



Code: UKCAL-CWF-CON-EIA-RPT-00002-2014

Volume 2 Proposed Development (Offshore)

Chapter 14 Summary and Conclusions

Caledonia Offshore Wind Farm Limited

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX



Volume 2 Chapter 14 Summary and Conclusions

Code	UKCAL-CWF-CON-EIA-RPT-00002-2014
Revision	Issued
Date	18 October 2024

Table of Contents

14	Summary and Conclusions.....	1
14.1	Introduction	1
14.2	Summary of EIA.....	1
14.2.1	Consents Sought	1
14.2.2	Proposed Development (Offshore)	2
14.2.3	Phased Approach.....	2
14.2.4	Alternatives Considered.....	3
14.2.5	EIA Process and Design Envelope	3
14.2.7	Summary of Effects	6
14.2.8	Management Plans	7
14.3	Next Steps	7

List of Tables

Table 14-1: Summary of Residual Effects for the Proposed Development (Offshore).....	6
--	---

Acronyms and Abbreviations

DE	Design Envelope
DSLIP	Development Specification and Layout Plan
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
LMP	Lighting and Marking Plan
MD-LOT	Marine Directorate – Licensing Operations Team
MHWS	Mean High Water Springs
O&M	Operation and Maintenance
OECC	Offshore Export Cable Corridor
OFTI	Offshore Transmission Infrastructure
OSP	Offshore Substation Platform
OWF	Offshore Wind Farm
WTG	Wind Turbine Generator

14 Summary and Conclusions

14.1 Introduction

14.1.1.1 This chapter of the Caledonia Offshore Wind Farm (OWF) Environmental Impact Assessment Report (EIAR) provides a summary of the consents sought, the Proposed Development (Offshore) design process, the Environmental Impact Assessment (EIA) methodology employed to avoid and reduce impacts and determine potential significant effects, and a summary of the residual effects for each technical chapter.

14.1.1.2 A summary of the mitigation and monitoring commitments is provided in the following documents:

- Volume 7, Appendix 8: Caledonia North Schedule of Mitigation; and
- Volume 7, Appendix 9: Caledonia South Schedule of Mitigation.

14.1.1.3 Next steps following submission and acceptance of the EIAR are also identified.

14.1.1.4 This Summary and Conclusions chapter is relevant to the Proposed Development (Offshore). Summaries and Conclusions for Caledonia North and Caledonia South are presented in Volume 3, Chapter 14 and Volume 4, Chapter 14 respectively.

14.2 Summary of EIA

14.2.1 Consents Sought

14.2.1.1 To facilitate the development of the Proposed Development (Offshore), Caledonia Offshore Wind Farm Ltd (the Applicant) is applying for:

- Two Section 36 applications (Caledonia North and Caledonia South) for the construction of the power generation site (OWF). To be submitted to Marine Directorate - Licensing Operations Team (MD-LOT); and
- Four Marine Licence applications for the offshore generating stations and for the Offshore Transmission Infrastructure (OfTI) (2 x Generation and 2 x Transmission). To be submitted to MD-LOT.

14.2.1.2 A single EIAR covering both onshore and offshore topic assessments supports these applications, with the impact assessment of the Proposed Development (Offshore), which covers the combined effects of Caledonia North and Caledonia South, presented in Volume 2.

14.2.2 Proposed Development (Offshore)

14.2.2.1 The Proposed Development (Offshore) consists of the Caledonia OWF and all the OfTI components seaward of Mean High Water Springs (MHWS). The Proposed Development (Offshore) boundary includes the Caledonia OWF (Array Area), Caledonia Offshore Export Cable Corridor (OECC) and Landfall Site. A summary of the infrastructure within the Proposed Development (Offshore) is provided below:

- Up to 140 Wind Turbine Generators (WTGs) to be installed across the Caledonia OWF, using either bottom-fixed foundations only or a combination of bottom-fixed and up to 39 floating foundations (with floating foundations, if installed, restricted to the deeper southern part of the site);
- Up to four Offshore Substation Platforms (OSPs) which transform electricity generated by the WTGs to a higher voltage allowing more efficient transmission to shore;
- Up to 140 inter-array cables which connect the WTGs together with the OSPs;
- Up to two interconnector cables which connect the OSPs to each other; and
- Up to four offshore export cable circuits within the Caledonia OECC which will be laid between the OSPs and the Landfall Site, located at Stake Ness to the west of Whitehills on the Aberdeenshire coast.

