

MORLAIS,
Menter Môn,
The Town Hall,
Llangefni,
Anglesey,
LL77 7LR

11th July 2018

Dear Graham Morley,

SCOPING OPINION UNDER THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007 (as amended)

MORLAIS TIDAL ARRAY

I am writing in response to your request for a scoping opinion, request dated 19th April 2018, made in accordance with the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) ("The Regulations").

The purpose of the Environmental Impact Assessment (EIA) scoping procedure is to determine what information should be provided in the Environmental Statement (ES).

In reaching our scoping opinion we have had regard to the information provided in the "Morlais Tidal Array Scoping Report", dated 19 April 2018, and considered the requirements of Schedule 3 of the regulations. We have consulted with the bodies that we consider to have an interest in the project, by reason of their responsibilities, or local or regional competences, as required by the Marine Works Regulations, and had regard to their comments.

Scoping Opinion

This letter sets out the additional information that we consider necessary to be included and/or assessed in the ES for this Project. Please note that this scoping opinion supersedes the Scoping Opinion provided by NRW for this project in 2015 in its entirety (our ref: SC1503v1).

Please note our scoping opinion is based on the information available to us at this time. The information provided is not a definitive list of the ES / EIA requirements and further information may be required following an application for this project, to ensure a full assessment is carried out.

Please also note that our scoping opinion will be provided to all those bodies that were consulted and will be published on our website and on our Public Register.

The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended)

Scoping Opinion (SC1804)

Summary of the proposal

Menter Môn Cyf (Menter Môn) has sought a scoping opinion from the Natural Resources Wales Permitting Service (NRW PS) for the proposed Morlais Tidal Array (MTA) project. A Scoping Opinion was also sought from NRW PS for this project in 2015 which this scoping opinion now supersedes.

Menter Môn propose to develop 240MW of tidal generating capacity within the Morlais Demonstration Zone. The development of the project will provide a consented tidal technology demonstration zone, specifically designed for the installation, testing and commercial demonstration of arrays of tidal energy devices. The project will include communal infrastructure for tidal technology developers which provides a joint route to a local grid connection location, such as export cables, an onshore substation and onshore electrical cable routes.

The application for regulatory approval for the project will include the following components:

- Tidal energy devices;
- Offshore electrical infrastructure;
- Offshore inter-array cables;
- Offshore export cables;
- Landfall and onshore cable route;
- Onshore substation;
- Grid Connection.

Location

The project will be developed within the Morlais Demonstration Zone (MDZ) Crown Estate Agreement for Lease (AfL) area which is located to the west of Holy Island, Anglesey. The MDZ covers an area of 35km² and is located approximately 0.5km at its nearest point from the west coast of Holy Island. The export cable landfall is expected to be on the west coast of Holy Island, south of South Stack lighthouse, in the area of Penrhos Feilw. The location of the onshore substation has not yet been determined.

Consultation Responses Received

In considering the scoping report, the NRW PS consulted with a number of consultation bodies. The consultation bodies that responded are listed below:

- Natural Resources Wales Technical Experts (NRW TE)
- Ministry of Defence (MoD)
- Maritime and Coastguard Agency (MCA)
- Royal Yachting Association (RYA)
- Trinity House Lighthouse Service (THLS)
- Isle of Anglesey County Council (IoACC)
- Royal Society for the Protection of Birds (RSPB)
- Welsh Government Marine Enforcement Officer (WG MEO)
- Cadw
- Gwynedd Archaeological Trust (GAT)
- Chamber of Shipping
- National Air Traffic Control Services (NATS)
- Health and Safety Executive (HSE)

- ABPmer (specialist underwater noise and vibration advice)
- Marine Management Organisation (MMO)
- Department for Business, Energy and Industrial Strategy (BEIS)
- Welsh Government Marine Branch

0. General/overarching comments

- 0.1. Zone of influence and impact pathway descriptions have not been provided in sufficient detail for scrutiny in the EIA scoping report. We are therefore unable to confirm whether we agree with the impact zone of influence or impact pathways. This presents implications for the advice that can currently be provided with respect to designated sites, cumulative impacts and activities to be scoped out. It is not known at present what devices will be deployed in the demonstration zone area etc therefore it will be important that the zone of influence identifies the maximum environmental impact based on realistic worst-case scenarios. The baseline evidence used to determine the zone of influence must to be clearly stated in the ES.
- 0.2. The EIA will use a Project Design Envelope (PDE) approach to cover a range of potential technologies that could be deployed within the demonstration zone. At this stage there are uncertainties associated with the project description. It is difficult therefore to make detailed comments on the scope of the EIA since the potential range of devices, installation techniques and infrastructure needed has not been determined. The exact nature of the work that is required to inform the EIA may vary depending on the design choices. The EIA must provide a clear PDE and clear explanation of the potential impact of each of the different scenarios.
- 0.3. We recommend that any future documents submitted for review would benefit from a thorough proof reading before submission to ensure that information such as protected site names and designated features of interest are correct. Incorrect or missing information may result in incomplete assessments within the Environmental Statement (ES) and could cause delays should further information be required that has not been considered previously.
- 0.4. Guidance provided to the applicant by NRW TE to assist with scoping the proposal and EIA does not appear to have been fully used to inform all aspects of the EIA scoping report^{1 2 3}. We also note that the scoping report has not drawn upon information collated within the Crown Estate's plan level Habitats Regulation Appraisal for their 2013/14 wave and tidal leasing round, which culminated in the leasing of the six UK demonstration zones, including Morlais. NRW TE has previously provided a guidance note to you on how we considered that this information could be used at an individual demonstration zone level⁴. We strongly recommend that the ES makes full use of these sources of information.
- 0.5. Whilst the information required to inform the Habitats Regulations Assessment (HRA) and Water Framework Directive (WFD) assessment should be coordinated with the EIA, it is important to note that there is distinction between the EIA, HRA and WFD processes; We therefore recommend that the ES should include sections containing 'information to inform the HRA' and 'WFD compliance assessment', or separate reports should be provided.
- 0.6. Without wishing to prejudice the HRA or consenting process, a package of measures that would avoid or mitigate the effects of the proposal and avoid adverse effects on the integrity of European protected sites would appear challenging to achieve in this instance. If this is the case it may be necessary to consider the proposal under Regulation 64 of the Habitats Regulations, where the possibility of alternatives to the proposal that would not give rise to adverse effects on the integrity of European protected sites are considered. If the shadow HRA indicates that this may be case, we recommend that you liaise with NRW PS and NRW TE pre-application to consider the requirements of Regulation 64.

¹ NRW advice on scoping Environmental Impact Assessments for wave and tidal stream demonstration zones and project sites (Cover note for items 2 and 3 below).

² NRW advice on scoping and Environmental Impact Assessment for marine renewable energy developments

³ NRW natural heritage checklist: tidal stream demonstration zone west of Holy Island, Anglesey.

⁴ NRW note on The Crown Estate's Habitats Regulations Appraisal of their 2013/14 leasing round for wave and tidal stream energy

- 0.7. We encourage you to refer to the Crown Estate Technical Report: Wave and tidal enabling action: consolidation of wave and tidal EIA / HRA issues and research priorities (2014)⁵. This will provide guidance to addressing the key strategic EIA / HRA issues associated with wave and tidal stream arrays and identify strategic research priorities which individual developers may plan to undertake, or which could be addressed through a coordinated programme.
- 0.8. We welcome the commitment in table 11.1 for the production of an Environmental Management Plan to include information on how pollution incidents will be dealt with. This plan should cover all phases of the proposed development. We note that the intention is that the plan will also include information on dealing with any waste generated as a result of the proposal.
- 0.9. We draw your attention to the latest pollution prevention guidance, especially GPP5 and GPP6. The latest guidance is now available at the Netregs website⁶. To our knowledge the EIA scoping report has not addressed whether the underground cables will contain cooling oil or not. Should the cables contain oil we recommend that there should be a leak or pressure loss detection function built into the system.
- 0.10. The Scoping Report does not explain whether tidal energy devices will be changed during the operation of the zone or whether the same devices would remain in place for MTA's lifetime. If devices are to be added/removed throughout the operational life of the MTA this will need to be described in the project description, defined in the PDE and the potential impacts must be assessed.
- 0.11. The remainder of our comments are provided under the relevant chapter headings from your scoping report.
- 0.12. The ES must demonstrate consideration of the points raised in this scoping opinion and how they have been addressed.

1. Non-technical Summary

- 1.1. We currently have no comments to make on this chapter.

2. Introduction to the project

- 2.1. We currently have no comments to make on this chapter.

3. Key policy and planning legislation

- 3.1. As a Marine Licence under the Marine and Coastal Access Act (2009) will be sought for this project, this legislation should be explained in the ES, in the same way that the Transport and Works Act is in Section 3.2, rather than just briefly mentioning it in the environmental legislation table (Table 3.2). The ES should make the licensing requirements of the project clear.
- 3.2. Section 3.2.6 should also cover the Marine Works (Environmental Impact Assessment) Regulations (2007) (as amended) which this scoping opinion has been provided under.
- 3.3. As set out in the scoping report, the Environmental Statement will need to consider the implication of the proposals on European Directives, including;
 - EC Habitats Directive (protected sites and protected species)
 - Marine Strategy Framework Directive
 - Water Framework Directive
- 3.4. As set out in the scoping report, the requirements of national legislation will also need to be considered, including;
 - The Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000
 - The Conservation of Habitats and Species Regulations 2017 (as amended)
 - The Environment (Wales) Act 2016
- 3.5. The Conservation of Habitats and Species Regulations 2010 and Offshore Marine Conservation (Natural Habitats &c.) Regulations 2007 have been consolidated and replaced by the Conservation of Habitats and Species Regulations 2017 and the

⁵ Aquatera Ltd (2014). Consolidation of Wave and Tidal EIA / HRA Issues and Research Priorities. Technical Report to Crown Estate.

⁶ <http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-pgps-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/>

Conservation of Offshore Marine Habitats and Species Regulations 2017 respectively. References to earlier regulations should be corrected in the ES.

