

# Proposed Morgan Offshore Wind Farm Generation Assets

## Planning Inspectorate Reference: EN010136

### Relevant Representation from Natural Resources Wales (NRW)

This Relevant Representation comprises the submission from Cyfoeth Naturiol Cymru / Natural Resources Wales (NRW) regarding the Morgan Offshore Wind Farm Generation Assets application.

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# INTRODUCTION

The statutory purpose of NRW is set out by the Environment (Wales) Act 2016. In the exercise of its functions NRW must pursue sustainable management of natural resources in relation to all of its work in Wales and apply the principles of sustainable management of natural resources in so far as that is consistent with the proper exercise of its functions. NRW's duty (in common with the other public bodies covered by the Well-Being of Future Generation (Wales) Act 2015) is to carry out sustainable development. This means, in general terms, looking after air, land, water, wildlife, plants, and soil to improve Wales' well-being, and provide a better future for everyone. NRW are also advisors to the Welsh Government on the natural heritage and resources of Wales and its coastal waters. NRW is satisfied that the advice below is consistent with its general purpose of pursuing the sustainable management of natural resources in relation to Wales and applying the principles of sustainable management of natural resources.

NRW have identified key concerns relating to the matters detailed below. It should be noted that NRW will be commenting only on matters considered to be cumulative impacts and/or migratory species in relation to Welsh designated sites. All other matters pertaining to the development will be deferred to Natural England/JNCC.

- Marine Ornithology
- Marine Mammals

The above matters are those that we advise either require amendments to the project, and/or substantial additional information, and/or amendments to the draft Development Consent Order ('DCO'). We also provide comments below on matters that may need minor amendments and / or clarification.

These are matters that we can provide further details on in our Written Representations and / or can be addressed in our on-going dialogue with the Applicant in the preparation of Statement of Common Grounds (SoCGs).

NRW will continue to provide further advice to the Applicant on all the required matters, through correspondence and meetings, with the aim of reaching as many positions of agreement and common ground as possible on outstanding matters prior to the examination of the proposal. Our Relevant Representation is based solely on the information provided within the application documents. Any changes in our position will be reflected in our full Written Representation and SoCG.

NRW has reviewed the application and, notwithstanding our key concerns and other issues raised herein, consider the submission, on balance, to be comprehensive and of a good quality. NRW is pleased to note that many of our previous concerns, as raised during the pre-application process, have been appropriately addressed.

Our comments are made without prejudice to any further comments NRW may wish to make in relation to this application and examination, whether in relation to the ES, provisions of the draft DCO and its Requirements, SoCGs or other evidence and documents provided by Bp-Enbw and their consultants ('the Applicant'), the Examining Authority (ExA) or other interested parties. The following paragraphs comprise our Relevant Representation as a Statutory Party under the Planning Act 2008 and Infrastructure Planning (Interested Parties) Regulations 2015 and as an 'interested party' under s102(1) of the Planning Act 2008.

Please note that the advice provided in this relevant representation relates only to the potential cumulative impacts and effects to Welsh protected sites and associated migratory species. For sites outside of Wales, the relevant Statutory Nature Conservation Body (SNCB) should be consulted.

## MARINE ORNITHOLOGY

### Key Issues

1. As detailed above, NRW (A)'s area of interest for offshore ornithology for this project relates to impacts on Welsh designated sites. However, we have also provided advice on the overall methodological approaches taken for offshore ornithology as these are relevant to the assessment of impacts to Welsh designated sites, including:
  - Methods and input parameters (avoidance rates and flight speeds) used in collision risk modelling (CRM).
  - Data gaps and figures included in cumulative assessments.
  - Displacement and mortality rates used in HRA Stage 2 ISAA integrity test step 1.
  - Lack of consideration of Liverpool Bay SPA for operations and maintenance vessel movements in HRA Stage 1 Screening and Stage 2 ISAA.
2. Whilst we consider that the predicted impacts from the Morgan generation assets project alone to Welsh designated sites are likely to be small and result in no adverse effects, the assessment and process of reaching the predicted impacts in the submission documents is currently unclear in places (e.g. how bird density data has been input to the sCRM, the CRM input parameters the CRM predictions in the HRA Stage 2 ISAA part 3 are based on, age class apportioning methods for the non-breeding season). Therefore, we advise clarification and/or updates are required to the assessment considering the comments below to add clarity and confidence in the predicted levels of impact.

