Case Studies on Social and Economic Effects around MRE Development; Workshop Report

Monday 23rd April 2018; 1300 – 1700 **The Pickaquoy Centre, Kirkwall, Orkney**

1. Background

This workshop builds on a previous workshop about social and economic data held around the EWTEC conference in Cork, Ireland in August 2017.

The aim of this workshop was to bring together regulators, stakeholders, industry, and researchers to examine the social and economic effects and benefits of MRE developments and how these should best be considered during the consenting process for projects, as well as at a higher strategic level. Information gathered during this workshop will help inform the development of a best practice guidance note on data collection, impact assessment and monitoring, as well as measures that can be implemented to maximise benefits and manage effects from MRE developments.

Three case studies were presented, highlighting experience to date with regards to the social and economic effects and benefits of marine energy developments in key strategic locations. The case studies included Orkney, the Bay of Fundy in Nova Scotia, and Wales. The presentations were followed by break-out group discussions, the objective of which was to consider the following questions:

1. What measures can be implemented at a strategic and project level, to help ensure that social and economic benefits from marine energy developments are maximised and that adverse effects are avoided or minimised?
2. What mechanisms could be implemented to gather data at a strategic and project level to track estimated effects and benefits, and to ensure that the necessary information becomes available to inform robust planning, consenting and ongoing management activities?

There were two break out groups on the day. A summary of the discussions that took place is provided in the following sections.

2. Results of Breakout Group Discussions

Tables 1 and 2 below provide a summary of the discussion that took place during discussion sessions of the workshop around the following questions.

1. What measures can be implemented at a strategic and project level, to help ensure that social and economic benefits from marine energy developments are maximised and that adverse effects are avoided or minimised?
2. What mechanisms could be implemented to gather data at a strategic and project level to ensure that the information necessary to inform robust planning, consenting and ongoing management activities is available?

These questions were discussed at a **strategic level** (Table 1) and a **project level** (Table 2).

Table 1 Summary of discussion around questions 1 & 2 (strategic level)

Question	Summary of break-out group discussions
1. What **measures** are you (the group) aware of in your jurisdictions to **maximise benefits and minimise effects**? 2. What measures are you aware of in your jurisdictions to **collect, analyse and communicate data and results** regarding social and economic effects?	• EIA requires a scoping exercise where stakeholders note which data is important to them. As a result of this, metrics are chosen based on the scoping opinion from stakeholders • Jobs and Economic Development Impact Models (JEDI)[1] have been used to model economic effects in the US, but that only works when there are previous projects to reference • The wind industry may have done some mapping of these effects • In Wales, reports were used to show the value of MRE developments and encourage others to work in the industry • Wales' Wellbeing of Future Generations Act requires large projects (developments of national significance) to consider the implications of the project on future generations – but these data did not seem to be collected when they were not required • Highlands and Islands Enterprise (HIE) and Aquatera have captured data on numbers of employment, GVA etc. at EMEC • The Office for National Statistics (ONS) in the UK records data on the number of people employed in certain areas of a Local Authority's economy e.g. engineering, manufacturing, farming, but not nothing specific to marine renewable energy • Scottish Offshore Renewables Research Framework (SpORRAn)[2] project has a socio-economic working group to address the uncertainties around marine renewable energy deployments

[1] https://www.nrel.gov/analysis/jedi/

[2] http://www.gov.scot/Topics/marine/marineenergy/mre/research

Question	Summary of break-out group discussions
	• The Productive Seas Evidence Group (PSEG) (UK)[3] whose role is to ensure that appropriate mechanisms are in place to produce periodic assessments to identify the nature and influences that human activities have on the socio-economic uses of the marine environment. They have GVA and employment data for renewable energy, but nothing specific to MRE • Offshore wind industry and Oil & Gas UK will have structures in place to measure economic effect, however they may not be directly comparable to MRE as their activities are located further offshore • FORCE has regular meetings with government advisers at which an economic adviser is always present who records data on any new job postings etc. • Conventional input/output models – one off studies • Questionnaires can be used to gather data – need to define appropriate metrics and parameters • "Survey, deploy and monitor" (Scotland): regulators streamline the consenting process, and the developer collects data
How effective have these measures been?	• In Orkney, support from the community is a key aspect to getting harbours built, so reports that encourage MRE industry development is a useful tool to garner community support. • It is often difficult to engage the relevant authorities to collect data • Most data that are collected on a strategic level are not specific to marine renewable energy • Time scales between data collection and its actual implementation can be an issue
What challenges have been encountered and what solutions have been adopted?	• A key challenge is knowing what the right questions are to ask in the first place • Confidence in the local supply chain increases as the industry matures (people get to know each other); local services are sometimes more cost effective • Important to include both developers and the community from the beginning, as they can both drive the narrative in terms of who is involved • Collecting data at a strategic level may not have relevance for the entire constituency (US example) or for the community (especially when the community is small) • Even when data collection is required, there is a lack of enforcement to ensure compliance • When collecting economic data, it is difficult to rate the importance of different jobs against each other; also have to recognise that a lost job has cascading effects on other industries. One solution: work with the community to ensure the correct data are collected to answer the questions of interest • Standardisation of the data is complicated because each project and situation is so different