- 3.6. The scoping report recognises and highlights the developing Welsh National Marine Plan (WNMP) and marine planning framework as key policy context and correctly identifies that the plan is not yet adopted. Once the plan has been adopted NRW PS must make decisions in accordance with the marine plan, unless relevant considerations indicate otherwise. In preparation for the adoption of the plan, we recommend that any EIA undertaken reviews the contents of the draft WNMP, and the Environmental Statement considers how the project complies with the draft Policies, or the final policies once the plan is adopted.
- 3.7. From the national perspective, Planning Policy Wales and the relevant Technical Advice Notes (TANs) should be reviewed whilst the local perspective should focus upon the adopted JLDP for Anglesey and Gwynedd in addition to the relevant Supplementary Planning Guidance (SPGs). Of the policies contained in the JLDP, the following are considered to be of relevance to the proposed development:
- STRATEGIC POLICY PS 1: WELSH LANGUAGE AND CULTURE
 - STRATEGIC POLICY PS 2: INFRASTRUCTURE AND DEVELOPER CONTRIBUTIONS
 - POLICY ISA 1: INFRASTRUCTURE PROVISION
 - POLICY TRA 2: PARKING STANDARDS
 - POLICY TRA 4: MANAGING TRANSPORT IMPACTS
 - STRATEGIC POLICY PS 5: SUSTAINABLE DEVELOPMENT
 - STRATEGIC POLICY PS 6: ALLEVIATING AND ADAPTING TO THE EFFECTS OF CLIMATE CHANGE
 - POLICY PCYFF 1: DEVELOPMENT BOUNDARIES
 - POLICY PCYFF 2: DEVELOPMENT CRITERIA
 - POLICY PCYFF 3: DESIGN AND PLACE SHAPING
 - POLICY PCYFF 4: DESIGN AND LANDSCAPING
 - STRATEGIC POLICY PS 7: RENEWABLE ENERGY TECHNOLOGY
 - POLICY ADN 3: OTHER RENEWABLE ENERGY AND LOW CARBON TECHNOLOGIES
 - POLICY ARNA 1: COASTAL CHANGE MANAGEMENT AREA
 - STRATEGIC POLICY PS 13: PROVIDING OPPORTUNITY FOR A FLOURISHING ECONOMY
 - STRATEGIC POLICY PS 14: THE VISITOR ECONOMY
 - STRATEGIC POLICY PS 19: CONSERVING AND WHERE APPROPRIATE ENHANCING THE NATURAL ENVIRONMENT
 - POLICY AMG1: AREA OF OUTSTANDING NATURAL BEAUTY MANAGEMENT PLANS
 - POLICY AMG 4: COASTAL PROTECTION
 - POLICY AMG 5: LOCAL BIODIVERSITY CONSERVATION
 - POLICY AMG 6: PROTECTING SITES OF REGIONAL OR LOCAL SIGNIFICANCE
 - POLICY PS 20: PRESERVING AND WHERE APPROPRIATE ENHANCING HERITAGE ASSETS
- 3.8. The Well-being of Future Generations (Wales) Act 2015 “Well Being Act” places a statutory duty on public bodies in relation to sustainable development based on seven well-being goals. Planning Policy Wales at paragraph 4.2.1 explains that the Planning (Wales) Act 2015 introduced a statutory purpose for the planning system in Wales – any statutory body carrying out a planning function must exercise those functions in accordance with the principles of sustainable development as set out in the Well Being Act. A statement should be provided of how the proposals contribute to the Well Being Act and material planning policies. A description of the sustainable aspects of the development and the measures envisaged to prevent, reduce or offset any significant adverse effects on the environment, including global warming energy efficiency, water and waste management should all be addressed, and it should be demonstrated how

concepts of sustainability underpin all topics considered in the ES. It would be acceptable to provide a consideration of the sustainability credentials of the proposed development in a separate stand-alone Sustainability Statement alongside the ES or within an accompanying Planning Statement.

4. Geographical boundaries and approach to EIA

- 4.1. The ES must assess the worst case scenario (WCS) for the maximum number of devices to be deployed at the site. This should include the types of devices which may be deployed and the parameters of the devices including a WCS for expected dimensions and mooring configurations.
- 4.2. WCS parameters must be provided for the export cables in terms of the collective direct and indirect cable impacts from footprint extent, burial/trenching and protection. A WCS should also be assessed for the proposed cable protection. This should include dimensions of the proposed cable protection and the area of seabed this is likely to cover. Details should also be provided of cable protection during decommissioning and whether this will be removed upon the completion of the lifetime of the project.
- 4.3. Details of the location of the export cable route must be provided in the ES. This information should include the maximum parameters to assess the WCS of different route options.
- 4.4. In relation to the “offshore” section on page 35 of the EIA scoping report, it should be noted that the area of impact on offshore receptors may extend beyond the immediate footprint of installed infrastructure and/or the swept area of tidal devices. The full zone of influence needs to be determined for each potential technology type and / or component of the project and the full area of impact for each receptor assessed appropriately (note that this may extend beyond the demonstration zone itself, depending on device type, location, and physical processes).

5. Project description

- 5.1. The flexible project design envelope will need to achieve an appropriate balance between providing sufficient detail to allow for a robust assessment of impacts, whilst retaining the flexibility to avoid the need for consent modifications in the future. It is likely that some project design parameters will need to be tightly defined, where the potential for impact on sensitive receptors is significant. Other project design parameters may be more benign in their potential to cause significant effects and so greater flexibility within the design envelope can be retained.
- 5.2. The ES must include a clear description of all aspects of the proposed development. For the construction stage this should include:
 - land use requirements;
 - site preparation;
 - construction processes and methods;
 - the duration and phasing of programme; construction materials; methods and activities associated with each phase; siting of construction compounds (including on and any off site); lighting equipment/requirements;
 - an estimate of residuals and emissions by type, quantity, composition and strength (including water, air and soil pollution, noise, vibration, light and heat radiation) during the construction phases of the development together with measures to mitigate emissions which should be incorporated where appropriate in an outline Construction Environmental Management Plan “CEMP” to be submitted with the ES;
 - the number, movements and parking of construction vehicles (including Plant & Machinery etc., Heavy Goods Vehicles “HGV”, Light Goods Vehicles “LGV” and staff) should be clearly indicated in the ES which should be accompanied by an outline Construction Traffic Management Plan “CTMP”. Transport site access routes for construction traffic and any vehicles carrying abnormal loads in connection with the development on the public highway should also be clearly indicated within the ES as part of the CTMP;
 - emissions - water, air and soil pollution, noise, vibration, light, heat; and

- maintenance activities throughout the duration of the construction phase including land management having regard to ecological, landscape and human receptors.
- 5.3. The ES must make the duration of the project and decommissioning of the project clear. The Scoping report refers to a 37 year lifetime and clarity is required on whether this includes the decommissioning period. This project duration is different to that given in the previous (2015) scoping report of 45 years.
 - 5.4. It is stated that a worst-case scenario will be considered, with this including the removal of cables from the seabed. The ES should make it clear whether any structures are proposed to remain in-situ on the seabed post-decommissioning.
 - 5.5. Paragraph 5.5 of the scoping report states that tenants will take responsibility for decommissioning. BEIS are currently updating their decommissioning guidance⁷. Paragraphs 4.7 to 4.11 of this draft updated guidance set out that they expect testing centres to take responsibility for their tenants (for example the testing centre might take a decommissioning bond from them or might handle the financial risk through its berth fees, or simply refuse to allow the tenant to install if the project lacks financial viability). The ES should make the roles of Menter Mon and tenants clear in relation to tenants' decommissioning.
 - 5.6. The ES should consider the noise emissions from the construction (including seabed preparation, device installation, electrical hub installation, cable laying and burial), operation, maintenance and decommissioning of the project. Should any percussive piling be required, we recommend that appropriate methods for predicting underwater noise propagation impacts are agreed with NRW PS.
 - 5.7. You have previously raised the possibility of applying for a 'phased' Marine Licence, however phasing of the construction of the project is not detailed in the scoping report. The ES should make the approach to construction and operation, including any phasing requirements, clear, and this should be appropriately assessed.

6. Proposed EIA methodology

- 6.1. Section 6.1 makes reference to the Transport and Works EIA regulations but not the Marine Works EIA regulations, which this scoping opinion has been sought under. The ES should correctly reference both sets of EIA regulations.
- 6.2. It should be noted that since the last scoping opinion was issued for this project by NRW in 2015 there has been an amendment to the EIA Directive, and this scoping opinion is provided in accordance with the 2017 amendment of the Marine Works EIA regulations.
- 6.3. Schedule 3 of the Marine Works (EIA) (Amendment) Regulations 2017 (MWR), sets out information that must be included in your Environmental Statement. As noted in section 3.2.6 of the scoping report, key changes to the EIA directive that have been implemented since your 2015 scoping opinion include:
 - A requirement to provide a description of the likely significant effects of the development on the environment resulting from impacts on climate change, risks to human health and use of natural resources;
 - Ensuring EIA quality by requiring that those who undertake the work are competent experts;
 - More detailed demonstration of the consideration of reasonable alternatives to the proposed project; and
 - Further consideration of how to avoid, prevent, reduce and / or off-set significant adverse effects where possible and develop monitoring strategies.

As this scoping opinion has been given under the 2017 amended of the MWR you must ensure that these amended requirements are addressed in your ES.
- 6.4. Article 3 of Schedule 3 of MWR requires a description of the relevant aspects of the current state of the environment (baseline scenario), and an outline of the likely evolution thereof without implementation of the project, as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge. This must be provided in the ES.

⁷ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/679965/Decommissioning_guidance_2018.pdf

- 6.5. We draw your attention to the requirement of Article 6 of Schedule 3 of the MWR which requires you to consider the potential transboundary effects of the project.
- 6.6. As set out in Article 7 of Schedule 3 of the MWR, the ES must detail any difficulties with the assessments, for example, technical deficiencies or lack of knowledge, and make associated uncertainties clear.
- 6.7. Article 8 of Schedule 3 of the MWR requires you to provide a description of the measures envisaged to avoid, prevent, reduce or if possible offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example, the preparation of a post-project analysis). That description must explain the extent to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and must cover both the construction and operational phases. This will need careful consideration, especially if you intend to apply for a phased marine licence.
- 6.8. The ES must include a description and assessment (where relevant) of the likely significant effects resulting from accidents and disasters applicable to the Proposed Works (Article 9 of schedule 3 of the MWR).
- 6.9. The Scoping Report provides a high-level description of the approach to the assessment but does not cover how significance of effects will be determined. The ES must set out the methodology for assessment and explain how significant and non-significant effects will be determined.

7. Physical environment

Metocean Conditions and Coastal Processes

- 7.1. Little information is provided in the scoping report with regard to cable protection requirements. It is not defined at present where and how much cable protection will be required if the export cables are surface laid on exposed bedrock and protected by rock armour or concrete mattresses. Cable protection could include permanent rock armour protection on the seabed potentially altering current flows near the seabed, inducing sediment scour and potentially altering sediment transport pathways near the coast. Worst-case scenarios for cable protection must be assessed in the ES.
- 7.2. The scoping report suggests that you only propose to assess potential impacts on metocean conditions and coastal processes during the operational phase of the proposed development (see table 7.1). We advise that the other phases of the project (construction and decommissioning) should also be considered within the ES. For example, during the construction phase there could be impacts caused by the cable laying activities, such as alteration to the seabed morphology which could impact on coastal processes if located across an active sediment transport pathway.
- 7.3. Table 7.1 describes the potential impact 'increased suspended sediment from reduced water energy'. It is unclear how reduced water energy will increase suspended sediment concentrations. Reduced water energy may increase sedimentation of suspended material; is this what is meant? This should be clarified in the ES.
- 7.4. With reference to table 7.1, the ES should assess the alteration of near bed currents and sediment transport pathways caused by rock armour protection on the seabed, not just the tidal energy devices.
- 7.5. The baseline characterisation work proposed within the scoping report is limited and it is unclear how you intend to describe the site selection process for the tidal energy devices and grid connection route if detailed hydrodynamic, bathymetric and geophysical investigations are not carried out to provide the necessary baseline evidence. Accurate bathymetry and geophysical survey data of the demonstration zone must be used to inform the export cable route pathways through the proposed demonstration zone. We recommend that sediment samples should also be taken in sediment laden seabed areas to determine sediment type, composition and sediment volume that could potentially be suspended through the cable trenching activities.
- 7.6. The scoping report suggests that you will not be conducting hydrodynamic investigations of the demonstration zone area and it is therefore unclear how you intend to assess potential hydrodynamic impacts from the presence of the offshore infrastructure (i.e. offshore hub, inter array and export cables and associated cable protection) and the tidal energy devices themselves. Without physically measuring or modelling the change in the energy potential downstream of the devices and alteration

to the wave directions under different wave conditions, it may not be possible to determine significance and magnitude of impact on the coastal processes. These impacts must be appropriately assessed in the ES. Hydrodynamic modelling to inform the impact assessment should not be ruled out until it is confirmed that there is enough baseline evidence to qualify and quantify the impact assessment process for hydrodynamics, sediment transport and coastal processes.

