codling wind park

Environmental Impact Assessment Report

Volume 4

Appendix 13.1 Cumulative Effects Assessment


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Table of contents

List of tables

Abbreviations

Abbreviation	Term in Full
BC	Bat Conservation
CEA	Cumulative Effects Assessment
CWP	Codling Wind Park
EIA	Environmental Impact Assessment
EcIA	Ecological Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
EU	European Union
IAC	Inter-array cables
O&M	Operations and maintenance
OSS	Offshore Substation Structure
OWF	Offshore Wind Farm
PINS	Planning Inspectorate
TJB	Transition joint bays
WTG	Wind turbine generator

Definitions

Glossary	Meaning
array site	The red line boundary area within which the wind turbine generators (WTGs), inter-array cables (IACs) and the Offshore Substation Structures (OSSs) are proposed.
Codling Wind Park (CWP) Project	The proposed development as a whole is referred to as the Codling Wind Park (CWP) Project, comprising of the offshore infrastructure, the onshore infrastructure and any associated temporary works.
Environmental Impact Assessment (EIA)	A systematic means of assessing the likely significant effects of a proposed project, undertaken in accordance with the EIA Directive and the relevant Irish legislation.
Environmental Impact Assessment Report (EIAR)	The report prepared by the Applicant to describe the findings of the EIA for the CWP Project.
landfall	The point at which the offshore export cables are brought onshore and connected to the onshore export cables via the transition joint bays (TJB). For the CWP Project, the landfall works include the installation of the offshore export cables within Dublin Bay out to approximately 4 km offshore, where water depths are too shallow for conventional cable lay vessels to operate.
offshore substation structure (OSS)	A fixed structure located within the array site, containing electrical equipment to aggregate the power from the wind turbine generators and convert it into a more suitable form for export to shore.
operations and maintenance (O&M) activities	Activities (e.g., monitoring, inspections, reactive repairs, planned maintenance) undertaken during the O&M phase of the CWP Project.

APPENDIX 13.1 CUMULATIVE EFFECTS ASSESSMENT

1 Introduction

1. Codling Wind Park Limited (hereafter 'the Applicant') is proposing to develop the Codling Wind Park (CWP) Project, which is located in the Irish sea approximately 13–22 km off the east coast of Ireland, at County Wicklow.

2. The Environmental Impact Assessment Report (EIAR) for the CWP Project provides the decision-maker, stakeholders and all interested parties with the environmental information required to develop an informed view of any likely significant effects resulting from the CWP Project, as required by the European Union (EU) Directive 2011/92/EU (as amended by Directive 2014/52/EU) (the EIA Directive). These provisions are transposed into Irish legislation in Part X of the Planning and Development Act 2000, as amended, and in Part 10 of the Planning and Development Regulations 2001, as amended.

3. A fundamental component of the EIA is to consider and assess the potential for cumulative effects of the project with other projects, plans and activities (hereafter referred to as 'other development').

4. The Environmental Protection Agency (EPA) Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022) defines cumulative effects as:

> *'The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.*
>
> *While a single activity may itself result in a minor impact, it may, when combined with other impacts (minor or insignificant), result in a cumulative impact that is collectively significant. For example, effects on traffic due to an individual industrial project may be acceptable; however, it may be necessary to assess the cumulative effects taking account of traffic generated by other permitted or planned projects.'*

5. This appendix presents the findings of the Cumulative Effects Assessment (CEA) for offshore bats, which considers the residual effects presented in **Chapter 13 Offshore Bats** alongside the potential effects of other proposed and reasonably foreseeable development. Cumulative effects are considered in this document across the construction and operation and maintenance phases of the CWP Project.

6. The detail and scope of the decommissioning works for the CWP Project will be determined by the relevant legislation and guidance at the time of decommissioning. Project alone impacts during the decommissioning phase of the CWP Project are assessed in **Chapter 13 Offshore Bats**. It is anticipated that the impacts will be no greater than those identified for the construction phase, and therefore no separate assessment of cumulative impacts during the decommissioning phase is presented within this CEA.

2 CEA methodology

Guidance

7. This section summarises the approach to the assessment of cumulative effects for the CWP Project. Further details on the approach to the CEA is provided in **Appendix 5.1 Cumulative Effects Assessment Methodology**.

8. The principal guidance document that has informed the approach to the CEA is the Planning Inspectorate (PINS) for England 'Advice Note 17: Cumulative Effects Assessment' (PINS, 2019), which provides a four-stage process for the assessment of cumulative effects which has been applied here.

9. This guidance has been applied for a number of both offshore wind farm (OWF) and non-OWF projects in the UK and is considered to provide developers with a structured approach to assessing cumulative effects. The guidance is also regularly applied in Ireland for large scale projects, noting that there is no single, industry standard approach to CEA in Ireland which often varies between projects.

10. In developing the CEA methodology, EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022) and Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (European Commission, 1999) have also been considered.