14.2.3 Phased Approach

14.2.3.1 The Applicant is seeking to retain the flexibility to deliver the Caledonia OWF generation capacity across two phases in order to accommodate a range of uncertainties. Aligned with this, the Applicant is seeking to consent the Proposed Development (Offshore) across two phases of construction works, referred to as Caledonia North and Caledonia South.

14.2.3.2 The division of the Caledonia OWF into two discrete application areas, namely the Caledonia North Site and Caledonia South Site, allows for flexibility to phase the build out of the application areas in either order. The design envelope and EIA consider concurrent and sequential/phased build scenarios, such that Caledonia North or Caledonia South may be constructed and connected to the National Electricity Transmission System in either order. The Environmental Impact Assessment (EIA) considers up to 77 WTGs in the Caledonia North Site and up to 78 WTGs in the Caledonia South Site, but the total WTGs of the Proposed Development (Offshore) will not exceed 140 WTGs between the two phases. There would be two export cable installation phases, aligned with the Caledonia North and Caledonia South construction phases.

14.2.3.3 Construction scenarios for delivery of the Proposed Development (Offshore) have been identified and are presented in Volume 1, Chapter 3: Proposed Development Description (Offshore) and Volume 1, Chapter 5: Proposed Development Phasing. To facilitate a robust assessment of potential environmental effects, each topic within the EIAR has identified the worst-case construction scenario for their assessment, the justification for which has been provided within each topic assessment chapter.

14.2.4 Alternatives Considered

14.2.4.1 A number of alternatives have been considered throughout the design of the Proposed Development (Offshore) with respect to boundaries and the design options considered. The site selection process was undertaken on an iterative basis and considered environmental, technical and planning considerations such as the presence of designated sites (e.g., Special Protection Areas and Special Areas of Conservation) and potential conflicts with existing infrastructure and planning policy. The Caledonia OWF and Caledonia OECC presented in this EIAR have undergone a multi-stage appraisal process, as described in Volume 1, Chapter 6: Site Selection and Alternatives, to establish the Proposed Development (Offshore) boundary used in the impact assessment.

14.2.4.2 The Caledonia OWF design presented in this EIAR has been determined through an iterative process to inform design parameters which included site-specific environmental surveys, optimisation and energy yield analysis. The Caledonia OECC presented in this EIAR has been determined through a similar iterative site selection process, which has been informed by the location of the Landfall Site in addition to a number of geophysical and environmental survey works contracted in 2023.

14.2.4.3 The refinement of the Caledonia OECC and design of the Proposed Development (Offshore) is ongoing and will be developed and further refined as the Proposed Development (Offshore) progresses into the detailed design stage.

14.2.5 EIA Process and Design Envelope

14.2.5.1 Volume 2 of the EIAR provides an assessment of the potential environmental effects of the Proposed Development (Offshore). This impact assessment has been undertaken using the methodology as described in Volume 1, Chapter 7: EIA Methodology as well as any topic specific methodologies used to determine significant environmental effects.

14.2.5.2 A Design Envelope (DE) approach has been adopted given the Proposed Development (Offshore) is in the early stages of design development and information on the exact location of the OfTI and the methods that will be utilised during construction have not been confirmed. The DE identifies the

main components of the Proposed Development (Offshore) and a range of design parameters.