### Detailed Comments

#### **Methodological Issues:**

##### *Seabird Collision Risk Modelling (CRM)*

3. NRW (A) understand that the collision risk modelling has been undertaken using the stochastic collision risk model (sCRM) 'Shiny App'. Clarification is required as to how the Applicant has entered the bird density data into the sCRM, e.g. has the 1,000 bootstrapped samples per survey been uploaded into the sCRM tool via the .csv file template that is available in the tool? If the bootstrapped data has been uploaded, then we request that these files are provided. We also repeat our advice provided on the Preliminary Environmental Information Report (PEIR) that the log .csv files (input and output) the sCRM produces should be provided in order for the sCRM to be verified and for the correct data to be available for use by future projects if required for cumulative/in-combination assessments.

4. The Applicant has presented sCRM outputs considering a range of flight speeds and avoidance rates in Section 1.4 of Volume 4, Annex 5.3 'collision risk technical report' [APP-055], along with a review of uncertainty regarding these parameters in Section 1.5 of Volume 4, Annex 5.3 [APP-055]. With regard to the Applicant's review and conclusions, we note the following:
5. Flight speeds: NRW (A) acknowledge that bird flight speeds are an important issue in the context of collision risk modelling (CRM). However, it should be noted that it is not as simple as changing one parameter (i.e. flight speed to the Skov et al. 2018 speeds) in the CRM, there is also a need to consider how this fits in the wider CRM in terms of the other input parameters. E.g. there is likely to be a relationship between flight speed and height and this needs to be taken into consideration (Natural England 2019) and, incorporating behaviour into collision risk models may also require the estimation of different avoidance rates as the current recommended avoidance rates have been derived from the generic currently advised flight speeds (Cook et al. 2023).
6. Avoidance rates: The use of species-specific versus species-group avoidance rates was discussed with the Expert Working Group (EWG) and the SNCBs (NE/NRW/JNCC) advised that due to the paucity of offshore, species-specific data that undermines the confidence we can place in species-specific rates at this stage, we currently advise that the species group avoidance rates are used in assessments.
7. We welcome that the Applicant has presented predicted collision impacts for each relevant species using the various flight speeds they have considered, including the SNCB advised speeds, and both the species group and species-specific avoidance rates. NRW (A) will base its advice on the predicted impacts resulting from the SNCB advised flight speeds (from Alerstam et al. (2007) or Pennycuik (1997)) and species group avoidance rates (which are the SNCB agreed recommended rates for use in collision risk modelling).

*Impacts to Sites of Special Scientific Interest (SSSIs) (Volume 2, Chapter 5, APP-023)*

8. We welcome that quantitative assessments of displacement impacts to the guillemot and razorbill features and collision impacts to the kittiwake feature of the Pen y Gogarth / Great Orme's Head SSSI have been undertaken in Volume 2, Chapter 5 [APP-023]. However, clarification is required regarding the following:
  - How the apportionment values of <0.01 for the site in the non-breeding seasons (presented in Tables 5.41, 5.44 and 5.52 of Volume 2, Chapter 5, APP-023) have been calculated, as no information is provided on non-breeding season apportionment to non-SPA colonies in Volume 4, Annex 5.5 'Apportioning Technical Report' [APP-057].
  - Whether the SSSI population numbers of individuals given in Tables 5.41, 5.44 and 5.52 of Volume 2, Chapter 5 [APP-023] are the number of breeding adults or the number of birds of all ages (adults and immatures). We suggest that these are based on the number of adults.
  - What mortality rates have been used for the calculations of baseline mortality and the proportions of baseline mortality that the predicted impacts equate to. We suggest these should use the adult mortality rates.

9. Additionally, the apportioned impacts across the SNCB advised range of % displacement (30-70%) and % mortality (1-10%) rates should also be provided in addition to the Applicant's preferred rates of 50% displacement and 1% mortality.
10. We note that (contrary to the information in tables 5.14, 5.36, 5.38, 5.42, 5.45 and 5.53) guillemot, razorbill and kittiwake are not qualifying features of Creigiau Rhiwledyn / Little Ormes Head SSSI – the only seabird feature of this site is breeding cormorant.