Consultation

11. No stakeholder or regulator feedback was received during the consultation process that is relevant to the CEA for offshore bats.

Identification of 'other development'

12. Stage 1 of the process involved establishing the list of other developments with the potential to result in cumulative effects with the CWP Project. This included all projects that result in a comparative effect that is not intrinsically considered as part of the existing environment and is not limited to other OWF projects.

13. The long list of other development (presented in **Appendix 5.1 Cumulative Effects Assessment Methodology**) was then subject to additional screening criteria to establish a short list of other development for each topic. It should be noted that the approach to the CEA attempts to incorporate an appropriate level of pragmatism. Only projects which are well described and sufficiently advanced, with sufficient detail available with which to undertake a meaningful and robust assessment, have been screened into the CEA.

14. In accordance with PINS Advice Note 17, each development considered alongside the CWP Project as part of the CEA has been assigned to a tier, reflecting their current status in the planning and development process.

15. The purpose of the tiered approach is to give consideration to the level of certainty that a cumulative project will be built and therefore contribute to cumulative effects. For example, there can be greater certainty that other developments approved and under construction are likely to contribute to cumulative effects, whereas other developments at early phases of development (i.e., pre-planning) are less likely to proceed to construction and contribute to cumulative effects. Furthermore, sufficient detail about these projects is unlikely to be available with which to undertake a detailed cumulative assessment.

16. The proposed tiering structure is described in **Table 1** and described in more detail in **Appendix 5.1 Cumulative Effects Assessment Methodology**. The tiers are listed in descending order of level of detail likely to be available (and, correspondingly, certainty of effects arising).

Table 1 Tiered structure for other development considered for CEA (modified from PINS Advice Note 17 (PINS, 2019)).

Tier	Description
Tier 1	• Under construction. • Permitted applications, but not yet implemented. • Offshore applications submitted six months or more in advance of the CWP Project planning application, but not yet determined. • Onshore applications submitted six months or more in advance of the CWP Project planning application, but not yet determined.
Tier 2a	• Offshore projects in receipt of a Maritime Area Consent (MAC) and an ORESS contract.
Tier 2b	• Offshore projects in receipt of a MAC. • Offshore Projects in the public domain where an EIA scoping report has been issued. • Onshore Projects in the public domain where an EIA scoping report has been issued.
Tier 3	• Projects in the public domain where an EIA scoping report has not been issued. • Projects that have been identified in the relevant development plans and programmes, which set the framework for future development consents / approvals, where such development is reasonably likely to come forward.

3 CEA impact screening

17. The first step in the CEA for offshore bats is the identification of which residual impacts assessed for the CWP Project alone have the potential for a cumulative impact with other developments (described as 'impact screening'). This screening exercise is set out in **Table 2** below.

18. Only potential impacts assessed in **Chapter 13 Offshore Bats** as Negligible or above are included in the CEA (i.e., those assessed as 'imperceptible' are not taken forward as there is no potential for them to contribute to a cumulative effect).

19. In summary, **Table 2** shows that there is the potential for cumulative effects on offshore bats as a result of disturbance, artificial lighting and collision.

20. Other potential impacts, including barrier effects and collision during construction or decommissioning phase were screened out of the CEA.

Table 2 Summary of Impacts Assessment from Chapter 13 and potential for cumulative effects

Impact	Potential for cumulative effect	Rationale
Construction		
Disturbance	Yes	The increased number of vessels and artificial structures in the area provides increased resting opportunities, thus increasing opportunities for disturbance. The potential for disturbance impacts is therefore considered cumulatively.
Artificial lighting	Yes	The reduction in suitable foraging habitat due to the increased lighting would increase with the number of projects requiring artificial lighting.
Operation		
Collision	Yes	Wind developments only. The increased potential for collision associated with operational wind turbine generators (WTG) would increase with the number of wind developments.
Disturbance	Yes	While there will be fewer vessels around than in the construction and deconstruction phases, WTGs will require regular access by vessels for maintenance. The increased number of vessels and artificial structures (including WTGs and offshore substation structures (OSS)) in the area provides increased resting opportunities, thus increasing opportunities for disturbance. The potential for disturbance impacts is therefore considered cumulatively.
Lighting	Yes	The reduction in suitable foraging habitat due to the increased lighting would increase with the number of projects requiring artificial lighting.
Decommissioning		
Disturbance	The detail and scope of the decommissioning works for the CWP Project will be determined by the relevant legislation and guidance at the time of decommissioning. Project alone impacts during the decommissioning phase of the CWP Project are assessed in **Chapter 13 Offshore Bats**. It is anticipated that the impacts will be no greater than those identified for the construction phase, and therefore no separate assessment of cumulative impacts during the decommissioning phase is presented within this CEA.	
Lighting		

4 CEA 'other development' screening

21. The second step in the CEA for offshore bats is the identification of the other developments that may result in cumulative effects for inclusion in the CEA (described as 'project screening'). This information is set out in **Table 3** below, together with a consideration of the relevant details of each development, including the tier (see **Table 1**), proximity to the CWP Project development area and a rationale for including or excluding from the assessment.