[3] http://www.gov.scot/Topics/marine/science/MSCC/PSEG

Question	Summary of break-out group discussions
	• The government should be responsible for contracting data collection to an independent party at a strategic level so it can be published and shared • However, government should collect data at the strategic level as data protection laws often mean companies are apprehensive about releasing data to non-government companies/agencies • Data collection should be standardised at some level; different jurisdictions should measure the data in a consistent way so the results are comparable • Data collected at the project or strategic level should be linked to Office of National Statistics data • By starting to gather these data it may spur development of the industry by determining a baseline from which to build and compare • Need to learn lessons from the offshore wind industry – they have required many fewer workers than anticipated, which is a key factor in the rapid decline in costs in that industry, but disappoints local communities • National studies required to determine job multipliers, spread of job/GVA effect at local, regional and national scale which will inform specific project-level assessments • National and local governments have different interests in terms of what data are required – need scalable frameworks that work at different government levels • Data collected needs to be put into context to be meaningful for those that use it (developers and others) – cannot make one aspect look positive and another negative
Is anyone measuring/monitoring the impact/efficacy of these measures?	• MeyGen compared economic development estimations with actual data, but only used metrics from the GVA report (only pre-existing example) • FORCE (Nova Scotia) has experienced an increase in local participation
What additional/new measures could be put in place for existing and future projects?	• Bring together a framework of what questions should be asked so the developer and regulator can decide what is relevant; should also consider which metric is used and how scalable the metric is • Communities need to be given tools to be successful: metrics that are shared with the community (i.e. jobs) are not useful unless they serve that particular community • People are uncomfortable with the possibility of underperformance of development when attempting something for the first time – need to be more comfortable with this • Data drivers should be identified for socio-economic benefits • Government should request and provide support for specific local authorities who have economic activity related to the marine renewable energy industry to gather data on number of jobs, GVA etc. created by the sector in these areas. This can then be scaled up to national levels

Question	Summary of break-out group discussions
	• Development of a tool/database/matrix (per jurisdiction) which would identify potential socio-economic indicators/data that may be useful at the project level as well as at an international scale. This tool would show developers or other interested parties what is relevant to their project and would help to standardise data collection and show regulators/ government what is important

Table 2 Summary of discussion around questions 1 & 2 (project level)

Question	Summary of break-out group discussions
1. What **measures** are you (the group) aware of in your jurisdictions to **maximise benefits and minimise effects**? 2. Is anyone aware of any project level **data collection, analysis and reporting** regarding social and economic effects?	• Aquatera has collected some data (investments made, number of employees) • Orkney has collected job data, but has been too strategic in some cases (eg. comparing two Orkney jobs to two London jobs is not meaningful) • MeyGen made a commitment to have a certain number of apprenticeships and use a certain percentage of local workers • Aberdeen Bay Wind Project collected socio-economic data with a framework • Developers have been known to collect data on e.g. likely use of ferries or potential influx of workers during project build-out which informs potential socio-economic effects
How effective have these measures been?	• Difficult to analyse the local impact for smaller projects, like Orkney, because number of local jobs by itself may not be truly indicative of local impact • Difficult to measure the positive offset for the negative effects of a new development in the same unit; may require a ranking of effects in importance
What challenges have been encountered and what solutions have been adopted?	• Hypothetical solutions: Compensate those impacted by the development (e.g. fishermen); create artificial reefs to enhance fishery (issues with "compensate": implies blame, difficult to know how far to go, and could set precedent) • Offshore wind gave 5,000 GBP/MWh, but it is difficult to apply offshore wind practices to MRE as OSW draws more from a regional area while MRE is likely to be more closely allied with a single community; also brings in the question: who has rights to the location of the installation? • Compensation needs to be determined by drivers (communities, companies) • Some communities encourage development because of other benefits • Regulators can require developers to collect data, but the developers have to pay for it, and then the data are not public. • Perhaps the public sector should collect some of these data so they are public and can be shared • Difficult to demonstrate the value of collecting socio-economic data from the first mover's view, but the advantage can be shown in the future

Question	Summary of break-out group discussions
	• Data collected without input from the data users are not useful data; a partnership should be developed to create a data collection plan to understand what the question that the regulators are trying to answer.
Is anyone measuring/monitoring the impact/efficacy of these measures?	• MeyGen compared economic development estimations with actual data, but only used metrics from the GVA report (only pre-existing example). This is now regarded as the baseline, but the metrics to establish this may not have been checked – but if they were, they could be used to gauge commercial projects • FORCE (Nova Scotia) has experienced an increase in local participation through the supply chain • EMEC has collected some of these data in-house
What additional/new measures could be put in place for existing and future projects?	• The onus should not be on the developer to collect the data • There is a balance between measuring everything (expensive and unnecessary) and not gathering enough data • Should try to collect data that people will care about in the future (CO_2 levels, etc.) • Marine Spatial Planning (MSP) is beginning to be integrated into legislation, but more work could be done • Create a vendor database so anyone can bid on upcoming projects
What should/could be done at a project level to enhance strategic efforts?	• Where grant funding is being provided it should be a condition that the number of jobs created as a result of this grant funding should be provided to and recorded by the funder • Test sites are good at proving data collection requirements and what data are most useful • Different developers have different values for data e.g. those with more community-based projects likely to have a greater interest in gathering job etc. data as would positively inform future projects – again need scalable frameworks that work at different government levels • Need a template for developers that sets out questions related to social and economic data collection that need to be answered (e.g. ABPMer 2012)[4] • Local issues and data are most important at project level, particularly when weighing against environmental impacts – this 'bottom up' data collection should feed into strategic level data collection practices and recommendations • Refine data collection processes when undertaking project-level assessments in order to effectively capture the potential advantages