*Cumulative Assessments (Volume 2, Chapter 5, APP-023)*

11. Data gaps: The cumulative impact assessments contain numerous data gaps and cannot be considered comprehensive. This issue was raised as a concern by NRW (and also NE and JNCC) in the PEIR responses and discussed during the EWG. We highlight that NRW (A) advised the Crown Estate Round 4 plan-level Habitats Regulations Assessment (HRA) to undertake quantitative 'gap-filling' for historic projects. It is unfortunate that this advice was not adopted as we do consider this an imperative issue that needs to be implemented at the strategic level. Nonetheless, the SNCBs supplied joint bespoke advice to the Applicant (and other Round 4 projects in the Irish Sea) detailing a hierarchical method to 'gap-fill' the Irish Sea cumulative and in-combination assessments. The advice to the Applicant was to generate indicative estimates for currently unknown impacts, which have been assumed to be zero. Adopting such an approach that would allow indicative estimates to be made (rather than assuming zero) which would then enable more informed expert judgement to be made on the likelihood of adverse effects, and thus enable an understanding as to whether any further investigation by a more rigorous assessment was needed.
12. However, the Applicant has not followed the suggested SNCB advice and has instead presented a qualitative summary for the projects with no data, and essentially the impacts from these projects remain assumed as zero. We do not consider that the qualitative assessments presented by the Applicant are sufficient to give confidence in the conclusions drawn with respect to the level of significance of accumulating scale of impacts to some species. Our advice therefore remains as detailed in the original SNCB advice provided to the Applicant.
13. However, there are ongoing internal discussions surrounding the development of an approach that may help to address this issue, which will be shared with the Applicant for consideration in due course.
14. Data included for other projects in cumulative assessments: We advise that the Applicant reviews and if necessary updates the figures included in the cumulative tables for the various projects as there are several errors in the figures included and/or several differences between the figures included by Morgan Generation Assets and those included by the Mona project in their submission for the same projects. Given that both the Morgan Generation Assets project and the Mona project are being determined and in examination concurrently (albeit at different stages) at the same time, and both projects are located within the Irish Sea, there will be a need for both projects to be assessing the same cumulative (and hence in-combination) total impacts. Therefore, we suggest that the two projects work together collaboratively to ensure the assessments are consistent. The cumulative collision assessment text and tables in Volume 2, Chapter 5 [APP-023] suggests the predicted collision figures for the other projects included have been corrected for the species-specific

avoidance rates from Ozsanlav-Harris et al. (2023), with cumulative totals also presented for the species-group avoidance rates as advised by NE/NRW/JNCC. Clarification is required from the Applicant regarding the approach taken to do this. It appears that the figures included for Awel ŷ Mor for large gulls are those for Band Option 2, however, clarification is required as to whether this is the case.

15. Therefore, we advise that the cumulative assessments are updated to address these issues where required before we can make any conclusions on the level of impacts.
16. Additionally, the numbers included for the Morecambe generation assets project are based on data from the PEIRs for this project, which was based on only 12 months of data and are therefore, subject to change and have a degree of uncertainty associated with them. We understand that the application for the Morecambe generation assets project has recently been submitted to PINS and so there is the potential for the Morecambe generation assets project to also be in examination during the Morgan generation assets examination, and hence there will be a need to ensure that the cumulative totals assessed by the projects are consistent.

## **HRA Related Issues:**

17. The advice provided below is applicable to the potential impacts and effects to Welsh protected sites only. For the many SPAs/Ramsar sites screened and assessed by the Applicant that are located outside of Wales (in England, Scotland, Northern Ireland and Ireland), the relevant Statutory Nature Conservation Bodies (SNCBs) should be consulted.

### *LSE screening*

18. We reiterate the advice provided during the EWG discussions on the approach to the HRA Screening of likely significant effects (LSE), that where there is potential connectivity to a very large number of sites, but the likelihood of substantial impacts is generally low, the approach taken in this assessment may be considered appropriate regarding the project 'alone' assessment for Morgan. It should be acknowledged however, that this approach will not necessarily be appropriate for all offshore windfarm cases. Impacts from other offshore windfarm projects are unlikely to be low. Additionally, if a designated site that has potential connectivity with an offshore windfarm project is in unfavourable condition and/or has a restore Conservation Objective (CO) target (and a population which may be in decline), then even a small impact may adversely impact the COs and integrity of the European site(s) in question.
19. Liverpool Bay SPA: Whilst the Morgan Generation Assets application does not cover the offshore export cable, as the port location is not yet decided, we consider that there is the potential for operations and maintenance vessel movements through the Liverpool SPA for such vessels transiting from port to the array area. No consideration has been given in the HRA Stage 1 Screening Report [APP-099] to the potential impacts from such activities on the qualifying features of this SPA, particularly the red-throated diver and common scoter features. Given that these features are particularly sensitive to disturbance/displacement from vessel movements, we would consider that an LSE cannot be ruled out for these features and hence should be taken through to the HRA Stage 2 ISAA. However, we note the measures listed in Table 5.26 of Volume 2, Chapter 5 [APP-023] of adherence to an