22. The other developments included in the table below are taken from the long list of other developments presented in **Appendix 5.1**. Information gathering for the other developments screened in at Stage 2 of the CEA, along with a greater understanding of the potential effects of the CWP Project, has enabled further refinement of the short list.

23. OWFs north and south of Wales are not considered as they would impact bats migrating along a different route. While all offshore windfarms between Ireland and Wales have been included within the assessment, other developments have only been included within 10 km of the CWP Project development (including cable route), due to the low potential for impacts on offshore bat species (this includes all aquaculture proposals).

24. Similarly, the long list includes maintenance and dredging projects; only those which are considered relevant to the offshore bats which may be crossing in the vicinity of the CWP Project are included in the CEA. As such, maintenance dredging of the River Boyne, Dogheda, is not included as this is considered to be over 10 km from the potential landfall / departure points of any bats crossing from Ireland to Wales (and thereby potentially impacted by the CWP Project). MAC applications for offshore surveys to support potential cable routes have not been included due to the lack of available information at this stage.

25. Effects associated with the other indicated developments will be assessed in a non-quantitative assessment as there is insufficient publicly available data to enable a quantitative assessment. The assessment assumes similar species and numbers as recorded for both the CWP Project and Dublin Array OWF baseline surveys as outlined in **Chapter 13 Offshore Bats**, the results of which were reflective of the existing knowledge into potential bat migration. The 19 projects at the survey stage that are included in the long list have not been included unless they are associated with a project for which more information is available, as at the time of writing (March 2024) there is insufficient information to undertake the assessment. Information such as the type or extent of the surveys is not available and so impacts cannot be assessed.

26. There are no onshore wind development proposals or developments present within 10 km of the landfall locations to be considered within the CEA. Impacts associated with coastal non-wind developments within 10 km of the CWP Project area have been included where relevant owing to the potential impacts on offshore bats. Impacts associated with bats onshore will be included within **Chapter 21 Onshore Biodiversity**.

27. In summary, the following other developments will be assessed for potential cumulative effects with the CWP Project in relation to offshore bats:

- GE Energy – Arklow Bank Phase 1 OWF (CEA-0003).
- Sure Partners Limited / SSE Renewables – Arklow Bank Phase 2 OWF (CEA-0004 Off).
- RWE Renewables – Dublin Array OWF (CEA-0037 Off).
- Statkraft Ireland – North Irish Sea Array OWF (CEA-0094 Off).
- Parkwind NV / ESB – Oriel OWF (CEA-0096 Off).
- Dublin Port Company – Dublin Port Capital Dredging Project (CEA-0192).
- Raheenleagh Onshore Wind Farm – (CEA-0945).
- Dublin Port Company – MP2 Project (CEA-1323, CEA-1328).
- Dublin City Council – Grand Canal Storm Water Outfall Extension (CEA-1329).

- Dún Laoghaire Harbour Company now Dún Laoghaire-Rathdown County Council (DLRCC) – New Terminal building (CEA-1331).
- Kish Offshore Wind Limited and Bray Offshore Wind Limited – operations and maintenance facility. (CEA-2979).

Table 3 Summary of other developments screened into the CEA for offshore bats

Development	Distance from the array site (km)	Distance from the export cable corridor	Tier	Included in the CEA (Yes/No)	Rationale
GE Energy Arklow Bank Phase 1 OWF (CEA-0003)	21.371	31	1	Yes	Submitted in 2000 with no onshore or offshore bat data, in the absence of data the cumulative effects cannot be quantitatively assessed. However, a non-quantitative CEA will be undertaken due to the proximity of the OWF and similarity of effects.
Sure Partners Limited / SSE Renewables Arklow Bank Phase 2 OWF (CEA-0004) Planning Ref: 2022-MAC-002	9.788	9.9	2b	Yes	There is no publicly available bat information from the Arklow Bank Phase 2 project, however the scoping report (GoBe Consultants Ltd, 2023) states that a desk-based assessment, covering bat populations and the likelihood of different species being recorded offshore, will be included in the Environmental Statement. The project is south of the CWP development in the same potential migratory pathway, as such a non-quantitative CEA will be undertaken.
RWE Renewables Dublin Array OWF (CEA-0037) Planning Ref: MAC-003 and 004 2022-MAC-005	2.781	2	2a	Yes	The project is north of the CWP development in the same potential migratory pathway. The bat survey results from Dublin Array OWF have been included in **Chapter 13 Offshore Bats** and as such cumulative effects can be assessed.