- 7.7. Regarding 'EIA baseline characterisation' (section 7.1.3), we welcome the inclusion of a conceptual model to describe the hydrodynamic and coastal process. A coastal processes conceptual model is a useful way to identify where there are gaps in existing baseline evidence which may then inform the requirement for further metocean data collection through field surveys. We disagree that the metocean and coastal processes field data collection can be ruled out at this stage. Further consideration must be made in the ES.
- 7.8. The coastal processes baseline characterisation should also include topographical data at the landfall location which may be used to inform any potential impacts on the beach profile and sediment morphology arising from the cable landfall of the export cable from offshore to onshore and the construction of a transition pit.
- 7.9. The ES must appropriately assess the potential impacts to physical processes caused by the deployment of multiple tidal energy devices. The physical processes impact assessment is an important assessment as any alteration to the flow conditions, waves regime and sediment transport pathways caused by the presence of the tidal devices and the associated infrastructure will potentially impact on the intertidal and subtidal benthic ecology, water quality and coastal morphodynamics. This in turn could then affect the integrity of the protected sites designated under the Habitats Directive and affect the ecological status defined under the Water Framework Directive. It is currently unclear how this will be qualitatively and quantitatively assessed using a non-numerical approach i.e. development of a conceptual model.

Marine Sediment and Water Quality

- 7.10. In section 7.2.1.1 there is reference to the bathing water quality for eight beaches in the MDZ coastal area and reference to one designated European Shellfish Water. There is, however, no inclusion of the Water Framework Directive (WFD) existing water body status for the coastal water bodies within the demonstration zone. This must be included in the ES.
- 7.11. The demonstration zone is located at its nearest point, 0.5km (0.27 nautical miles) from the west coast of Holy Island Anglesey and falls within the Caernarfon Bay North WFD coastal water body which currently has an overall Good status, with a Good chemical status and a good ecological status. A Preliminary WFD Assessment report must be prepared by the applicant and submitted with the Marine Licence application and, where required, a detailed WFD Compliance Assessment Report should be undertaken. WFD should be considered at an early stage in project planning to ensure avoidance, mitigation and/or improvement measures are built in to the project where appropriate. It is recommended that the appraisal of an activity or project is conducted in 3 stages (Screening, scoping and detailed assessment) and in the event that an activity may prevent the water body achieving good status or cause deterioration then it may be allowed to proceed if it meets the requirements of Article 4.7. The WFD assessment must consider:
 - all activities carried out; and,
 - each stage of the activity, for example construction, operation, maintenance and decommissioning
 - the zone of influence of the project in its entirety and any WFD waterbodies that fall within it, not just where there are direct impacts.
 - whether the potential impacts are short term effects (< 6 years) or will cause a non-temporary/permanent change (e.g. direct habitat loss, alteration to sediment transport pathways, interference with migratory fish pathways etc). If the impacts are considered a non-temporary/permanent effect on the biological, chemical or hydro morphological elements of the WFD water body in question then the

impact must be carried forward for consideration in the WFD compliance assessment process.

- 7.12. For your information, please see attached OGN 72 for further consideration. This is NRW's internal guidance document on assessing activities and projects for compliance with the Water Framework Directive. It is worth highlighting that these documents are intended for internal NRW use and therefore some of the links may not work and some content may not be relevant externally.
- 7.13. Contaminated sediments could be present in the demonstration zone and investigations should be carried out to determine the level of contaminated sediments particularly in areas where sediment may be disturbed into suspension during the construction phase i.e. installation of devices and the cable laying activities which could potentially release contaminants into the water column. We note your comment (section 7.2.3) "It is likely that site-specific sediment contaminant sampling would also be undertaken during the EIA" and advise that this activity is carried out.
- 7.14. There has been no inclusion of tidal current data in the demonstration zone which shows the magnitude and direction of flow over the zone to substantiate the assumption that the suspended sediments would rapidly disperse. We agree that in fast flowing currents, dispersion of suspended sediments could occur rapidly and the potential for smothering would be reduced as a result (table 7.2). However, there is no baseline evidence presented in the metocean section that supports this assessment of impact. Further evidence should be presented in the ES to show the magnitude and direction of the tidal currents in the nearshore and intertidal areas which are often much smaller than those experienced offshore, and which may not be enough to promote rapid dispersion of suspended sediments and potential contaminants released through trenching activities over this zone.
- 7.15. Section 7.2.3 states "baseline water quality conditions within the offshore scoping area. This would be done through a review of available literature". It is unclear which baseline water quality conditions are being referred to. If the baseline water quality conditions are not adequately evidenced after review of available literature, further surveys should be carried out to inform the baseline characterisation.

Geology, Geomorphology, Soils, Hydrology and Flood Risk

- 7.16. The Scoping Report (at 7.3.1.1) refers to parts of Holy Island/Anglesey being designated as a UNESCO Geopark. It should be noted that the whole of the island benefits from the UNESCO designation and this should be reflected in the ES.
- 7.17. The scoping report states that "due to the limited nature of the onshore development it is anticipated that there would be no impacts on the geology environment." Whilst we don't disagree with this statement in the main, it should be noted that the onshore scoping area covers, or is in close proximity to, a number of Regionally important geological and geomorphological sites (RIGS) set out below. Any impacts on the RIGS sites in question must be adequately considered and mitigated where necessary.
- Pen Las Rock RIGS, Penrhosfeilw;
 - South Stack Moor and South Stack RIGS, Holyhead;
 - Porthdafarch RIGS, Holyhead;
 - Rhosygader RIGS, Trearddur;
 - Porth y Post RIGS, Trearddur;
 - Porth y Pwll RIGS, Trearddur; and
 - Penrhos Drumlin RIGS, Holyhead.
- 7.18. There are a number of private water supplies (PWS) located on the Isle of Anglesey; the local authority Environmental Health Officers will have a register of these. The onshore works have the potential to impact small drinking water supplies such as PWS and we suggest that the local authority is contacted for further advice.
- 7.19. The potential for the works to cause land contamination should be considered in the ES. Once the landfall location has been finalised a Preliminary Risk Assessment for land contamination and a water feature survey should be undertaken. The water feature

survey should be carried out along all the onshore cable routes and around any buildings, compounds and substations for the development.

- 7.20. The requirements for a preliminary risk assessment are:
- Follow the risk management framework provided in CLR11, Model procedures for the management of land contamination, when dealing with land affected by contamination (EA, 2004).
 - Refer to the Environment Agency “Guiding Principles for Land Contamination” (which has been adopted by NRW) for the type of information required in order to assess risks to controlled waters from the site (EA, 2010)⁸. The local authority can advise on risk to other receptors, e.g. human health.
- 7.21. The water feature survey should consist of a preliminary site assessment which includes the following:
- Identification of all water features both surface and groundwater (ponds, springs, ditches, culverts etc.) within a 300 metres radius of the site.
 - Use made of any of these water features. This should include the construction details of wells and boreholes and details of the lithology into which they are installed;
 - An indication of the flow regime in the spring or surface water feature, for example whether or not the water feature flows throughout the year or dries up during summer months;
 - Accessibility to the spring/well;
 - This information should be identified on a suitably scaled map (i.e. 1:10,000), and tabulated. It would be useful for the developer to photograph each of the identified water features during the survey.
- 7.22. Based on the results of the survey, you must assess the likely impacts from the development on both quantity and quality of the surface water and groundwater. This should take into consideration both the preferred methods of construction and the assumed hydrogeology in the vicinity of the development.
- 7.23. Identified groundwater features may need to be monitored during the proposed works and it is therefore recommended that the survey is undertaken as soon as possible to enable you to carry out suitable baseline monitoring prior to the commencement of the works.
- 7.24. Please note that since 1st January 2018 the exemption for abstraction of groundwater and dewatering for engineering and quarrying has been removed. An abstraction licence will be required for these activities if there is an intention to abstract over 20m³/day. Further detail can be obtained from NRW’s Water Resources Permitting team (0300 065 3000).
- 7.25. With regard to flood risk associated with the landfall and cable route we are generally satisfied with the content of the scoping report in that flood risk will be considered further as part of the ES (see section 7.3.1.4). However, the flood maps referred to in footnote 34 show current day risks and do not include any allowances for climate change. Climate change allowances (75 years) must be assessed, in line with CL-03-16⁹
- 7.26. The ES should make reference to any main rivers within the route and directly downstream of the reservoirs referred to. These can be viewed on the NRW Flood Risk Maps (referred to in footnote 34 of the Scoping Report) using “detailed view” to see main river layer. Activities in, over, under or within 8m of a main river may be subject to a Flood Risk Activity Permit under the Environmental Permitting Regulations. These permits are determined by NRW.
- 7.27. Extreme sea level predictions can be obtained for this coastline for a range of probability flood events including that of climate change allowances. These extreme sea

⁸ Environment Agency (2010). GPLC1 – Guiding Principles for Land Contamination

⁹ Welsh Government, 2016. Climate Change Allowances for Planning Purposes CL-03-16

<http://gov.wales/topics/planning/policy/policyclarificationletters/2016/cl-03-16-climate-change-allowances-for-planning-purposes/?lang=en>

levels would allow for surge conditions but not wave action. To obtain the levels a request can be made to NRW's Data Distribution team.

- 7.28. Section 7.3.1.4 states that '*The 132kV grid connection route option between Parc Cybi and Valley crosses the Cymyran Strait which is a saltwater inlet approximately 1km wide where the A5 and A55 cross*'. The marine licensable area covers tidal waters below mean high water springs and therefore these works may need to form part of the marine licence application.