offshore Environmental Management Plan (EMP) that will include measures to minimise disturbance to rafting birds from transiting vessels (as set out in APP-070) and include a Marine Pollution Contingency Plan (MPCP). We note and agree that the offshore EMP is secured within the dML in Schedule 3 Part 2 of the draft DCO [APP-005]. Therefore, based on the adoption of best practice vessel operations to minimise disturbance it is likely that an AEoSI from operation and maintenance vessel movements can be ruled out for these features of the SPA.

#### *Features of Welsh SPAs/Ramsar sites*

20. The qualifying features of some of the Welsh SPA/Ramsar sites listed in the HRA related documents [APP-098, APP-099, APP-100] should be checked and updated accordingly:
- Skomer, Skokholm, and seas off Pembrokeshire (SSSP) SPA qualifying features are: Manx shearwater, European storm petrel, lesser black-backed gull, Atlantic puffin and a seabird assemblage. Guillemot, razorbill and kittiwake are not features in their own right but are named components of the seabird assemblage feature.
  - Waterbird assemblages are also features of The Dee Estuary Ramsar, Burry Inlet Ramsar and Severn Estuary Ramsar.

#### *Age class apportionment for seabirds (Volume 4, Annex 5.5, APP-057)*

21. We do not consider the use of the kittiwake adult proportion that was calculated for Hornsea 2 to be appropriate to apply to Morgan as the juvenile survival rates (0-1 year) given in Horswill & Robinson (2015) are very old and from a single colony in the North Sea (taken from Coulson & White 1959) and hence have a poor data quality score (score of 1). Hence there is uncertainty around the appropriateness of the approach. Therefore, we advise a more appropriate approach for the breeding season would be to use the proportion (84.11%) of adults recorded in the Morgan site-specific Digital Aerial Survey (DAS) data, or to take the precautionary approach and assume all birds are adults.
22. Clarification is required as to the approach that has been taken for age classes for species where it is not possible to use the site-specific DAS data (e.g. auks, Manx shearwater), as it is unclear from Volume 4, Annex 5.5 'Apportionment Technical Report' [APP-057]. For example, has the precautionary approach of assuming all birds recorded are adults been taken?
23. The approach taken to age class apportioning in the non-breeding season is unclear from Volume 4, Annex 5.5 'Apportionment Technical Report' [APP-057]. It would appear from Appendix A of the HRA Stage 1 Screening Report [APP-099] that all birds are assumed to be adults in the non-breeding season(s). However, clarification is required that this is the case.

#### *Apportionment of impacts to seabird designated sites*

24. Non-breeding season: We advise that the Applicant reviews and if necessary updates the apportionment rate calculations for the non-breeding seasons for lesser black-backed gull for Skomer, Skokholm and seas off Pembrokeshire SPA as the figures presented in Table 1.16

of Annex 5.5 'Apportioning Technical Report' look incorrect. Based on our calculations the apportionment to this SPA for this species should be: 8.26% in the spring and autumn migration seasons (rather than 3.05% as presented in Table 1.16) and 9.37% in the winter season (rather than 4.85% as presented in Table 1.16). However, we note that the apportionment values in Table A.5 of Appendix A of the HRA Stage 1 Screening Report [APP-099] look to be correct and that the apportioned impacts to this colony look to be correct.

*Apportioned impacts from project alone*

25. In paragraph A.1.2.1.1 of Appendix A of the HRA Stage 1 Screening report [APP-099], the Applicant indicates that the impact estimates used in the apportionment of impacts to designated sites has used those impacts calculated using Natural England's (NE) recommended parameters for use in CRM. During the EWG, NRW (A) were in agreement with the parameters recommended by NE. However, based on the CRM outputs presented in Tables 1.6-1.11 of the 'CRM Technical Report' (Volume 4, Annex 5.3 APP-055), we note that the CRM impact estimates used in the apportioning by the Applicant are in fact those based on the NE/SNCB advised avoidance rates but those using the flight speeds from Skov et al. (2018), which are not the flight speeds recommended by the SNCBs. We reiterate our comments in Section 1.1 above regarding the use of the Skov et al. (2018) flight speeds with the current calculated avoidance rates. Therefore, we advise that before we can reach conclusions on the level and significance of impacts to Welsh designated site features from the project alone, the Applicant should provide apportioned collision impacts using the full SNCB advised input parameters.