Development	Distance from the array site (km)	Distance from the export cable corridor	Tier	Included in the CEA (Yes/No)	Rationale
Statkraft Ireland North Irish Sea Array OWF (CEA-0094) Planning Ref: 2022-MAC-005	40.78	23	2a	Yes	The EIA Scoping Report (ARUP, 2021) identified that onshore bat activity surveys will be carried out as required along the cable routes (as required) and at the landfall points. Potential roost assessments will be undertaken. Neither offshore bat surveys nor the potential collision of bats with the offshore were mentioned in the scoping report. As no offshore bat data is publicly available, cumulative effects cannot be assessed quantitatively at this stage. The project is north of the CWP development in the same potential migratory pathway, as such a non-quantitative CEA will be undertaken.
Parkwind NV / ESB Oriel OWF (CEA-0096) Planning Ref: 2022-MAC-001	84.309	62	2b	Yes	The EIA Scoping Report (RPS, 2019) highlighted how bat activity surveys will be carried out in the terrestrial environment but did not mention interactions between bats and the offshore infrastructure. As no offshore bat data is publicly available, cumulative effects cannot be assessed quantitatively at this stage. The project is north of the CWP development in the same potential migratory pathway, as such a non-quantitative CEA will be undertaken.
Dublin Port Company Dublin Port Capital	31.5	0.5	1	Yes – construction only	The EIAR (RPS, 2021) does not mention any onshore or offshore bat surveys. While no bat data is available, the proximity of the project and the similarity of impacts means a qualitive CEA has been undertaken for construction impacts

Development	Distance from the array site (km)	Distance from the export cable corridor	Tier	Included in the CEA (Yes/No)	Rationale
Dredging Project (CEA-0192) Planning Ref: FS007164					only. The dredging project is anticipated to be complete in 2029, the year CWP would become operational, minimising the potential for operational phase impacts.
Raheenleagh Onshore Wind Farm (CEA-0945)	38	41	1	No	No information on use of the area by onshore bats was submitted with the planning application in 2010. The wind farm is more than 10 km from any of the potential migratory bat landfall locations and further south than the CWP developable area, so migratory bats are unlikely to be affected and no cumulative effects are assessed.
Dublin Port Company MP2 Project (CEA-1323, CEA-1328) Planning Ref: FS006893 FS006893	31.6	0	1	No	RPS, 2020 EIA included details of onshore bat activity surveys undertaken in 2018 and 2019. No bat activity or bat roosts were recorded in the onshore project area. No offshore bat surveys / assessment was conducted. As no bats were recorded, no impacts are anticipated as such no cumulative effects are assessed.
Dublin City Council Grand Canal Storm Water Outfall Extension (CEA-1329)	34.2	1.7	1	No	No information on bats was submitted as part of the EIA for the planning application (Barry & Partners, 2022). As the site is located in a different location, with different habitats than those surveyed for the CWP baseline, this data would not be comparable in this instance.

Development	Distance from the array site (km)	Distance from the export cable corridor	Tier	Included in the CEA (Yes/No)	Rationale
Planning Ref: 313738-22					As no bat data is available, cumulative effects cannot be assessed.
Dún Laoghaire Harbour Company now DLRCC New Terminal building (CEA-1331) Planning Ref: FS006786	25.5	1.6	1	No	No information on bats was submitted as part of the planning application. As the site is located in a different location, with different habitats than those surveyed for the CWP baseline, this data would not be comparable in this instance. As no bat data is available, cumulative effects cannot be assessed at this stage.
Kish Offshore Wind Limited and Bray Offshore Wind Limited. (CEA-2979) MAC Ref: MAC20230012	23	1.0	3	No	No information on bats available as part of the MAC application. However, the works are for an operations and maintenance facility. Including a pontoon, access gangway, demolition of existing ramp and part removal of existing fender structure within an existing harbour. As the site is located in a different location, with different habitats than those surveyed for the CWP baseline, this data would not be comparable in this instance. As no bat data is available, cumulative effects cannot be assessed.

5 Assessment of cumulative effects

5.1 Construction phase

5.1.1 Cumulative Impact 1: Disturbance

28. Under Irish law it is an offence to disturb, injure or kill all species of bats or disturb or destroy their roosts. Disturbance of bats while in flight is not well studied, bats are assumed to avoid human activity while out of the roost and avoid construction activities; excepting where they opportunistically make use of them, for instance by resting on vessels during migration. Bats are known to forage out at sea, particularly within harbours and coastal waters, and so any increases in activity at night or additional structures upon which bats could potentially roost has the potential to impact bats. Projects with overlapping construction routes and time frames are likely to impact the same species or even individuals as such the potential for cumulative impacts is recognised.

29. The potential disturbance impact to offshore bats associated with the CWP Project is limited to disturbance of opportunistically resting bats while at sea, as such the impact would affect individuals of relatively common species.