- 14.2.5.3 Within each topic chapter in the EIAR the combination of parameters that would result in the greatest impact (e.g., largest footprint, longest exposure, or largest dimensions) is considered and identified as the worst-case assessment scenario. By assessing against a realistic worst-case assessment scenario, additional precaution is built into the assessment to provide extra confidence that any impacts that arise from the construction, operation and maintenance (O&M) and decommissioning of the Proposed Development (Offshore) will not exceed the impacts stated within the EIAR. In employing the DE approach, the Applicant seeks to retain a level of flexibility in the design of the Proposed Development (Offshore) within reasonable maximum extents and ranges.
- 14.2.5.4 As described in Section 2, whilst the maximum number of WTGs considered for the worst-case scenario is 77 for Caledonia North and 78 for Caledonia South, there will be a maximum of 140 WTGs between the two phases within the Caledonia OWF. Therefore, the worst-case scenario for the Caledonia OWF is not representative of the Caledonia North and Caledonia South worst-case scenarios combined.
- 14.2.5.5 The first outline DE of the Proposed Development (Offshore) was presented within the Offshore Scoping Report (Volume 7, Appendix 2), submitted to MD-LOT in September 2022. Following submission of the Offshore Scoping Report, and as part of an iterative EIA process, the Applicant has refined the Proposed Development (Offshore) through environmental surveys, technical and engineering studies and discussion with project stakeholders such as statutory and non-statutory consultees and through a programme of community consultation.
- 14.2.5.6 By utilising the DE approach a robust impact assessment is achieved, with the likely significant environmental effects of the Proposed Development (Offshore) no greater than those identified within the EIAR.
- 14.2.5.7 Potential impacts from the construction, O&M and decommissioning stages of the Proposed Development (Offshore) were identified and subsequently assessed for potential significant effects on the receiving environment. To determine significance of an effect each topic assessment defined the sensitivity of each receptor being impacted (based on criteria such as tolerance to change, ability to recover from impacts and value) and the magnitude of impact (based on criteria such as duration, spatial extent and frequency). Sensitivity and magnitude were determined taking account of industry guidance and professional judgement. For each potential impact, the sensitivity and magnitude were then combined using a matrix approach to determine the potential significance of the effect.
- 14.2.5.8 Embedded mitigation measures have been considered as part of the impact assessment process, prior to assigning significance of effect. Where

significant effects were identified in the assessment, taking account of embedded mitigation, secondary mitigation measures are proposed to reduce the residual effects to non-significant levels. Volume 7, Appendix 8: Caledonia North Schedule of Mitigation and Volume 7, Appendix 9: Caledonia South Schedule of Mitigation detail the embedded mitigation and secondary mitigation measures employed by each topic to avoid, reduce or minimise impacts.

- 14.2.5.9 Table 14-1 provides a summary of the residual effects anticipated as a result of the Proposed Development (Offshore). Through the application of embedded and secondary mitigation measures, the majority of potential effects as a result of the Proposed Development (Offshore) are predicted to be non-significant in EIA terms.
- 14.2.5.1 Potential significant visual effects resulting from the Proposed Development (Offshore) were identified along the coastal area of Caithness in the Highlands, in the western part of the Study Area, between approximately Keiss and Whaligoe Steps and along a short section of the Aberdeenshire coast between approximately Portsoy and Gardenstown. These locations, which represent views from settlements and routes, constitute the outer limits of significant visual effects on the Highlands and Aberdeenshire coastlines, with the highest significance being Moderate (Borderline). Receptors, which include people in settlements and using routes along the 27km section of coast may be significantly affected where there is visibility of Caledonia OWF in Very Good or Excellent visibility conditions. These significant effects are represented by Viewpoint 4: Keiss, Viewpoint 5: Wick (path south of South View), Viewpoint 6: Sarclet (Sarclet Haven Info Board) and Viewpoint 8: Whaligoe Steps, with the highest significance being Moderate. Significant cumulative effects have also been identified on the settlement of Keiss and localised sections of the A882, the B784, the B78 and the rail line, with the highest significance being Moderate.
- 14.2.5.2 Regarding embedded mitigation, a Design Statement will be secured as part of the Development Specification and Layout Plan (DSLPL) which will confirm that the final design and layout will be within the worst-case scenario assessed within the EIAR. The Applicant has also committed to install sensors which will reduce aviation lighting in the hours of darkness where the visibility rises above 5km, which will be secured within the Lighting and Marking Plan (LMP) (M-14).

14.2.7 Summary of Effects

Table 14-1: Summary of Residual Effects for the Proposed Development (Offshore).