*Stage 2 ISSA Part 3 (SPAs and Ramsars), Step 1 assessments [APP-098]:*

26. The apportioned impacts from displacement and resulting % increases to baseline mortality presented and assessed in the Step 1 assessment of the HRA Stage 2 ISSA Part 3 (SPAs and Ramsars) [APP-098] are based on the Applicant's considered appropriate % displacement and % mortality rates only. To account for uncertainty in displacement and mortality rates we recommend that apportioned impacts and associated increases in baseline mortality across the range of SNCB advised % displacement and % mortality are also presented and considered in the assessments.
27. The Applicant has chosen to support their assessment on auk displacement by referencing Trinder et al. (2024) but has fundamentally misunderstood the conclusions of the study. The study did not assess macro-avoidance in a way that is compatible with impact assessment methodology, i.e., testing for a reduction in abundance/density within the array and 2km buffer. While the study did show abundance increased in the post-operational period over the whole study area, the proportion of the auk population within the array area showed a decrease, indicative of a displacement effect. Therefore, the statement made by the Applicant in paragraph 15.3.9 of AP-098 that "The abundance of both guillemot and razorbill increased significantly from the pre-construction period into the post-construction period. This would suggest that these species are not displaced by offshore wind farms..." is incorrect. NRW advise that it would be beneficial if the applicant critically review a wider scope of evidence for points they are trying to emphasise and present the full study conclusions in their assessments and reference appropriately, rather than selectively appraise the limited scope of evidence that has been presented.



28. Clarification is required as to what the range of predicted collision impacts presented in the Step 1 assessment tables of the HRA Stage 2 ISSA Part 3 (SPAs and Ramsars) [APP-098] are based on. For example, are these based on the range of predicted collision impacts across the various avoidance rates and flight speeds modelled by the Applicant, or are they the range of predicted impacts from the sCRM based on the Applicant's preferred avoidance rates and flight speeds? Noting our comments above regarding advised avoidance rates and flight speeds.
29. Clarification is required as to the survival and hence mortality rates used to calculate the baseline mortality and proportions of baseline mortality predicted impacts equate to presented in Step 1 of the HRA Stage 2 ISSA Part 3 (SPAs and Ramsars) report [APP-098] We assume that the species adult survival rates from e.g. Horswill & Robinson (2015) have been used in these calculations, but this needs to be made clear.
30. We also advise that for species where impacts of collision and displacement are assessed (e.g. gannet and kittiwake) that the apportioned predicted impacts for collision (noting NRW will base advice on impacts predicted using the species group avoidance rates and flight speeds that have been advised to the Applicant by the SNCBs), displacement, and collision plus displacement are presented, as this will assist with verification.

*Grassholm SPA gannet:*

31. We welcome the approach the Applicant has taken for apportionment of impacts to this colony. However, we note that tracking data (e.g. from Votier et al. 2010) and utilisation distributions (e.g. Wakefield et al. 2013) suggest that gannets have been shown to display spatial segregation between colonies and that it is unlikely that gannets from Grassholm SPA will forage in the Morgan area. Therefore, it is likely that the breeding season apportionment value calculated by the Applicant and hence the apportioned collision and displacement impacts to the colony in the Applicant's assessment are precautionary.
32. We advise the Applicant checks the date of the Grassholm SPA count, as a count of 72,022 breeding adult gannets is not from the SMP for 2023, it is the count from 2015.

*In-combination (HRA Stage 2 ISAA Part 3, SPAs and Ramsars, APP-098)*

33. From paragraph 1.4.7.8 of the HRA Stage 2 ISAA Part 3 (SPAs and Ramsars) report [APP-098], the Applicant has taken an approach where if the predicted impact from the project alone equates to less than 0.05% of baseline mortality of a designated site then it is deemed non-material and within natural fluctuations of the population and is therefore screened out of in-combination assessment. This has resulted in all Welsh SPAs being screened out of in-combination assessment. Whilst this approach may be appropriate for this project where predicted impacts from the project alone are likely very small, it may not be appropriate in other situations, including for designated sites where in-combination impacts are already close to/at levels that are already considered to be of an adverse effect; or designated sites considered to be in unfavourable condition/have restore conservation objectives. It also does not mean that impacts from the Morgan project should be excluded from in-combination totals for future project assessments.