[4] ABPMer, 2012, A Socio-economic Methodology and Baseline for Pentland Firth and Orkney Waters Round 1 Wave and Tidal Developments (Not available online but available on request)

3. General Summary Notes

This section provides a summary of other points raised durinig the workshop;

- The underlying issue is that there are not enough data to show how effective any attempted measures have been to maximise benefits and minimise adverse effects
    - There have been some efforts to measure the impact, but a reliable baseline has yet to be established
    - Data gaps are the biggest challenge; many issues exist with collecting these data, but the group agreed that they need to be collected
    - More data specific to the efficacy of measures to maximise benefits and minimise negative effects of MRE are required
    - Analysis of the effectiveness of measures taken is difficult due to issues of comparability: small and large cities' metrics are not comparable, and positive and negative data may not comparable
    - Some data has been collected to measure the efficacy, but baselines are under debate and some of the data are not public or shared
    - Developers need a template or framework of data to collect to allow comparability with strategic baseline data
- Community support of a project in an area of low population is important, and can be garnered by sharing positive data with the community
    - Transparency is important in gathering community support
- Data collection considerations include: making sure the right questions are asked, enforcement to ensure the data are actually collected, some level of standardisation should take place, and who should be responsible for paying for the data collection
    - Concrete actions that can be taken to address these considerations: form a partnership between data collectors and data users; establish who should be responsible for data collection and paying for the data collection (the groups mostly agreed the government should fund at least part of the data collection); compare site-specific data to data collected at a larger scale (Office of National Statistics, for example)
- Concrete way to address these considerations: create a framework of potential topics for data collection, and bring stakeholders together to determine what the research priorities should be.
- Compensation issue: perhaps compensation should be issued to those that are affected by MRE developments but this sets off a cascade of issues: how far to go with compensation, the fact that "compensation" implies blame, and some of these developments have other positive benefits that help the same people who have also been negatively affected
- Data collected by developers is not typically published or public, so it is a siloed effort – the public sector should have some part in procuring these data so they can be useful outside of the specific project
- MSP should be used in planning, and its popularity is spreading
- All to do with data collection. Suggestions include: not making the developer responsible for all data collection, gather data that are applicable to future concerns, and measure enough data but not too much
- Test sites can provide advice on what could be done at a project level to enhance strategic efforts

- Data collection regards risk-based issues e.g. potential for collision between vessels and turbines – which would have an economic consequence – can help prove the risk is low and ease consenting procedures

4. Future steps

Information gathered during this workshop will inform the development of a best practice guidance note on data collection, impact assessment and monitoring, as well as measures that can be implemented to maximise benefits and manage effects from MRE developments.

APPENDIX A AGENDA

1300 – 1315	Registration and coffee
1315 – 1330	Welcome and introductions Plan for the day
1330 – 1440	Case Study Presentations Orkney Canada Wales
1440 – 1455	Introduction to breakout sessions
1455 – 1510	Coffee Break
1510 – 1550	Breakout session 1
1550 – 1630	Breakout session 2
1630 – 1645	Report out from breakout sessions
1645 – 1700	Closing remarks

APPENDIX B WORKSHOP PARTICIPANTS

Role	Name	Organisation	Name	Organisation
Discussion Lead	Andrea Copping	Pacific Northwest National Laboratory/ OES Annex IV	Jennifer Fox	Aquatera Ltd/ ORJIP Ocean Energy
Technical Lead	Sandy Kerr	Heriot Watt University, ICIT	Ian Johnstone	Aquatera Ltd
Scribe	Paul Morgan	Aquatera Ltd	Carrie Schmaus	Water Power Technologies Office (EERE)
Speaker	Neil Kermode	European Mairine Energy Centre (EMEC)	Anna Redden	Acadia University

Discussion Group 1		Discussion Group 2	
Name	**Organisation**	**Name**	**Organisation**
Caitlin Long	EMEC	Anke Bender	Uppsala University
Emma DeWitt Cotter	University of Washington	Brian L. Polagye	University of Washington
George Bonhugo	PNNL	Damian Saffroy	RTE France
James Duncan Chapman	Aberdeen University	Jeannine Hazlehurst	
Jan Sundberg	Uppsala University	Kate Thompsen	Scottish Natural Heritage
Liz Nagle	Acadia University	Olivia Langhamer	Chalmers University of Technology
Patrick Cowdy	Welsh Government	Stephanie Weir	Heriot Watt University
Robin Burnett	DP Energy		
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