8. Biological Environment

Natural Heritage Designated Sites

- 8.1. Figure 8-1 which depicts designations around Holy Island and the wider Anglesey area needs to be updated. It does not include Anglesey terns SPA, North Anglesey Marine cSAC, or local Wildlife Sites. Local Wildlife Sites are now protected under Joint Local Development Plan (JLDP) Policy AMG6. These sites should be added to the figure and assessed in the ES.
- 8.2. Paragraph 8.1.1.1 (Onshore) is mainly about HRA designations, with no mention of the SSSI or Local Wildlife Sites. The title to this section should be changed or reference to these other designations should be included.
- 8.3. Table 8.1 of the scoping report has been updated since the 2015 version of the report and now contains numerous errors. This must be rectified in the ES.
- 8.4. A number of the designated sites included in table 8.1 (and throughout the report) are incorrectly named and there are several examples of duplication, possibly stemming from the fact that some sites have both a Welsh and an English name. Where sites are duplicated, such as is the case for Llyn Dinam SAC, Glannau Ynys Gybi/Holy Island Coast SPA, Glannau Rhoscolyn/Rhoscolyn Coast SSSI and Porth Diana SSSI, differing (conflicting) levels of potential impacts are often reported. This must be corrected in the ES.
- 8.5. The entries under the 'features' column of table 8.1 are inconsistent and often incorrect. This column should be carefully checked, and in the ES the features should be communicated in a consistent format that is easy for the reader to understand.
- 8.6. The 'features' column text for the Anglesey Terns SPA in table 8.1 suggests a single island colony. However, please note that the site comprises 3 separate breeding colonies and extensive areas of surrounding sea. The numbers of breeding pairs provided for the site should be checked for accuracy.
- 8.7. In table 8.1 the statement provided regarding drainage in Llyn Padrig SSSI is incorrect; the water table has been artificially lowered across the whole site and there is clear evidence of this in the surrounding fields.
- 8.8. Impacts to terrestrial ecological protected sites (table 8.2) are dismissed as being minimal on the grounds of being localised. We note, however, that the cable landfall will cross the Glannau Ynys Gybi / Holy Island Coast SAC, SPA and SSSI and therefore impacts have the potential to be significant in the areas affected. This should be assessed in the ES.
- 8.9. In addition to Rhosneigr Reefs SSSI and Beddmanarch-Cymyran SSSI, possible effects on intertidal habitat and species features of Glannau Rhoscolyn SSSI (in addition to those identified against ornithology receptors) will need to be considered in the ES.
- 8.10. The Anglesey AONB extends from the coast to some way further inland around the majority of Holy Island's shoreline and will be a receptor in terms of impacts generated by the proposed development. This is particularly so as the onshore facility is likely to be located within the AONB. As such, any development proposed in this area must have regard to the sensitive environment and must therefore provide sufficient mitigation where impacts are identified. From the AONB perspective, reference should be made to the statutory AONB Management Plan (2015-2020) and in particular with regard to Anglesey AONB's Features and Special Qualities.
- 8.11. In Table 8.2 the potential for underwater noise to directly disturb seabird and diving bird interest features should be assessed in the ES.
- 8.12. Table 8.2 notes the potential for underwater noise generated during operation to displace marine mammals from foraging and migratory routes, but no mention is given to the same impacts from the construction and decommissioning phases. This must be assessed in the ES.

- 8.13. Table 8.2 does not mention the potential effects of underwater noise (including particle motion) during the different project phases on migratory fish, benthic ecology and other interest features. This should be assessed in the ES.
- 8.14. Certain species listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) are legally protected from 'reckless or intentional disturbance' Species listed in Annex IV(a) of the Habitats Directive, and whose natural range includes any area in Great Britain, are legally protected under the Habitats Regulations and the Conservation of Offshore Marine Habitats and Species Regulations 2017. The Regulations prohibit the deliberate capture, injury, killing or disturbance of any 'European Protected Species (EPS)'. An EPS licence may be required for activities depending on the significance of any disturbance; this should be determined as part of the EIA process and documented in the ES. In reference to paragraph 5.1, it should be noted that NRW is the authority that determines EPS licences in Welsh waters, not the MMO.

Benthic Ecology

- 8.15. Reference has been made to the HABMAP dataset (see section 8.2) in relation to the benthic habitats that are within and adjacent to the Morlais demonstration zone. Whilst this is valid, it should be recognised that the confidence with which the HABMAP biotopes have been predicted is generally low to moderate. Comprehensive survey data does not exist for the demonstration zone, although there are some records in the Marine Recorder database which should be examined and incorporated into the summary. The ES must include an assessment of the confidence in the available data, as detailed in Schedule 3 of the MWR.
- 8.16. There are a number of factual inaccuracies in section 8.2.1.1 which must be corrected in the ES. Page 79 states that "there are no SAC or Annex I habitats identified within the offshore scoping area....". This is incorrect, as HABMAP predicts several rock biotopes and also coarse sediments and mixed sediments, which in some cases may form stony reef. In addition, data in Marine Recorder confirms the presence of Annex I Reef habitat within the zone. It is likely that Annex 1 rocky reef and / or stony reef will be present within the demonstration zone, and / or export cable corridor.
- 8.17. References to "*Sabellaria alveolata*" should be changed to "*Sabellaria spp*". Recent survey work by NRW TE in and around North and West Anglesey found several areas of developed Sabellaria reef. Video analysis, though inconclusive from a species identification point of view, appears to show a mix of both *S. alveolata* and *S. spinulosa* present in the elevated reef structures. It is therefore likely that any similar reef aggregations found within the zone will contain a mixture of Sabellaria species.
- 8.18. Section 7 (formerly BAP / Section 42) marine habitat records are present within or near the Morlais Demonstration zone. These include *Musculus discors* beds (two records to the North of Holyhead from 1996), seagrass (recent and historic records) in shallow water on the east and west sides of Holy Island (outside of the zone but potentially within the wider zone of impact) and fragile sponge and anthozoan communities both within and adjacent to the zone. Section 7 subtidal mixed muddy sediments, and subtidal sands and gravels are also predicted to occur in and adjacent to the zone, along with patches of Annex 1 rocky reef (survey records and BGS hard substrate map). The Section 7 species *Arctica islandica* and *Haliclystus auricular* have also previously been found in shallow waters off Holy Island (MNCR records from 1996) and may occur within the zone. These habitats and species must be acknowledged and considered in the EIA.
- 8.19. It is difficult to comment on the potential impacts outlined in table 8.4 due to the range of unknowns associated with such a broad PDE approach. Impacts will depend on the number, size and types of devices put in place. The table currently states "significance of impact unknown" in the "anticipated significance" column for many impact pathways. The potential impacts listed are quite broad and will need to be subdivided into specific parts for the EIA (for example, "impact to benthic communities due to the creation of sediment plumes during construction" could cause impacts both through increases in suspended sediment and also increases in sediment deposition). Some of the impact pathways that are missing include (but are not limited to) pollution

- from accidental spillages, impacts due to changes in water movements and changes in habitat type. A full assessment of potential impacts needs to be undertaken in the EIA.
- 8.20. Specifically, in Table 8.4, the impact pathway identified as “impact to benthic communities due to the creation of sediment plumes during construction” is assessed as “effects unlikely to be significant”. However, the comment for this impact states that the significance of impact would depend on the sensitivity of the local benthic habitats as well as the nature of sediment dispersal. In light of this fact, the significance level should be considered “unknown” until further knowledge of the benthic communities present is attained via site specific surveys.
- 8.21. We welcome the acknowledgement of potential impacts to benthic ecology interest features of designated marine and coastal sites due to changes in coastal processes, sedimentology and hydrodynamic regime in table 8.2. We note, however, that only potential impacts due to change in sediment regime are included in table 8.4 ‘Potential impacts on benthic ecology’. As noted in the Metocean Conditions and Coastal Processes section of this Opinion, we have raised some comments relating to coastal process aspects of the Scoping Report which will have consequences for benthic ecology. Specifically, we would welcome clarity on how the potential impacts to the physical processes caused by the deployment of multiple tidal energy devices and associated infrastructure will be adequately assessed using a non-numerical (conceptual model) approach, and how this will be applied in the context of potential impacts to intertidal and subtidal benthic ecology, water quality and coastal morphodynamics arising due to physical process impacts (alteration to flow conditions, waves regime and sediment transport pathways).
- 8.22. The text in the EIA baseline characterisation section (section 8.2.3) does not specifically state how further information will be obtained on the benthic habitats and species within the demonstration zone. Survey work is only mentioned as potentially being required. We advise that a targeted ground-truthing survey is carried out within the demonstration zone to properly characterise the area in terms of subtidal ecology (we understand that multibeam data already exists for the marine development area). This would reduce uncertainty as to the presence of sensitive features or receptors in the area. NRW TE can provide guidance on the interpretation and ground truthing of acoustic data (multibeam and side scan) for ecological purposes and can advise on the scope of such surveys if required.
- 8.23. We note that the Offshore Scoping Zone now includes the sea area between the demonstration zone and the shore. Additional multibeam / acoustic survey and benthic ground-truthing will be needed in this area to inform the benthic impact assessment associated with the export cable route from the Lease Area if not already available.
- 8.24. The benthic ecology impacts (section 8.2.2) need to be separated between intertidal and subtidal ecology, and these need to be further separated for the different stages of development (e.g. potential effects during construction; operation and decommissioning).
- 8.25. The intertidal ecology section (section 8.2.1.2) is very brief. The inclusion of an intention to ‘assess’ CCW Phase 1 habitat survey data, as part of the applicant’s data gathering exercise to inform EIA baseline characterisation, is welcomed. This information needs to be presented in a similar way to the subtidal section (see table 8.3) and assessed against a realistic worst-case scenario for the anticipated installation method, landfall location and spatial extent of the export cables.
- 8.26. With regards to the proposed export cable landfall location, the ES must include a detailed assessment of potential impacts to the intertidal habitats present in and around the Penrhos Feilw area. We recommend that, in order to inform baseline/characterisation of the intertidal zone at the proposed landfall location, the applicant undertakes a repeat of the Phase 1 intertidal habitat survey at an appropriate scale for the planned works.
- 8.27. We welcome the recognition in table 11.1 that a thorough biosecurity risk assessment should be undertaken as part of the EIA process. The ES and associated biosecurity risk assessment should include consideration of how *Didemnum vexillum* will be contained within the marina and detail any measures to mitigate the onward spread of this species. This is particularly important if, during any stage of the

development (construction, operation, decommissioning), the applicant intends to use the facilities at Holyhead marina or port for berthing of vessels, materials or equipment.

8.28. There is no mention in the scoping report of the potential disturbance effects of underwater noise (including particle motion) on benthic invertebrates as a result of the project. This should be assessed in the ES by undertaking a desk-based review of the latest available evidence on the hearing sensitivities and potential effects on benthic invertebrates.

Marine Mammals, Basking Sharks and Reptiles

8.29. In section 8.1.1.2 it states that “due to the wide-ranging nature of offshore ecological receptors such as ... marine mammal receptors, an initial search of up to 50km has been used for these receptors”. We advise that with regard to marine mammals, rather than the 50km search area proposed, the relevant marine mammal management units provide the appropriate spatial extent for screening in marine mammal protected sites (including SSSIs where appropriate) (see IAMMWG, 2015¹⁰).