34. Additionally, the predicted impacts are based solely on the Applicant's preferred ranges of % displacement and % mortality rates for displacement and no consideration has been made of the ranges of predicted displacement impacts as advised by the SNCBs. It is also unclear as to the input parameters (particularly avoidance rates and flight speeds) that the apportioned collision predictions are based on. We again note that the apportioned collision predictions based on the full SNCB input parameters should be provided.
35. Based on the comments above, we suggest that the approach/sites and species combinations taken forward for in-combination assessment is revisited once any updates have been made. If this then leads to more sites and species combinations being taken through to in-combination assessments, the comments above regarding cumulative assessments need to be considered.

## MARINE MAMMALS

### Key Issues

36. Inadequate justification has been provided to support the assigned magnitude score of low when assessing the cumulative effects of injury and disturbance to marine mammals from elevated underwater sound due to vessel use, traffic and other non-piling sound producing activities.
37. The general cumulative effects assessment has not included the in-combination effects of other key offshore projects.
38. Inadequate justification has been provided to support the absence of assessing potential barrier effects as a result of the development.
39. Inadequate justification has been provided to support the conclusions of interrelated effects on marine mammals receptors.
40. Impacts from additional disturbance caused as a result of the large-scale use of ADDs need to be considered.

### Detailed Comments

*Cumulative effects: Injury and disturbance to marine mammals from elevated underwater sound due to vessel use, traffic and other (non-piling) sound producing activities [APP-022].*

41. NRW (A) acknowledge and welcome the information provided regarding vessel traffic data (Vol. 2, Chapter 4: Marine Mammals; Figs 4.24 & 4.25). However, there is inadequate justification for an overall assigned magnitude score of low. We note that the estimated numbers of animals disturbed by vessels and any subsequent conclusions were based on static impact radii. Given the known sensitivity of harbour porpoise, in particular to vessel noise and the large increase in number of vessels in the area compared to baseline vessel

traffic, NRW (A) advise that the assessment is revised and quantified both for the project alone and in-combination.

*Cumulative Effects Assessment [APP-022].*

42. NRW (A) consider that in-general the Cumulative Effects Assessment (Section 4.11) is missing key points of the in-combination effects of Morgan, Mona and Morecambe, as well as other offshore projects interacting together to effect changes on local marine mammals that can manifest as masking, behavioural response, hearing impairment and physical and physiological effects i.e., barrier effects. Additionally, NRW (A) notes that considerable information is missing from the 'List of other projects, plans and activities considered within the CEA (Table 4.50, Section 4.10), we advise this should be addressed by the Applicant.

*Barrier Effects [APP-022].*

43. As similarly mentioned above, limited justification has been provided for the absence of cumulative assessment of barrier effects. Clarification and potentially further assessment is required.

*Interrelated Effects [APP-022].*

44. There is inadequate justification for the conclusion that the effects on marine mammal receptors are not anticipated to interact in such a way as to result in combined effects of greater significance than the assessments presented for each individual phase or when considered in conjunction with other topics addressed in the Environmental Statement. Thus, this assessment needs to be given the appropriate credence and the outcomes of the inter-related effects assessment should be presented adequately in the outcomes of the inter-related effects assessment in this report. In particular, the inter-related effects from disturbance should be assessed adequately.

*Injury from elevated underwater sound due to piling [APP-022].*

45. We note a conclusion of negligible magnitude has been assigned based on the inclusion of the potential indicative use of designed-in measures (30 minutes of Acoustic Deterrent Devices (ADDs)). However, whilst we acknowledge that the proposed mitigation strategy outlined in the Environmental Statement [APP-022], Marine Mammal Mitigation Protocol (MMMP) [APP-072] and Underwater Sound Management Strategy (UWSMS) [APP-068] is to be agreed post consent, we note that any additional disturbance caused as a result of the large-scale use of ADDs has not been considered. Furthermore, the predicted impact ranges for permanent threshold shift (PTS) without ADDs should be used to determine the appropriate duration of ADD with the purpose to deter marine mammals from the full extent of the PTS zone, taking into account the species-specific fleeing speeds, as well as other suitable mitigation measures.