30. The number and species of bats which rest or roost while migrating or foraging at sea are unknown and as such the CEA is based on current knowledge, results from the baseline surveys and professional judgement. Of the species which may be found at sea, the following sensitivity has been assigned based on the parameters set out in **Chapter 13 Offshore Bats Table 13-25**:

- Common pipistrelle – low;
- Soprano pipistrelle – low;
- Nathusius' pipistrelle – medium;
- Leisler's bat – low; and
- Daubenton's bat – low.

31. No bat roosts have been reported within the publicly available information for the projects identified in **Table 3**. The lack of known roosts in these areas would indicate that any disturbance impacts would also be negligible, affecting individuals while opportunistically roosting, if any.

32. As this is the construction phase of the project, only impacts which will overlap with the construction phase of the CWP Project are considered to have potential for cumulative impacts. As all the projects screened in have anticipated construction timelines which overlap with the construction of CWP or are already built, and therefore, have potential vessel movements or infrastructure on which bats may rest, all have been screened into this impact. Though the cumulative impact of those which use different harbours for maintenance / construction and those over 10 km from the CWP Project will likely not be on the same individuals, the same migratory population may be impacted.

33. Though Tier 1 project, Arklow Bank Phase 1 OWF is operational, no records of bats being found roosting or otherwise resting on the existing WTGs are publicly available.

34. Dublin Port Capital Dredging Project is predicted to be active in the vicinity of the CWP offshore development area until 2029. These works will be undertaken 24/7 until complete and as such there will be vessels at night upon which bats could rest, thereby being at risk from disturbance.

35. For Tier 2a and Tier 2b projects, the construction phase for Dublin Array OWF is anticipated to last for three years from 2025, while CWP Project is scheduled to commence construction in 2026 and last for three years. As such there will be an overlap of two years in the construction phases and potential impacts on the same population. Arklow Bank Phase 2 OWF would involve the addition of 100 turbines

to the operational seven turbine Arklow Bank OWF. These would be constructed in 2027–2028. The proposed 30–36 turbine North Irish Sea Array OWF is also predicted to be constructed in 2027–2028. Oriel OWF, 84 km north of the array, is predicted to undertake construction of the 25-turbine development in 2024–2025 and is therefore predicted to be completed prior to construction of CWP Project.

36. The low numbers of potentially migratory or foraging bats potentially impacted during the construction of CWP would also potentially be impacted by the nearby developments. Quantified information on the number of bats potentially affected is available for CWP and Dublin Array OWF. The number of bat passes recorded at Dublin Array OWF are similar to those recorded for the CWP baseline, with both having low levels of activity associated with potential offshore activity, as shown in **Chapter 13 Tables 13-15, 13-16 and 13-18**. When combined, the activity levels potentially associated with offshore activity remains low. As such, less than one per cent of the Irish population for each species potentially found offshore would be affected and the favourable conservation status of the species unaffected.

37. Allowing for the short-term nature of the impacts during the overlapping construction phase and the very low number of bats anticipated to be affected (individuals in each instance), no measurable changes to the population of any bat species is anticipated from disturbance on any of the Tier 1, Tier 2a and 2b projects and the overall cumulative magnitude of the impact would be **negligible magnitude**. In line with the matrix for determination of significance of effect **Chapter 13 Table 13-9**, with the low–medium sensitivity of the receptors, this would result in a **not significant** cumulative impact.

38. There are no Tier 3 projects of relevance, or for which there is adequate information to undertake a meaningful assessment. As such, there are anticipated to be no significant cumulative effects with CWP cumulatively with Tier 3 projects; the same conclusion being drawn for Tier 1, Tier 2a, Tier 2b, and Tier 3 combined.

5.1.2 Cumulative Impact 2: Lighting

39. The impacts of lighting on bats on land is relatively well studied. Different species including *Myotis* species are considered ‘light-shy’ and tend to avoid areas of white or green lights; while *Pipistrellus* species are more abundant in the same lights (Spoelstra et al., 2017). Though different research found Nathusius’ pipistrelles not to be affected by artificial lighting, with no differences in the number of passes recorded on lights which are lit all night and those with only part night lighting (Azam et al., 2015). Lights are also known to draw different invertebrates towards them and thereby away from areas used by light-shy species, thus benefitting more light tolerant species. The extent to which this will affect bats foraging and migrating offshore is unknown, including evaluating habitat suitability. However, as the area south of Dublin Port, the cable route corridor and vessel route, is already well used by vessels the level of intermittent / transient artificial lighting here is assumed to be relatively high.

40. As bats may use the first 10 km out at sea to forage, any changes in this area could affect foraging bats, favouring more light tolerant species while limiting areas available for light-shy species such as Daubenton’s. Such changes within 10 km includes the increase in vessels at night using lights to navigate, as well as the increase in lit structures within this area potentially used by foraging light-shy bats.

