul style="list-style-type: none"> • Overview of potential for reduction, carbon offset, etc.
Pressure on local infrastructure and services	<ul style="list-style-type: none"> • Infrastructure requirements • Workforce (during the entire project) and their requirements (housing etc.)

Commercial fisheries displacement	<ul style="list-style-type: none"> • Location and realistic footprint of the development • Type of technology and support structures to be used • Cable route to shore • Vessel management plan
Effects on indigenous communities	<ul style="list-style-type: none"> • Offshore project footprint and activities • Onshore project footprint and activities
Effects on remote communities	<ul style="list-style-type: none"> • Location of the project • Power off-take method • Any changes in power demand and supply • Any displacement of traditional activities /cultural heritage



ANNEX IV



Appendix C. Workshop Agenda

Exploring the State of Understanding and Practice used to
Assess Social and Economic Risks and Benefits of MRE Development

14:00	Introduction, purpose of workshop	Andrea Copping, Ian Hutchison
14:30	Framework & tools for collecting and analyzing MRE economic data: Tidal Energy in Nova Scotia	Shelley McDougall (economic)
14:50	What do community benefit packages tell us about social impact?	Sandy Kerr (social)
15:10	Case Study: social and economic data for consenting	Gareth Davies
15:30	Breakout Groups – baseline data collection for consenting <ul style="list-style-type: none"> • Economic • Social 	
16:20	Break	
16:30	Breakout Groups – data for impacts analysis <ul style="list-style-type: none"> • Economic • Social 	
17:30	Report out of Breakout Groups	Leads for each group
17:50	Next Steps	Andrea Copping
18:00	Adjourn	