*Outline Underwater Sound Management Strategy (UWSMS) [APP-068].*

46. We welcome the inclusion of an outline UWSMS and acknowledge the commitments made therein by the Applicant to reducing residual impacts and the use of noise attenuation technologies, if required. We agree that the UWSMS could reduce the magnitude of impacts to an acceptable level. It should be noted, however, that whilst we anticipate that the proposed mitigation methods may be sufficient to support the current conclusions of "not

*significant*”, the strategy as currently presented is high-level. NRW (A) welcome the opportunity to work with the Applicant on further developing the UWSMS pre and post-consent.

47. *Under Water Technical Report [find reference number]*

48. Final ADD duration will be determined post-consent and therefore we do not agree to including 30 minutes ADD duration at this stage. The assessment needs to be based on the modelling scenarios with no ADD to represent the worst case scenario based on which the appropriate ADD duration can be determined.

49. While we do not disagree with an overall conclusion of minor adverse significance (disturbance and injury) for site investigation surveys, within the Underwater Sound Technical Report, the impact ranges for sparkers appears relatively small in contrast with non-pulsed sub-bottom profiler methods presented. Given sparkers tend to be more omnidirectional source, they would be expected to have a bigger impact range.

*Outline Marine Mammal Mitigation Protocol (MMMP) [APP-072].*

50. Table 1.2 of the MMMP states ‘*For high order detonation of UXO, soft start will be undertaken using a sequence of small explosive charges detonated at specific time intervals allowing marine mammals to move away from the mitigation zone prior to the detonation of the UXO*’. NRA (A) determine these small explosions to be akin to scare charges. Noise monitoring of scare charges during a UXO clearance are not recommended as a mitigation option for marine mammals and therefore should not be used for this purpose.

51. NRW (A) welcomes the conservative mitigation zone of 1700m for piling, in accordance with the modelling. Although suitably conservative, it is a large mitigation zone, given the average is usually 500m. We recommend a detailed explanation of how the Applicant plans to effectively monitor this zone and suggest the consideration of different technologies to aid monitoring.

*HRA Stage 2 ISAA Part 2 – SAC Assessments [APP-097].*

52. For impulsive sources both APP-022 and APP-097 reference that changes in the impulsive characteristics of impulsive sound at range implies that disturbance thresholds for piling noise should be precautionary at long range (i.e. a few kilometres). While this may be plausible for thresholds derived from observations close to the source, NRW (A) does not agree with this conclusion, given that the dose response curves applied as thresholds for piling noise, as well as the 143dB single strike Sound Exposure Level (SEL) threshold, are based on field observations collected at up to several km from piling activities. NRW (A) therefore recommend that this technical error is rectified for this project and future projects adopting the same techniques.

53. In line with NRW’s position statement on the use of Management Units, in view of the strong evidence supporting the idea that the populations of Cardigan Bay and Pen Llyn a’r Sarnau Special Areas of Conservation (SAC) are highly connected, and that there is likely a single genetic population across the management unit, when conducting an appropriate assessment the two protected sites should be considered together.

## **FISH AND SHELLFISH ECOLOGY**

54. NRW (A) agree with the screening undertaken in the HRA Screening report [APP-099] and the subsequent Stage 2 assessment [APP-096 AND APP-097] and agree with the overall conclusion of no risk of an adverse effect on the integrity of diadromous fish features from the Welsh protected sites; Dee Estuary/Aber Dyfrdwy SAC, River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid SAC, and Afon Gwyrfai a Llyn Cwellyn SAC.
55. As the development is within English territorial waters, NRW (A) defer to advice from Natural England on all fish species not originating from Welsh protected sites.

## **PHYSICAL PROCESSES**

56. The potential impact to hydrodynamics, sediment transport and seabed morphology during construction caused by sand wave clearance and the deposition of scour protection and cable protection, was previously raised by NRW (A) at PEIR stage even though the Morgan Generation Assets are entirely in offshore English waters. However, NRW (A) are not in the position to raise these concerns at statutory consultation as the project footprint is not in our territorial jurisdiction, but falls under the responsibility of the JNCC and NE. When considering cumulative impacts, the zone of influence for the potential alteration to the hydrodynamics during operation caused by the presence of the generation asset structures and the potential advection of the suspended sediment concentration plumes generated during construction works and maintenance works do not overlap with Mona OWF inside the 12NM jurisdiction boundary line. As a result, NRW (A) will be deferring to JNCC/NE for these matters.