41. As this is the construction phase of the project, only impacts which will overlap with the construction phase of the CWP Project are considered to have potential for cumulative impacts. As all the projects screened in have anticipated construction timelines which overlap with the construction of CWP or are already built, and therefore have potential vessel movements or infrastructure on which bats may rest, they have all been screened into this impact. Though the cumulative impact of those which use

different harbours for maintenance / construction and those over 10 km from the CWP Project will likely not be on the same individuals, the same migratory population may be impacted.

42. Of the species recorded, the only light-shy species that may forage offshore is Daubenton's bat. Daubenton's was recorded in very low numbers for both the CWP baseline (shown in **Chapter 13 Tables 13-15** and **13-16**) and the Dublin Array OWF baseline (shown in **Chapter 13 Table 13-18**). Combining the activity recorded for both baselines, Daubenton's bat activity remains low.

43. Tier 1 project Arklow Bank Phase 1 is already operational, with aviation lighting on at least two WTGs, though the level of nightly vessel movements is not publicly available, nor the impacts associated with nightly lighting. The Dublin Port Capital Dredging Project works will continue 24/7 until 2029, this will also require night-time vessel movements.

44. For Tier 2a and 2b projects, Dublin Array OWF is 10 km from the shore. As such it is at the edge of the potential foraging zone and artificial lighting relating to the offshore WTGs may affect light sensitive foraging bats in addition to migratory bats. Impacts associated with Dublin Array OWF, in the absence of a publicly available assessment and due to the close proximity to the CWP offshore development area with similar baseline results, the same anticipated impacts as CWP are expected. Arklow Bank OWF Phase 2 and the North Irish Sea Array OWF are also due to overlap with construction of CWP and due to location could potentially affect bats using a similar migratory route to the one potentially impacted by CWP. Oriel OWF is scheduled to finish construction in 2025 and so the night-time vessel movements in the area will reduce before construction commences on CWP, there will, however, be impacts associated with aviation lighting.

45. Given these are construction phase impacts, they are short-term, lasting at most for the five-year construction window for the projects. Though the area of impact is increased during the two-year overlap in construction of the projects.

46. Lights are known to draw different invertebrates towards them and thereby away from areas used by light-shy species, thus benefitting more light tolerant species. However, the area is already well lit, with high levels of offshore vessel traffic. As such, the impacts of offshore lighting on offshore bats from Tier 2a and Tier 2b projects combined would be indistinguishable from the current baseline and annual variation. The magnitude of the cumulative impact, considering the extent of use is considered to be **negligible**. In line with the matrix for determination of significance of effect **Chapter 13 Table 13-9**, due to the low–medium sensitivity for all species, would result in a **not significant** cumulative impact; the same conclusion being drawn for Tier 1, Tier 2a, and Tier 2b combined.

47. There are no Tier 3 projects of relevance, or for which there is adequate information to undertake a meaningful assessment. As such, there are anticipated to be no significant cumulative effects with CWP cumulatively with Tier 3 projects; the same conclusion being drawn for Tier 1, Tier 2a, Tier 2b, and Tier 3 combined.

5.2 Operation and maintenance

5.2.1 Cumulative Impact 1: Disturbance

48. The susceptibility of bats to disturbance during exposed roosting and legal status of roosts is outlined in **Construction Phase Cumulative Impact 1: Disturbance**. Though considered unlikely, it is possible that bats will roost on the vessels or the WTGs. Combining the existing and proposed turbines from all relevant developments listed in **Table 3** gives a total of up to 293 offshore WTGs. This increases the opportunities for roosting and subsequent disturbance. The extent to which bats may rest on WTGs and vessels is considered to be low, with only occasionally reported incidences, most being ad hoc reports from the owners / operators of ferries or the workers on offshore oil platforms / wind turbines. Such reports are often associated with migration, though could also be from bats

foraging offshore or otherwise blown offshore by wind. Most observations of bats at sea including resting on vessels / offshore structures are of individuals, roosting or otherwise resting (Petersen et al., 2014).

49. The Dublin Port Capital Dredging Project is predicted to be active in the vicinity of the CWP development area until 2029, with at most a year overlap between operational CWP and the Dredging project. While the dredging works will be undertaken 24/7 with vessels present at night this would be a short-term overlap. As such there are anticipated to be no significant cumulative effects with CWP cumulatively with Tier 1 projects.

50. The proximity of the proposed Tier 2a and 2b project OWFs screened in within **Table 3** to the CWP Project means that the same populations of bats would likely be affected and as such they have been included within this CEA. Of the species potentially encountered in the area, Nathusius' pipistrelle have the lowest population in Ireland (estimated to be 3,000–5,000 individuals (NPWS, 2019)), this is reflected within the species sensitivity. Of the species which may be found at sea, the following sensitivity has been assigned based on the parameters set out in **Chapter 13 Offshore Bats Table 13-7**:

- Common pipistrelle – low;
- Soprano pipistrelle – low;
- Nathusius' pipistrelle – medium;
- Leisler's bat – low; and
- Daubenton's bat – low.