8.30. For Annex II marine mammal species, the Welsh SACs within the relevant management units are as follows:

- Harbour porpoise
 - Management Unit: Celtic & Irish Sea
 - Welsh SACs with harbour porpoise as a feature within the Management Unit:
 - North Anglesey Marine
 - West Wales Marine
 - Bristol Channel Approaches
- Bottlenose dolphin
 - Management Unit: Irish Sea
 - Welsh SACs with bottlenose dolphin as a feature within the Management Unit:
 - Pen Llyn a'r Sarnau
 - Cardigan Bay
- Grey Seal
 - Management Unit: South and West England and Wales
 - Welsh SACs with grey seal as a feature within the Management Unit:
 - Pen Llyn a'r Sarnau
 - Cardigan Bay
 - Pembrokeshire Marine

8.31. Please note that the series of Harbour Porpoise SACs in the UK are now officially adopted by Europe and must be formally considered in HRA. Sites outside of Welsh waters (eg in Irish, English, Northern Irish, Scottish waters) should also be screened in based on their presence in the relevant management unit.

8.32. The nearshore and inshore waters of the Anglesey coast are important for cetaceans and seals. The scope of the EIA must consider the impacts of all stages of the development (construction, operation and decommissioning) on the following marine mammal species: harbour porpoise, common dolphin, Risso's dolphin, grey seal, minke whale and bottlenose dolphin.

8.33. Some species might present a high risk and require a more quantitative approach to assessment than others, for example bottlenose dolphin, grey seal, harbour porpoise, which are all SAC species from nearby sites.

8.34. Please note that bottlenose dolphin in the demonstration zone area are likely to be from Cardigan Bay SAC and Pen Llyn ar Sarnau SACs in the Irish Sea Management Unit (not just Cardigan Bay SAC).

8.35. There are regionally important grey seal pupping sites on Anglesey, including on Holy Island (see Westcott & Stringell 2003¹¹). An NRW commissioned census of grey seal pupping abundance and distribution has recently been completed and indicates at

¹⁰ IAMMWG (2015). Management Units for cetaceans in UK waters (January 2015). JNCC Report No. 547, JNCC Peterborough.

¹¹ Westcott SM, Stringell TB (2003). Grey Seal Pup Production for North Wales, 2002. CCW Marine Monitoring Report No: 5a. Countryside Council for Wales, Bangor

least a doubling of pup production in North Wales (Banga et al 2018 in prep – this paper might be available in time for consideration within the ES).

- 8.36. The use of the demonstration zone and surrounding area by marine mammals will need to be assessed both spatially and temporally. The spatial extent of activities and operations and marine mammal protected sites should be guided by the relevant marine mammal management units (IAMMWG, 2015)¹².
- 8.37. Table 8.5 currently presents very broad appraisal of the potential impacts to be assessed. A more detailed list of possible impact pathways must be considered and presented in the ES. Where a particular impact is considered to be not significant, it is important that the decision is based on clear evidence and documented in the ES. The impact pathways identified should also be considered in the cumulative impact assessment and HRA, where appropriate. The ORJIP Ocean Energy Forward Look¹³ provides a useful start for prioritising impact pathways and evidence needs.
- 8.38. At this stage, the key issues would appear to relate to displacement, disturbance and collision during operation and noise impacts during construction, operation and decommissioning. There, however, will be other impacts to consider, including indirect effects on prey species and cumulative effects.
- 8.39. It is likely that the key issue of collision risk during operation will need to be considered in quantitative detail. The potential for population level effects on marine mammals will need to be considered where significant impact pathways have been identified. For the assessment of marine mammal collision risk, the use of modelling frameworks such as the Population Consequences of Disturbance (PCoD) or toll quotas such as Potential Biological Removal should be considered.
- 8.40. The Sparling et al 2015¹⁴ publication “Guidance to inform marine mammal site characterization requirements at wave and tidal stream energy sites in Wales” should be followed to assist in determining the level of baseline characterisation required to inform the ES.
- 8.41. Although a literature review and results of collision risk analysis from similar studies (e.g. SeaGen and the MeyGen projects) will be informative, there will likely be a need to adapt present models to fit the chosen device(s) and unique location characteristics (open tidal site).
- 8.42. Table 8.5 notes the potential for disturbance and displacement of marine mammals and basking sharks from underwater noise during construction and operation but there is no mention of the same potential impacts to reptiles. Studies measuring turtle hearing sensitivity have found that many species of turtle are able to detect low frequency acoustic stimuli¹⁵. A desk-based review of the latest evidence should be undertaken in the ES to confirm whether the project poses a risk to marine reptiles.
- 8.43. The proposed baseline underwater noise monitoring survey should be undertaken in line with the latest relevant guidelines^{16, 17}.
- 8.44. No information is provided in the scoping report on the proposed approach to assessing potential underwater noise effects. This should follow the latest guiding principles for the assessment of the impacts of underwater noise¹⁸. This includes applying an appropriate acoustic model¹⁹, published exposure criteria or acoustic thresholds^{20, 21} and relevant noise sources and model input data. The limitations and

¹² IAMMWG (2015). Management Units for cetaceans in UK waters (January 2015). JNCC Report No. 547, JNCC Peterborough

¹³ ORJIP Ocean Energy Forward Look <http://www.orjip.org.uk/documents>

¹⁴ Sparling CE, Smith K, Benjamins S, Wilson B, Gordon J, Stringell T, Morris C, Hastie G, Thompson D, and Pomeroy P (2015) Guidance to inform marine mammal site characterisation requirements at wave and tidal stream energy sites in Wales. No. 82. NRW Evidence Report, 2015

¹⁵ Nelms, S.E., Piniak, W.E. Weir, C.R., and Codley, B.J. (2016) Seismic surveys and marine turtles: An underestimated global threat?. *Biological conservation*, 193, pp49-65

¹⁶ EMEC (2014) Underwater Acoustic Monitoring at Wave and Tidal Energy sites: Guidance Notes for Regulators. The European Marine Energy Centre Ltd. Science of the Environment.

¹⁷ NPL (2014) Good Practice Guide for Underwater Noise measurement, national measurement Office, Marine Scotland, The Crown estate, Robinson, S.P., Lepper, P.A., and Hazelwood, R.A, NPL Good Practice Guide No. 133, ISSN: 1368-6550, 2014.

¹⁸ Faulkner, R.C., Farcas, A., Merchant, N.D. (2018) Guiding principles for assessing the impacts of underwater noise. *Journal of applied ecology*: 1-6.

¹⁹ NPL (2014) Good Practice Guide for Underwater Noise measurement, national measurement Office, Marine Scotland, The Crown estate, Robinson, S.P., Lepper, P.A., and Hazelwood, R.A, NPL Good Practice Guide No. 133, ISSN: 1368-6550, 2014.

²⁰ NOAA (2016) Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. NOAA Technical Memorandum NMFS-OPR-55 July 2016

constraints of any approach should be set out. The noise assessment should also include a general review of the latest available scientific evidence of the observed responses of marine mammals to different types of underwater sound for context.

Fish and Shellfish Ecology

- 8.45. The assessment of fish species to inform the ES should identify all possible fish species that may be affected by the proposed development and indicate the relevant legislation for each, for example: Common Fisheries Policy zero TAC species, Section 7 Environment Act species, IUCN European Red List species etc. Assessment should consider the impacts of all stages of development (i.e. construction, operation and decommissioning).
- 8.46. Species such as the spurdog or spiny dogfish (*Squalus acanthias*) should be included as a potential impact receptor in the ES; it is known to use the area and is classed as vulnerable in the IUCN Red List. This, and other elasmobranch species may be impacted by, for example, electromagnetic field effects and so should be included in the ES for assessment.
- 8.47. The Pembrokeshire Marine SAC fish species features of sea lamprey, river lamprey and allis shad are included in table 8.1 (note that twaite shad is missing) but Pembrokeshire Marine SAC has been omitted from table 8.6 Relevant SACs for migratory fish. We welcome the statement in table 11.1 that migratory fish will be fully considered in the ES, including the provision of a justification where specific sites and species are scoped out.
- 8.48. Section 8.4.2.1 of the Scoping report states “that shellfish are the only commercial species landed at Holyhead”. This statement is incorrect as finfish species are also landed there. The report suggests ‘that no scallop vessels at Holyhead are licenced for scallop fishing’, however, several vessels fish for scallops from Holyhead. Longlining fishing for rays occasionally occurs off western Anglesey with vessels from Holyhead participating. The ES should consider these additional fish activities.
- 8.49. We welcome the acknowledgement of the potential impact pathways identified for Annex II species (fish) features and natural fish and shellfish in table 8.1 and table 8.7. We note, however, that the potential impact to migratory and non-migratory fish from ‘collision risk with devices’ has been identified as ‘unlikely to be significant’, despite you indicating that migratory pathways are not well understood, and that more information is required to assess potential impacts to non-migratory fish. A full examination and evidenced justification in support of this view will be required within the ES.
- 8.50. No information is provided on the proposed approach to assessing potential underwater noise effects. This should follow the latest guiding principles for the assessment of the impacts of underwater noise²². This includes applying an appropriate acoustic model²³, published exposure criteria or acoustic thresholds^{24, 25} and relevant noise sources and model input data. The limitations and constraints of any approach should be set out. The noise assessment should also include a general review of the latest available scientific evidence of the observed responses of fish to different types of underwater sound for context. Consideration should be given to the sensitivity of fish to particle motion (not just sound pressure level) recent research indicated this to be an equally or potentially more important than sound pressure in some fish^{26, 27, 28}.

²¹ Popper, A.n., Hawkins, A.D., Fay, R., Mann, D., Bartol, S., Carlson, Th., Coombs, S., Ellison, W.T., Gentry, R., Halvorsen, M.B., Lokkeborg, S., Rogers, P., Southall, V.B.L., Zeddies, D.G., Tavalga, W.N.. (2014) Sound exposure guidelines for fishes and sea turtles: a technical report prepared by ANSI- accredited standards committee S3/SC1 and registered with ASNSI. Springer, ASA Press. ISBN 2196-1212 (ebook ISBN 978-2-219-06659-2).

²² Faulkner, R.C., Farcas, A., Merchant, N.D. (2018) Guiding principles for assessing the impacts of underwater noise. *Journal of applied ecology*: 1-6.

²³ NPL (2014) Good Practice Guide for Underwater Noise measurement, national measurement Office, Marine Scotland, The Crown estate, Robinson, S.P., Lepper, P.A., and Hazelwood, R.A, NPL Good Practice Guide No. 133, ISSN: 1368-6550, 2014.

²⁴ NOAA (2016) Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. NOAA Technical Memorandum NMFS-OPR-55 July 2016

²⁵ Hawkins, A.D., Pembroke, L., Cheeseman, S., 2014. Responses of free-living coastal pelagic fish to impulsive sound. *The journal of the acoustic society of America*, 135.

²⁶ Nedelec, S.L., Campbell, J., Radford, A. N., Simpson, S. D., & Merchant, N.