Chapter	Construction Stage Effects	O&M Stage Effects	Decommissioning Stage Effects
2. Marine and Coastal Processes	No residual significant effects identified	No residual significant effects identified	No residual significant effects identified
3. Marine Water and Sediment Quality	No residual significant effects identified	No residual significant effects identified	No residual significant effects identified
4. Benthic Subtidal and Intertidal Ecology	No residual significant effects identified	No residual significant effects identified	No residual significant effects identified
5. Fish and Shellfish Ecology	No residual significant effects identified	No residual significant effects identified	No residual significant effects identified
6. Offshore Ornithology	No residual significant effects identified	No residual significant effects identified	No residual significant effects identified
7. Marine Mammals	No residual significant effects identified	No residual significant effects identified	No residual significant effects identified
8. Commercial Fisheries	No residual significant effects identified	No residual significant effects identified	No residual significant effects identified
9. Shipping and Navigation	No residual significant effects identified	No residual significant effects identified	No residual significant effects identified
10. Marine Archaeology and Cultural Heritage	No residual significant effects identified	No residual significant effects identified	No residual significant effects identified
11. Military and Civil Aviation	No residual significant effects identified	No residual significant effects identified	No residual significant effects identified
12. Seascape, Landscape and Visual Assessment	Potential significant effects identified.	Potential significant effects identified.	Potential significant effects identified.
13. Other Human Activities	No residual significant effects identified	No residual significant effects identified	No residual significant effects identified

14.2.8 Management Plans

14.2.8.1 A range of post consent plans will be developed as the design of the Proposed Development (Offshore) evolves and these will be in accordance with the Marine Licence conditions assigned. A number of Outline/Draft Management Plans and supplementary assessments in support of the Marine Licence applications have been prepared for both Caledonia North and Caledonia South, including:

- Volume 7, Appendix 11: Caledonia North Outline Offshore Environmental Management Plan;
- Volume 7, Appendix 12: Caledonia South Outline Offshore Environmental Management Plan;
- Volume 7, Appendix 13: Caledonia North Draft Marine Mammal Mitigation Protocol;
- Volume 7, Appendix 14: Caledonia South Draft Marine Mammal Mitigation Protocol;
- Volume 7, Appendix 15: Caledonia North Outline Offshore Decommissioning Plan;
- Volume 7, Appendix 16: Caledonia South Outline Offshore Decommissioning Plan;
- Volume 7, Appendix 17: Caledonia North Outline Fisheries Management and Mitigation Strategy; and
- Volume 7, Appendix 18: Caledonia South Outline Fisheries Management and Mitigation Strategy.

14.3 Next Steps

14.3.1.1 Upon the submission and acceptance of the EIAR and supporting Section 36 and Marine Licence applications, the subsequent key steps are:

- **Notifications and further consultation with relevant parties:** MD-LOT will advise the Applicant of the publicity requirements and guide the Applicant to the relevant public notice template, with a complete draft to be sent to MD-LOT for approval at least two weeks in advance. MD-LOT will also advise the Applicant to publish a public notice in the Edinburgh Gazette and any other publications that will come to the attention of those likely to be affected by the Proposed Development (Offshore). MD-LOT will also publish the notice on the Marine Directorate website. The Applicant will supply MD-LOT with copies of these adverts as published.
- **Determination and notification of decision:** MD-LOT, or Scottish Ministers (taking account of recommendations by MD-LOT), will determine whether consent should be granted based on the environmental information provided within the EIAR and supporting documentation as well as any additional information, any Appropriate

Assessment, and representations from the public and statutory and non-statutory consultees. If successful in obtaining consent, a decision notice will be issued by Scottish Ministers outlining the conditions to which the decision is subject. A notice will also be published on the Applicant's application website, in the Edinburgh Gazette and a newspaper circulating in the locality in which the Proposed Development (Offshore) is sited.

- **Post-consent and Approval of Matters Specified in Conditions stage application:** The Applicant (or other legal entity progressing with the development of the Proposed Development (Offshore)) will continue to refine and finalise the DE during the post-consent stage. All relevant Marine Licence conditions will be discharged and/or complied within the timeframe specified and in consultation with stakeholders and relevant parties.

Caledonia Offshore Wind Farm
5th Floor, Atria One
144 Morrison Street
Edinburgh
EH3 8EX

www.caledoniaoffshorewind.com