51. Where individuals are disturbed, the favourable conservation status of the species would not be at risk as less than one per cent of the population would be affected. Given the scarcity of recorded incidences, the combined effects of disturbance while resting during migration, combined number of WTGs (251–293), any impacts would remain indistinguishable from the baseline and thereby **negligible** in magnitude, as such would result in a **not significant** cumulative impact, the same conclusion being drawn for Tier 1, Tier 2a, and Tier 2b projects combined.

52. There are no Tier 3 projects of relevance, or for which there is adequate information to undertake a meaningful assessment. As such there are anticipated to be no significant cumulative effects with CWP cumulatively with Tier 3 projects; the same conclusion being drawn for Tier 1, Tier 2a, Tier 2b, and Tier 3 combined.

5.2.2 Cumulative Impact 2: Collision

53. Bats are known to collide with onshore wind turbines and as such they are considered at risk of collision with offshore turbines, with different species assessed at different risks low–high (Rodrigues et al., 2015) of collision. However, the comparability between onshore and offshore collision rate has never been studied due to the difficulties in carcass retrieval offshore. In addition, some research suggests that the flight heights of different species varies during migration, to take advantage of favourable tailwinds, with flights at greater heights (above 40 m) putting migratory species within the rotor sweep zone and therefore at greater risk of collision with WTGs compared to onshore bats.

54. There are no Tier 1 projects of relevance, or for which there is adequate information to undertake a meaningful assessment. As such, there are anticipated to be no significant cumulative effects with CWP cumulatively with Tier 1 projects.

55. As an increase in WTGs within the area would increase the potential for collision, all OWF projects included within **Table 3** have been considered in this CEA. The proximity of the above OWFs to the CWP Project means that the same populations of bats would likely be affected. The sensitivity of the receptors as set out in **Chapter 13** are low for all potentially offshore species, excepting Nathusius' pipistrelle which is considered to be medium (known to migrate and considered widespread but not

common). As bats are not anticipated to collide with stationary structures no non-OWF projects have been included within this CEA.

56. The combined number of WTGs across all projects is up to 293. Looking at the species sensitivity to impacts (low–medium) and the low level of potentially migratory activity recorded for CWP and Dublin Array OWF as shown in **Chapter 13 Tables 13-15, 13-16 and 13-18**, the magnitude of effect is considered to be low for all species considered migratory (Nathusius' pipistrelle, common pipistrelle, soprano pipistrelle and Leisler's). In the absence of site specific data, the magnitude of collision impact for migratory bats for all identified OWF is considered to be negligible / low.

57. There are no confirmed migratory routes between Ireland and the UK. As it is likely that routes are dependent on weather conditions and wind direction at the time of migration, they may take a different route each time. Due to the variety in migratory routes and the separation of the projects, no individual bats are anticipated to be impacted by multiple developments. Although groups of up to 12 common pipistrelles have been seen flying over the North Sea (Petersen et al., 2014), it is accepted that most European bats typically migrate individually. As a result, if bats do collide with turbines it is likely to be on an individual basis. Therefore, there are no population level impacts anticipated, and it is considered that the favourable conservation status of each species will be maintained. In line with **Chapter 13 Table 13-9**, the cumulative impact would result in a cumulative impact of **slight significance** for all species considered migratory (Nathusius' pipistrelle, common pipistrelle, soprano pipistrelle and Leisler's bats). This reflects the increased potential for this impact as a result of the additional WTGs.

58. CWP Project will undertake long-term bat monitoring with a view to implementing mitigation measures if appropriate through an agreed approach of adaptive management. It is assumed other projects will undertake a similar approach to monitoring of offshore bat activity and collisions. Provided adaptive management is undertaken, the frequency of such collisions would reduce and so would the magnitude of impact, resulting in a negligible residual impact. This would reduce the cumulative impact to **not significant** for Tier 2a and Tier 2b projects, with the same conclusion being drawn for Tier 1, Tier 2a, and Tier 2b combined.

59. There are no Tier 3 projects of relevance, or for which there is adequate information to undertake a meaningful assessment. As such, there are anticipated to be no significant cumulative effects with CWP cumulatively with Tier 3 projects; the same conclusion being drawn for Tier 1, Tier 2a, Tier 2b, and Tier 3 combined.

5.2.3 Cumulative Impact 3: Lighting

60. As outlined in the construction impacts, lights are known to draw different invertebrates towards them and thereby away from areas used by light-shy species, thus benefitting more light tolerant species. The only light-shy species which may forage offshore and would therefore be affected by this impact is Daubenton's bats. Daubenton's were recorded in very low numbers for both the CWP baseline and the Dublin Array OWF baseline.

61. There are no Tier 1 projects of relevance, or for which there is adequate information to undertake a meaningful assessment. As such, there are anticipated to be no significant cumulative effects with CWP cumulatively with Tier 1 projects.