D. (2016). Particle motion: the missing link in underwater acoustic ecology. *Methods in Ecology and Evolution*, 7, 836-842. DOI: 10.1111/2041- 210X.12544

- 8.51. Impacts on migratory fish from underwater noise should include consideration of impacts on hearing specialists such as herring which are a prey species of marine mammals. Other impacts which should be assessed within the ES include possible impacts on larvae of fish and shellfish species from increased turbidity.
- 8.52. We welcome your indication in table 11.1 that transitional fish species (such as bass, whiting and herring) will be considered as part of the wider fish assessment which will include consideration of seasonal variation in fish spawning and larval activity. The ES should differentiate between transitional and migratory fish assemblages where possible.

Ornithology

- 8.53. It is unclear why you have singled out the four species listed in section 8.5.1.1. An improved characterisation of the bird communities within the terrestrial scoping area must be provided in the ES. The characterisation should focus on species that are listed as features of protected sites that might be impacted (SPAs / SSSIs), species listed in schedule 1 of the Wildlife & Countryside Act (as amended) 1981, and species listed in Section 7 of the Environment Act (Wales) 2016. In addition to the data sources listed in section 8.5.3 we recommend that you obtain data held at Cofnod to assist in characterising the terrestrial scoping area. This will help inform the need for any targeted survey work for onshore species (including chough). Please note, where a schedule 1 species is likely to be disturbed you will require a schedule 1 disturbance licence issued by NRW.
- 8.54. For the ES we suggest that you review available baseline data to ascertain which species have been found within the areas of sea/coastal areas potentially affected. For the offshore areas this may include ESAS data (ESAS/WWT in the past), while for coastal areas NeWs (Non-estuarine waterbird survey) and WeBs (Wetland bird survey) counts may be useful to give context to the data that is being collected as part of the ornithological survey programme.
- 8.55. We understand the on-going offshore ornithological surveys follow an adapted ESAS methodology for tidal development sites. We assume the figures presented in Table 8.8 are uncorrected 'raw' data. The ES should make clear the distance sampling correction method used to deal with reduced visibility of diving birds further from the boat transects. In particular, if program distance (or similar) is used to correct the estimates of density of birds on the water.
- 8.56. We recommend that the mean maximum foraging ranges detailed within Thaxter et al (2012)²⁹ are utilised to determine which breeding colonies could be affected by the proposed development, with particular emphasis on colonies that are features of SPAs and SSSIs. Other data such as the Future of the Atlantic Marine Environment (FAME) and Seabird Tracking and Research (STAR) projects should also be utilised where relevant. The FAME/STAR data is available on request from the RSPB.
- 8.57. There is no mention of Skomer and Skokholm SPA and the Glannau Aberdaron and Ynys Enlli / Aberdaron Coast and Bardsey Island SPA, for example, designated for Manx shearwater. We would welcome a map which shows the seabird features of designated sites within mean maximum foraging range of the proposed demonstration zone.
- 8.58. The proposed scoping area overlaps with the Glannau Ynys Gybi / Holy Island SPA. Sufficient information should be provided in the ES on the impacts on breeding and non-breeding chough, a qualifying feature of the SPA. The ES should propose and deliver appropriate mitigation to ensure that the works do not have adverse effects on the site integrity of the Glannau Ynys Gybi / Holy Island SPA. The ES should assess the likely impacts from disturbance and/or loss of chough foraging areas (both within and beyond site boundaries) and, where required, detail proposed mitigation measures.

²⁷ Hawkins AD, Pembroke AR, Popper AN (2015) Information gaps in understanding the effects of noise on fishes and invertebrates. *Reviews in Fish Biology Fisheries*, 25, 39-64.

²⁸ Hawkins, A. D., and Popper, A. N. A sound approach to assessing the impact of underwater noise on marine fishes and invertebrates. – *ICES Journal of Marine Science*, 74: 635–651 .

²⁹ Thaxter, C.B., Lascelles, B., Sugar, K., Cook, A.S.C.P., Roos, S., Bolton, M., Langston, R.H.W & Burton, N.H.K. 2012 Seabird Foraging Ranges as a Preliminary Tool for Identifying Candidate Marine Protected Areas. *Biological Conservation*, 146: 53-61.

- 8.59. The ES should consider the potential for displacement of food sources from the area in addition to displacement of birds themselves; to date the scoping report has not addressed this point.
- 8.60. There is no mention in the scoping report of potential disturbance and displacement effects of underwater noise on seabird and diving bird species as a result of the project. The construction and operation of the project could potentially result in underwater noise that disrupts seabird foraging or directly affect the sense of species diving underwater for prey. Seabirds hunt visually underwater, but evidence on land suggests they may also have acute hearing and thus marine noise could potentially disorientate and upset foraging rhythms, and cause permanent damage to hearing. A review of the latest evidence regarding the sensitivity of birds, in particular diving species and sea surface foragers, to marine noise should be undertaken to determine the importance of hearing underwater to birds and whether this can have the potential to disorientate and/or displace.
- 8.61. With reference to connectivity of seabirds to designated sites, Chapter 8.5.3 EIA Baseline Characterisation, the final bullet point of reads: '*Gaining a greater understanding of species behaviours within the MTA area and potential connectivity to designated sites. It is likely that this would be done through a review of existing information and boat based/coastal surveys designed to look at behaviour such as flight direction and foraging behaviour during breeding season.*' Methods described here could be quite limited in scope to improve understanding of connectivity. You may want to consider supplementing the above information with the use of GPS tags, applied to target species. This technology which has been trialled at a number of seabird colonies in the UK can incorporate remote download systems and thus remove the need to recapture birds.
- 8.62. The potential impact of collision risk between diving birds and moving parts of devices is mentioned in the scoping report. This operational risk needs consideration through robust collision risk modelling. Guidance is available from Scottish Natural Heritage (SNH) and we would recommend that further advice is sought from NRW TE on this matter.

Terrestrial and Coastal Ecology

- 8.63. Section 8.6.1.1 states that the proposed scoping area overlaps with the Holy Island SAC and SSSI but fails to mention the Glannau Ynys Gybi / Holy Island SPA. This omission should be rectified in the ES.
- 8.64. According to the EIA scoping report the landfall and substation will be mainly situated in areas of agricultural land of limited interest (section 8.6.1.1). This may be true for the substation, however, without seeing location maps this statement cannot be confirmed. It should be noted that agricultural land can provide valuable feeding ground for chough and the landfall will have to cross the Glannau Ynys Gybi / Holy Island SAC / SPA and SSSI.
- 8.65. Section 8.6.1.2 states that "The central areas of Holy Island are largely rural pastoral land and coastal grassland, with upland areas of heath around Holyhead Mountain. These areas would be expected to be of low to moderate importance to terrestrial ecology receptors". As these are areas of SAC heathland and SPA habitat the assessment of 'low to moderate importance' may need to be reconsidered.
- 8.66. There are various records of great crested newts, bats, otters and water voles within the scoping zone. The ES will need to consider the impact of the proposal on protected species and demonstrate that the proposal will not impact on the Favourable Conservation Status of European and nationally protected species.
- 8.67. In paragraph 8.6.2 (EIA Baseline Characterisation) it states that to inform the EIA baseline, data is to be gathered on terrestrial and coastal habitats through site survey and review of data including Cofnod records. It also states (2nd bullet) that information on UK and local priority species, and EPS 'would be needed' and it is proposed to gather this through literature reviews and phase one habitat surveys. We strongly recommend that surveys are undertaken to establish details of presence for EPS and reptiles.
- 8.68. In consideration of the impacts of the proposed development on birds and animals (table 8.10) it is important that consideration is given to the seasonality of works

e.g. certain elements of construction for example may be more disruptive or damaging if they were to occur during breeding periods or periods of hibernation etc. Attention will also be required to the issue of habitat and species connectivity in order to avoid habitat fragmentation and indirect impacts up sensitive receptors. In addition, the ES should consider any hydrological effects which could arise and impact receptors within hydrological connectivity of the proposed development.

8.69. If surveys conclude the presence of protected species, the ES must include appropriate mitigation and / or compensation schemes along with Reasonable Avoidance Measures, to ensure that the favourable conservation status of the species is maintained. Please be aware that the development may only proceed under derogation licence should surveys confirm presence of species that are protected.

8.70. In the final paragraph of page 106, it is stated that ‘...a full review of impacts on terrestrial designated habitats suggested by NRW will be undertaken for the EIA and HRA...’. We query whether this refers to habitats within protected sites only. It continues ‘...however, for this scoping survey, only designated sites on Holy Island have been considered in terms of terrestrial ecology.’ It is unclear whether this included Local Wildlife Sites, and why other areas have not been considered. In addition, the ES must include clear coverage of habitats listed under S7 of the Environment Wales Act 2016. On page 107, the final paragraph of 8.6.1.1 (following the list of various species) states ‘The EIA will consider sensitive flora and fauna in further detail once preferred infrastructure options have been refined.’ We query whether this refers to the species listed on p107. As noted above, Environment Act S7 species and habitats should be assessed in the ES, whether in protected sites or not.

9. Human environment

Seascape and landscape

- 9.1. The scoping report covers the seascape and landscape baseline context appropriately. As a minor point of clarification, paragraph 2 on page 113 notes that ‘construction activity and surface piercing infrastructure would be visible from receptors in areas of offshore SCAs 30, 31 and 32’. We advise that SCA32 therefore needs to be included in table 9-1. Marine Character Area descriptions may also be relevant and should be incorporated within the baseline description where appropriate.
- 9.2. A viewpoint schedule, reason for inclusion, receptor sensitivity and viewpoint location plan would be useful. Photomontage images to help explain the visual aspects of the project will be required in the ES.
- 9.3. To help clarify how effects upon natural beauty of the AONB can be addressed, we recommend that the visual and character aspects of the assessment are brought together when assessing effects upon special qualities and people’s perceptions. It would be helpful to set this assessment out in the visual effects tables that accompany the photo viewpoint images.
- 9.4. The potential impacts upon Seascape and Landscape are set out generically at this stage but cover the key themes of the assessment topic appropriately. The category ‘changes’ to visual amenity is described within the framework of potential impacts on the amenity of the offshore area. Both onshore and offshore visual receptors should be assessed in the ES.
- 9.5. The project will be informed by a range of constraints and impacts to be avoided or minimised. Imbedded and iterative design are important components of EIA towards impact avoidance, and we would welcome design input imbedded to positively benefit the scheme’s visual integration and influence any options being considered.
- 9.6. Wireframe modelling of the development for key sensitive viewpoints, panoramas and sequential views (where they exist) will help identify and look to resolve the potential issues of the offshore development component. A colour assessment for the sub-station and its landscape context is recommended, to identify a palette of integrating colours, given the open and wind-swept nature of much of the AONB. Limited use of lighting (accepting navigational safety requirements) is recommended to avoid night time effects upon dark skies/ dark seascapes and tranquillity of the AONB.
- 9.7. There is no published guidance for the planning and design of tidal arrays in relation to seascape, landscape and visual amenity contexts, however established guidance for

wind farm planning and seascapes, seascape sensitivity and assessment methodologies are relevant; for example,

- LI and EIMA Guidelines for landscape and visual impact assessment 3rd edition 2013
- Dti Guidance on the assessment of the impact of offshore wind farms 2012
- SNH Offshore renewables - guidance on assessing the impact of coastal landscape and seascape 2012
- SNH Visual representation of wind farms guidance 2017

9.8. Due to a lack of detailed drawings, it is difficult to gauge the potential visual impact of the proposed development. From a landscape perspective, it is encouraging to note that comments made earlier scoping opinion have been taken into consideration and incorporated into the scoping report. However, one particular issue which appears to have been overlooked is that of the 500m study area for quantifying the offshore effects of the development, particularly when such development is viewed from elevated locations. The Anglesey Coastal Path and the environs of Holyhead Mountain afford such elevated viewing positions and there needs to be an adjustment of the study area in order to increase coverage in this regard. The offshore effects the study area should be extended/adjusted where elevated views may be affected – this should be determined by any Zones of Theoretical Visibility (ZTVs).