## **BENTHIC SUBTIDAL AND INTERTIDAL ECOLOGY**

57. Considering the physical processes advice provided above, the location of Morgan Generation Assets being wholly in English waters, and the zone of influence affecting benthic habitats in Welsh waters indirectly, NRW (A) defers all benthic subtidal and intertidal ecology advice to JNCC/NE.

## **BIODIVERSITY BENEFIT AND GREEN INFRASTRUCTURE STATEMENT**

58. NRW (A) welcomes the Applicant's commitment to consider opportunities to enhance resilience of marine and coastal ecosystems as noted in APP-073 and the work that the Applicant has done on this topic thus far.

59. We note that the Applicant refers to providing biodiversity benefit measures in addition to ensuring sufficient mitigation is to be put in place, in order to reduce and/or eliminate potential for significant effects as part of the mitigation hierarchy (avoid, minimise, mitigate). We welcome the inclusion of nature positive design elements (subtidal and intertidal) in the proposals, beyond what may be required through the mitigation hierarchy, in order to deliver biodiversity benefits, and the commitments to explore wider opportunities to contribute to building resilience of marine and coastal ecosystems - both within the footprint of the proposal and beyond. We advise, however, that mitigation measures should not be considered as methods for biodiversity improvement or enhancement, as they are in place as preventative measures of deterioration of features rather than providing biodiversity benefits from the baseline.
60. NRW (A) assume that the proposals for delivering biodiversity benefit presented by the Applicant are not being considered for Welsh waters given the project lies wholly within English waters. However, depending on the focus and nature of the delivery, projects targeted in English waters may also deliver benefits in Welsh waters, e.g. actions targeted to mobile species including birds, marine mammals and fish. Should the Applicant wish to consider proposals for delivering biodiversity benefit in Wales, we recommend that the Applicant reviews NRW's Guidance Note 59 Principles supporting restoration and enhancement in marine or coastal development proposals, which sets out NRW (A)'s approach to advising on the inclusion of restoration or enhancement elements in a marine or coastal development proposal and encourages engagement with NRW (A).
61. This guidance has been developed to support implementation of Welsh National Marine Plan (WNMP) policy ENV\_01: Resilient Marine Ecosystems which aims to ensure that biological and geological components of ecosystems are maintained, restored where needed and enhanced where possible, to increase the resilience of marine ecosystems and the benefits they provide. WNMP Policy ENV\_01 encourages consideration of the inclusion of restoration and enhancement in a development project at sea and at the coast but there is not currently obligation upon proposers of projects in the marine environment to do so.

## **DESIGNATED LANDSCAPES/SEASCAPES**

62. Our landscape planning advice relates to the landscape character and visual amenity of statutory designated landscapes in Wales, and the statutory purpose of these designations to conserve and enhance their natural beauty.
63. The following Maximum Design Scenarios for the Morgan Array Project are provided in Table 3.5 in ES Volume 1, Chapter 3: Project Description [APP-010]. We note these have been updated since the PEIR stage:
- Scenario 1 - 96 x 293m tall turbines
  - Scenario 2 - 68 x 364m tall turbines
64. NRW (A) advise that offshore turbines with tip heights up to 364m have an approximate average 48.5km buffer for low magnitudes of effect (White et al., 2019). Low magnitude buffer

distances are an indication that there is a likelihood that there would be no significant effects on a high sensitivity receptor for the size of wind turbine at, or beyond, the distance stated.

65. Statutory designated landscapes on the north coast of Wales are all further than 48.5km from the Morgan Array Area. The Isle of Anglesey Area of Outstanding Natural Beauty (AONB) (National Landscape) is the closest at approximately 60km. The closest points to the Morgan Array Area in Eryri National Park and the Clwydian Range and Dee Valley AONB are approximately 70km and 73km respectively.
66. The Applicant's Seascape, Landscape and Visual Impact Assessment (SLVIA) includes one assessment viewpoint within the Isle of Anglesey AONB (Viewpoint 55 Trwyn Eilian (Point Lynas)) (Volume 4, Annex 10.6: Seascape visualisations Part 3, Figures 19.1-2 and Figures 65-66). The visualisations indicate the visual impact of the proposals at this location are expected to be minor and not significant
67. Based on the above, we are satisfied with the 60km study area used in the SLVIA, and the decision to scope out statutory designated landscapes in Wales from the SLVIA. We have no further comments.

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