62. It is assumed that all OWF projects, as identified in **Table 3**, will require some level of aviation lighting, which has the potential to affect bats during migration, all species which may migrate through the area are considered light tolerant and will actively forage around white lights (Spoelstra et al., 2017; BCT, 2018), which would increase the risk of collision with the turbines. However, studies in the US have found no impacts on bat mortality associated with aviation lighting (Guest et al., 2022), with Cryan and Barclay (2009) finding no difference in mortality at lit WTGs compared to unlit WTGs. Given this unknown, all potential OWFs identified in **Table 3** have been included in this CEA.

63. The level of bat activity potentially associated with offshore movements, recorded for both Dublin Array OWF and CWP Project baselines, was considered low. There is no available data for the rest of the OWFs, however the impacts from offshore would be indistinguishable from the current baseline and all species adapting to this slight change in offshore lighting, if impacted at all. This would result in a **not significant** cumulative impact for Tier 2a and Tier 2b projects, with the same conclusion being drawn for Tier 1, Tier 2a, and Tier 2b combined.

64. There are no Tier 3 projects of relevance, or for which there is adequate information to undertake a meaningful assessment. As such, there are anticipated to be no significant cumulative effects with CWP cumulatively with Tier 3 projects; the same conclusion being drawn for Tier 1, Tier 2a, Tier 2b, and Tier 3 combined.

6 CEA summary

65. In summary, the CEA for offshore bats highlights the potential for slight cumulative impact associated with collision resulting from the CWP Project alongside other developments. This slight significant impact was also identified within **Chapter 13** and will be monitored through the CWP proposals. It is assumed other projects will similarly monitor for impacts on offshore bats. Through monitoring of bat activity around the WTG, if collisions are recorded, mitigation will be discussed to reduce this impact to a not significant cumulative impact.

66. The remaining potential impacts will not result in significant cumulative effects.

7 References

67. Arup (2021). North Irish Sea Array Offshore Wind Farm – EIA Scoping Report. May 2021.

68. Azam C., Kerbiriou C., Vernet A., Julien J.-F., Bas Y., Plichard L., Maratrat J. & Le Viol I. (2015). Is part-night lighting an effective measure to limit the impacts of artificial lighting on bats? Global Change Biology, 21, 4333–4341.

69. Barry & Partners (2022). Grand Canal Storm Water Outfall Extension – EIA Screening Report. June 2020.

70. Bat Conservation Trust (2018). Bats and artificial lighting in the UK Bats and the Built Environment series. Guidance Note 08/18 available online: https://cdn.bats.org.uk/uploads/pdf/Resources/ilp-guidance-note-8-bats-and-artificial-lighting-compressed.pdf?v=1542109349 accessed 05.05.2023.

71. Cryan, P. & Barclay, R. (2009). Causes of bat fatalities at wind turbines: hypotheses and predictions. Journal of Mammalogy, 464, 1330–1340.

72. EPA (2022). Guidelines on the information to be contained in Environmental Impact Assessment Reports. May 2022.

73. GoBe Consultants Ltd (2023). Arklow Bank Wind Park 2 – Environmental Impact Assessment Scoping Report. Version 3.0. June 2023.

74. Guest, E.E., Stamps, B.F., Durish, N.D., et al. (2022). An Updated Review of Hypotheses Regarding Bat Attraction to Wind Turbines. Animals (Basel). doi:10.3390/ani12030343

75. NPWS (2019). The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.

76. Petersen, A., Jensen, J.-K., Jenkins, P., Bloch, D. & Ingimarsson, F. (2014). A Review of the Occurrence of Bats (Chiroptera) on Islands in the North East Atlantic and on North Sea Installations. Acta Chiropterologica. 16. 10.3161/150811014X683381.

77. Rodrigues, L., Bach, L., Dubourg-Savage, M.-J., Karapandža, B., Kovač, D., Kervyn, T., Dekker, J., Kepel, A., Bach, P., Collins, J., Harbusch, C., Park, K., Micevski, B. & Minderman, J. (2015). Guidelines for Consideration of Bats in Wind Farm Projects – Revision 2014. Eurobats Publication Series No. 6. UNEP/ Eurobats Secretariat, Bonn, Germany. Department of Communications, Energy and Natural Resources.

78. RPS (2019). Oriel Wind Farm Project – EIA Scoping Report. August 2019.

79. RPS (2020). Dublin Port Company MP2 Project – Volume 2 Environmental Impact Assessment Report Main Document. 2020.

80. RPS (2021). Dublin Port Capital Dredging Project – Volume 2 EIAR Main Document. July 2021.

81. Spoelstra, K., van Grunsven, R.H.A., Ramakers, J.J.C., Ferguson, K.B., Raap, T., Donners, M., Veenendaal, E.M. & Visser, M.E. (2017). Response of bats to light with different spectra: light-shy and agile bat presence is affected by white and green, but not red light. Proc Biol Sci.doi: 10.1098/rspb.2017.0075.