9.9. Viewpoints for the Landscape and Visual Impact Assessment (LVIA) should be agreed with the local planning authority (LPA) and NRW TE. Given the extent of potential visual impacts, viewpoints should cover the following receptors:

- AONB;
- Heritage Coast;
- Landscape Character Areas;
- Seascape Character Areas;
- Wales Coast Path;
- Onshore recreation and leisure activities within the study area;
- Tourist Traffic using the Port of Holyhead; and
- Conservation Areas.

9.10. It is unclear if or how the onshore assessment considers properly off-shore effects, for example, some of the generating equipment demonstrated include above water elements. These may well be visible from several viewpoints, particularly elevated ones thereby dictating that viewpoints selected for assessing visual impacts need to consider effects on expansive sea views.

9.11. Whilst the Isle of Anglesey County Council (IoACC) has not made a formal application to the International Dark-Sky Association (IDA) to attain Dark Sky Community Status for Anglesey, a number of sky quality assessments have been completed. IoACC are currently scoping the most effective approach for preparing and submitting an application to the IDA. The proposed development will need to be assessed against Policy AMG1: (AONB) Management Plans of the Joint LDP 2011 - 2026, where 'Proposals within or affecting the setting and / or significant views into and out of the AONB must, where appropriate, have regard to the relevant AONB Management Plan'. Any form of lighting, therefore, will need to consider how it impacts on the AONB aligned to the special qualities within the AONB Management Plan. In this particular case, the two special qualities of the AONB which could be affected are the expansive views / seascapes and; peace and tranquillity. The potential impact on the non-statutory, Holyhead Mountain Heritage Coast designation will need to be considered within the context of the AONB Management Plan.

9.12. Given the lifespan of the proposed development, the ES should address the onshore facility's decommissioning and site restoration proposals.

Land use and Quality

9.13. We currently have no comments to make on this topic.

Commercial Fisheries

- 9.14. As the project progresses we recommend that you have regular meetings with Fishing Industry representatives starting at the top with the Welsh Fisherman's Association, and also more localised groups. We recommend that you follow the Fishing Liaison with Offshore Wind and Wet Renewables (FLOWW) best practice guidance for fisheries liaison to ensure continued liaison with the fishing industry through the planning stages and all subsequent stages of the project (FLOWW, 2014)³⁰.
- 9.15. Vessels from Nefyn/Trevor should be included when describing the baseline environment due to the potential for them to utilise the area close to the proposed demonstration zone or their fisheries may be impacted by the development.
- 9.16. As noted in the shipping and navigation section of this scoping opinion, vessel traffic estimated from AIS data and VMS data only shows large vessels and does not account for smaller boats, for example the under 10m fishing fleet and recreational fishing vessels. This needs to be addressed in the ES.
- 9.17. The potential impact of change in abundance of target species outlined in table 9.4 should also address the possibility of species movement being affected by the development and not being able to migrate to inshore areas.

Shipping, Navigation and Marine Infrastructure

- 9.18. There is concern about the impact the proposed Array may have on the safety of navigation. In particular, the changes to vessel routing with the reduction in navigable depth, the constriction placed on recreational, commercial and fishing vessels operating in or transiting the area and accessing ports and harbours, and the resulting increase in the frequency of encounters. The Environmental Statement must provide details of the possible impact on navigational issues for both commercial and recreational craft, specifically:
- Collision Risk,
 - Navigational Safety,
 - Visual intrusion and noise,
 - Risk Management and Emergency response,
 - Marking and lighting of site and information to mariners,
 - Effect on small craft navigational and communication equipment,
 - The risk to drifting recreational craft in adverse weather or tidal conditions,
 - The likely squeeze of small craft into the routes of larger commercial vessels.
- 9.19. The EIA must assess the safety of navigational channels and obstacles to navigation from Tidal Energy Converters (TEC's)/supporting infrastructure and support vessels. Avoiding any potential for collision during any stage of the project is of absolute importance.
- 9.20. A Navigational Risk Assessment (NRA) will need to be submitted in accordance with MGN 543 (and MGN 372) and the MCA Methodology for Assessing the Marine Navigation Safety & Emergency Response Risks of Offshore Renewable Energy Installations (OREI). This NRA should be accompanied by a detailed MGN 543 Checklist which can be downloaded from the MCA website³¹. We note that the Scoping currently refers to MGN 371 which has been superseded by MGN 543.
- 9.21. It should be noted that separate risk assessments are likely to be required for each deployment of TEC/arrays, in due course, as this project progresses.
- 9.22. The shipping and navigation study should include radar and manual observations in addition to AIS data to ensure vessels of less than 300gt are captured and should be completed within 24 months prior to the Environmental Statement submission. Casualty information from the MAIB and RNLI would also be good data sources, in establishing the risk profile for the area. We note that the Scoping report currently

³⁰ FLOWW, 2014 Fisheries Liaison with Offshore Wind and Wet Renewables (FLOWW) Group, 2014, Flow Best Practice Guidance for Offshore Wind and Wet Renewables Developments: Recommendations for Fisheries Liaison. Available at: <http://www.thecrownestate.co.uk/media/5693/floww-best-practice-guidance-for-offshore-renewables-developments-recommendations-for-fisheries-liaison.pdf>

³¹ MCA MGN 543 Checklist <https://www.gov.uk/guidance/offshore-renewable-energy-installations-impact-on-shipping>

states 'existing AIS and vessel data collected previously in the study area will be undertaken, utilising existing data sets where available'.

- 9.23. AIS data should not be used as an absolute measure of recreational traffic, as the substantial volume of yachts without AIS are not accounted for. The UK Coastal Atlas of Recreational Boating, available on licence from the RYA, or via the Marine Management Organisation's Marine Information System, provides relative AIS intensity data, general boating areas, and locations of clubs and training centres.
- 9.24. The NRA should address safe Under Keel Clearance (UKC) for the maximum drafts of vessel both observed and anticipated, from which a realistic UKC assessment should be undertaken. The MCA's Under Keel Clearance Policy paper can be found on their website.
- 9.25. The mooring arrangements for any floating turbines should be carried out in accordance with the MCA and HSE Guidance 'Regulatory expectations on moorings for floating wind and marine devices', which also include Third Party Verification. This document is also available on the MCA website.
- 9.26. The marking of offshore wave and tidal energy installations should be based on recommendations of the IALA, and the offshore structures marking can be found on the IALA website.
- 9.27. Consideration will need to be given to the implications of the site size and location on SAR resources and Emergency Response Co-operation Plans (ERCOP) for both construction and operation phases. Any additional Search and Rescue requirements, as per MGN 543 Annex 5, will be discussed and agreed at the approval stage and recorded in a SAR checklist.
- 9.28. Particular attention should be paid to cabling routes and where appropriate burial depth for which a Burial Protection Index study should be completed and, subject to the traffic volumes, an anchor penetration study may be necessary. If cable protection is required e.g. rock bags, concrete mattresses, a 5% reduction in surrounding depths referenced to Chart Datum is acceptable. This will be particularly relevant where depths are decreasing towards shore and potential impacts on navigable water increase.
- 9.29. Cable Corridor 4 runs to the south of the major shipping route of the Holyhead to Dublin ferry route by 5km. The ES will need to appropriately assess this in relation to maintaining safe navigation and provide reassurance that this can be undertaken with suitable protection and the absolute minimal level of disruption.
- 9.30. All cable laying should be charted with the data freely available to marine users and suitable protection in the form of burial or rock placement must be implemented to prevent cable snag which through abrasion will damage the cable and potentially cause damage to the vessel or crew and potentially vessel obstruction.
- 9.31. The assessment in the ES should incorporate the effects of tidal arrays, associated infrastructure, and any proposed exclusion zones on recreational routes, general sailing areas, racing areas, and access to boating facilities and anchorages.
- 9.32. MCA, UKHO, and GLAs guidance on charting, marking, and lighting of tidal infrastructure should be followed.
- 9.33. MGN 543 Annex 2 requires that hydrographic surveys should fulfil the requirements of the International Hydrographic Organisation (IHO) Order 1a standard, with the final data supplied as a digital full density data set, and survey reports to the MCA Hydrography Manager. Failure to report the survey or conduct it to Order 1a might invalidate the Navigational Risk Assessment if it was deemed not fit for purpose.
- 9.34. Any application for safety zones will need to be carefully assessed and additionally supported by experience from the development and construction stages.

Military Activity

- 9.35. We currently have no comments to make on this topic, but coordinates (lat & long co-ordinates for offshore and easting & northing for onshore) should be provided of the locations of the tidal array and cable route (inc sub-station etc) as the project is refined and develops.

Archaeology and Cultural Heritage

9.36. Cadw is the primary source of information for designated assets and is also directly responsible for the management of some of the scheduled monuments within the study area. The regional Historic Environment Record (HER) hosted by the Gwynedd Archaeological Trust is the primary source of information for non-designated historic assets. Section 9.6 & 9.6.3 of the report states that the EIA baseline data will be gathered using Archwilio and Coflein. These data sources are not for commercial use, nor are they to be used for development management purposes. The Royal Commission on Ancient and Historical Monuments of Wales (primary source of information for marine historic assets) and the regional Historic Environment Record at Gwynedd Archaeological Trust must be contacted directly for up to date accurate information.

9.37. In addition, other data sources (including primary sources) should be considered within the assessment, including, where appropriate, information held by the local archives and Oriel Ynys Mon. As noted in the scoping report, walk-over surveys are also likely to be required.

9.38. The impact on the following designated historic assets, and their setting, should be assessed in the ES (Further details are available at:

<http://cadw.gov.wales/historicenvironment/recordsv1/cof-cymru/?lang=en>):

- Scheduled Monuments:
 - AN011 Trefignath Burial Chamber
 - AN012 Ty-Mawr Standing Stone
 - AN016 Holyhead Mountain Hut Circles
 - AN017 Penrhos Feilw Standing Stones
 - AN019 Caer y Twr
 - AN033 Plas Meilw Hut Circles
 - AN034 Porth Dafarch Hut Circles
 - AN146 The Holyhead Road: quay on the Stanley Embankment

- Listed Buildings
 - 14733 Ebenezer Chapel II
 - 14743 No 1, Stanley Cottages, Tyn Pwll Road II
 - 14744 No 2, Stanley Cottages, Tyn Pwll Road II
 - 14745 No 3, Stanley Cottages, Tyn Pwll Road II
 - 14746 No 4, Stanley Cottages, Tyn Pwll Road II
 - 14747 No 5, Stanley Cottages, Tyn Pwll Road II
 - 14748 No 6, Stanley Cottages, Tyn Pwll Road II
 - 16524 Pont Cytir, Cytir Road II
 - 16525 Pont Penlech Nest, Penllech West II
 - 16526 Bridge over Railway near Ty Mawr Farmhouse, Kingsland II
 - 19231 Stanley Embankment II
 - 19232 Milestone II
 - 19233 Valley Station Signal Box II
 - 19234 Cleifiog Fawr II
 - 20069 Stanley Tollhouse II
 - 20073 Milestone II
 - 20074 Stanley Embankment II
 - 20077 Fynnon y Wrach II
 - 20081 Tan-y-Cytiau II
 - 5714 Old Customs Post II
 - 5759 Valley Railway Station Main Building II
 - 5762 Kingsland Windmill, Mill Road, (S side) II*

- Within the offshore buffer:
 - 18032 Enclosure Walls at South Stack Lighthouse II
 - 18033 Storehouse at South Stack Lighthouse II
 - 18034 Former Oil Store at South Stack Lighthouse II
 - 18035 Bridge Towers at South Stack Lighthouse II
 - 5284 South Stack Lighthouse and former keeper accommodation II

- 9.39. The Scoping Report provides a basic outline of the methodology proposed to be applied for assessing impact on Archaeology and Cultural Heritage. Currently this is very minimal in detail and needs to be worked up providing greater detail on the methodology of investigation and assessments proposed to understand and evaluate the potential impact on historic assets.
- 9.40. A number of scheduled monuments lie within the onshore scoping area or close to it. Many of these – including Trefignath Burial Chamber, Ty-Mawr Standing Stone, Holyhead Mountain Hut Circles and Caer y Twr are in the care of Welsh Ministers and are popular visitor attractions. Many of these sites were located specifically to take advantage of elevated viewpoints and have extensive settings – for example Caer y Twr watchtower. The onshore study area must therefore take account of this and ensure that full account of the potential impact of the works on the settings of these designated historic assets. The scoping report indicates that this will be the case however it would be advisable for the boundary of the scoping area be re-drawn to include the designated assets described in section 9.6.1 of the scoping report within the assessment area. The same comments apply to the important group of listed buildings, including those at South Stack. It will also be particularly important to consider the impact on non-designated historic assets.
- 9.41. In addition, three Conservation Areas are located in close proximity to the onshore scoping area, these being the Holyhead Beach, Holyhead Central and Holyhead Mountain Conservation Areas. A detailed Cultural Heritage record and Heritage Impact Assessment is expected as part of the EIA.
- 9.42. It is not clear from table 9.7 “Impact on Historic Landscape” whether this is referring to impact on the setting of historic assets, impact on wider landscape settings or both. The EIA should take account of the potential impact on the settings of all historic assets within the scoping area. This should be undertaken in line with Welsh Government Guidance provided in the document Managing Setting of Historic Assets in Wales.
- 9.43. It is noted that the locations of historic wrecks and submerged vessels are likely to be imprecise and therefore it cannot be assumed that the locations provided on maps are accurate. The study needs to take account of this and consider potential for submerged archaeological remains and vessels – particularly along the cable route where potential for physical disturbance is at its highest. The Royal Commission on the Ancient and Historic Monuments should be consulted for advice regarding the choice and application of survey techniques suitable for establishing the potential for maritime heritage impacts.
- 9.44. Section 9.6.3 also highlights that further sub-bottom profiler or magnetometer data may be required prior to agreement of any future Written Schemes of Investigation. However, it is also worth highlighting that other evaluation work might be required to inform robust mitigation strategies. Offshore, these may include dive surveys or swim-over surveys of any areas of archaeological potential. Similar geophysical measures and potentially test pitting may also be required onshore to assess suitable locations for the substation and onshore cable routes. A method statement for onshore evaluation will be required commencing with a Desk Based Assessment.
- 9.45. Section 9.6.3 makes reference to the need for bathymetric / geophysical surveys – the context implying this relates to off-shore assessment only. Similar geophysical measures and potentially test pitting may also be required onshore to assess suitable locations for the substation and onshore cable routes. A method statement for onshore evaluation will be required commencing with a Desk Based Assessment.
- 9.46. The following policy and guidance documents should be utilised for assessing impacts of the development on the setting of historic assets:
- Planning Policy Wales
 - UK Marine Policy Statement
 - Conservation Principles for the Sustainable Management of the Historic Environment in Wales
 - Welsh Government Technical Advice Note 24: the Historic Environment
 - Draft Welsh National Marine Plan
 - Managing Setting of Historic Assets in Wales.

- Managing Heritage Impact Assessment in Wales
- Managing Conservation Areas in Wales

9.47. The work required to determine the magnitude of impact of the development on the historic environment will need to be assessed using professional judgement by a competent expert. This should be undertaken applying industry standards by a Member of the Chartered Institute for Archaeologists (CIFA) or CIFA registered organisation.

Noise and Vibration

9.48. We currently have no comments to make on this topic.

Air Quality

9.49. The ES should take into account roads and transport links that are likely to be used to transport construction materials and whether the potential change in traffic pollution will be significant.

9.50. Protected sites within 200m of the selected roads will need to be identified. The assessment should include the amount of NO_x, SO₂, dusts, and nitrogen deposition that is likely to occur at the sites within 200m of the roads and whether this pollution is greater than 1% of the relevant nutrient nitrogen critical loads. NO_x and SO₂ critical level and dusts deposition for these sites should also be assessed.

Tourism and Recreation

9.51. Recreational angling including charter boat trips are addressed within this section, however, consideration should be given to changes in target species not just the potential to restrict or impair the access to the area.

Aviation

9.52. The proposed development has been examined from a technical safeguarding aspect and based on the information that is currently available we are satisfied that the proposal does not conflict with NATS safeguarding criteria.

Traffic and Transport

9.53. We currently have no comments to make on this topic.

Health

9.54. HSE are the regulatory authority for occupational health and safety standards for construction, operation, maintenance and decommissioning for the onshore and offshore element of this type of project. The project will be subject to the Health and Safety at Work Etc Act 1974 and subordinate legislation including the Construction (Design and Management) Regulations 2015. The latter places a duty on designers to eliminate risk where possible and where not possible reduce so far as is reasonably practicable. We have no comments in relation to health on the scoping report but recommend that you contact HSE, prior to construction work, to discuss the management of health and safety for the project.

Socio- Economics

9.55. A detailed Economic Impact Assessment should form part of the EIA. Further information is required regarding jobs (numbers, type, quality, breakdown of skills etc.). Pressures of temporary accommodation to house workers should be included. Statistics quoted in the EIA should be the most up to date available.

9.56. Consideration should be given to Welsh language Impacts e.g. during the construction phase utilising nationally-based workers.

10. Cumulative impacts and in-combination effects

10.1. The scope of the Cumulative Impact Assessment is project focused, although the temporal or 'time frame' boundary is not clearly defined. Please note the European Commission guidance regarding temporal boundaries³², which suggests: '*Setting the*

³² European Commission <http://ec.europa.eu/environment/archives/eia/eia-studies-and-reports/pdf/guidel.pdf>

time boundary in terms of future developments can be based on information provided from the relevant planning authorities during consultation and from information contained within development plans produced by local or perhaps national authorities. In setting the future time boundary it is suggested that in general, beyond 5 years there is too much uncertainty associated with most development proposals. It is therefore recommended that in the majority of cases the limit does not exceed 5 years into the future.'

- 10.2. The cumulative assessment should include other proposed and existing Marine Licence applications such as disposal at Holyhead North disposal site. Information on marine licence applications can be found on the Welsh Government Marine Planning Portal³³ or downloaded from Lle³⁴. The assessment should also include developments allocated within the statutory development plan, proposals in the ANOB management plan and in the draft Wales National Marine Plan (each of which is supported by an Environmental Report and Habitats Regulations Assessment). Regard should also be given to Natural Resources Wales' emerging Area Statements (Marine and North-West Wales Areas), when published.
- 10.3. The proposed new power station at Wylfa is mentioned in relation to potential onshore cumulative impacts (see section 10.1.2). We advise that offshore aspects of the power station also need to be considered, including Horizon Nuclear Power's (HNP) plans for sediment and rock disposal at Holyhead North disposal site (this is in addition to the existing use of the disposal ground from Holyhead Port), increased boat traffic / shipping movements and biosecurity. It should also be noted that the HNP Wylfa Newydd development will mostly sit adjacent to the existing power plant rather than use the same site footprint.
- 10.4. It's important to note that, in addition to inter-project effects outlined in Section 10, intra-development effects, where multiple development elements have the potential to impact the same receptor, need to be considered throughout the relevant ES chapters and wider EIA process.
- 10.5. The cumulative and in combination effects of shipping and navigation require consideration, in particular regarding shipping routes, and the proximity of other activity or proposed developments in the area will require a detailed assessment.
- 10.6. The consideration of underwater noise cumulative effects should include activities in the wider area, such as navigation and fishing, as well as any other project developments.
- 10.7. It should be noted that the Habitats Regulations Assessment for the Draft Welsh National Marine Plan, which was published in December 2017, was unable to rule out Adverse Effect on Integrity for multiple SPA, SAC and Ramsar sites and features. These conclusions should be taken into account when screening relevant plans or projects under the Habitats Regulations that could have an in-combination effect on those sites and when considering cumulative and synergistic effects under the Environmental Impact Assessment and Strategic Environmental Assessment Regulations.

11. Summary

- 11.1. With regards to section 11.2 (topics to be scoped out):
- We disagree that offshore physical processes associated with reduced energy in tidal currents from energy removed by tidal devices should be scoped out from the EIA. It is not clear at this stage what devices will be deployed within the demonstration zone. PTEC are potentially generating 30MW of power whilst the demonstration zone will potentially be generating 240 MW of power. The scale of both projects is very different and ruling out the effects caused by a reduction in energy based on the findings of a much smaller project is not appropriate at this stage.
 - As noted earlier in this scoping opinion, the onshore scoping area covers, or is in close proximity to, a number of RIGS sites and impacts on the RIGS sites in question must be adequately considered and mitigated where

³³ Welsh Government Marine Planning Portal: <http://lle.gov.wales/apps/marineportal/#lat=52.5129&lon=-3.9111&z=8&layers=231>

³⁴ Lle geo-portal for Wales [http://lle.gov.wales/Catalogue?lang=en&text=marine licence](http://lle.gov.wales/Catalogue?lang=en&text=marine%20licence)

necessary. As such, we disagree that onshore geology should be scoped out of the ES.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Shelley Vince', written in a cursive style.

Shelley Vince
Marine Licensing Team
Natural Resources Wales

Cc Consultation Bodies