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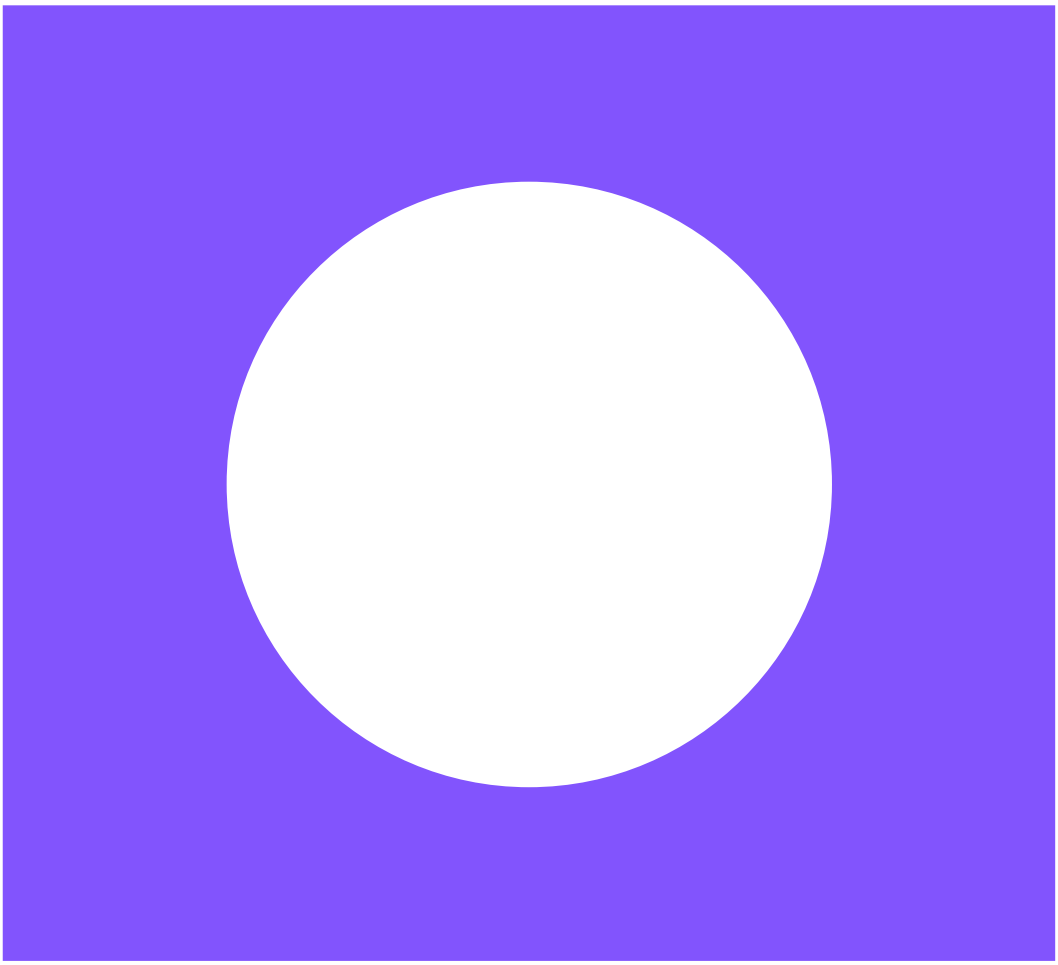

Formosa 4 Offshore Wind Farm in Taiwan

Non-Technical Summary

September 2025

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Mott MacDonald
5F, No.92 Sec 2
Dunhua S. Road
Da'an District
Taipei City 10668
Taiwan

T +886 (0)2 8978 8978
mottmac.com

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A	14 July 2025	D Wu F Wang S Toh XY Chew	B Lim	Y Corish	Draft NTS for Client's review
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1 Introduction

1.1 Overview

Formosa 4 International Investment Co., Ltd. and its subsidiary Formosa 4 Wind Power Co., Ltd. (herein referred to as “Project Company” or “Formosa 4”) is proposing to develop a 495MW offshore windfarm located 20km offshore from the coast of Miaoli County, Taiwan (herein referred to as the “Project”).

The Project participated in the Energy Administration[1], Ministry of Economic Affair (EA, MoEA)’s Third Round of Offshore Wind Project Development (herein referred to as “Round 3.1”) and has been awarded a grid allocation for the Project of up to 495MW with grid connection latest by end of 2027. MoEA announced the availability of one year extension to the grid connection deadline for Round 3.1 projects to apply in the form of an official letter to Taiwan Offshore Wind Industry Association in April 2024. The Round 3.1 Projects expect to be granted the extension as per the application to MoEA. As based on the latest information received by the Project Company, the Project is expected to complete construction and connect to the grid in 2028, and the COD will be in Q2 2029.

As part of the Project’s financing approach, the Project is required to demonstrate adherence to the Equator Principles (EP). Therefore Mott MacDonald has been commissioned by Formosa 4 to undertake a Non-Technical Summary (NTS), alongside other environmental and social (E&S) services.

1.2 Aims and objectives

This non-technical summary (NTS), presents the main findings from the local environmental impact assessment and surveys undertaken to assess the potential impacts and mitigation measures as well as the findings of the additional Environmental and Social (E&S) assessments undertaken per lenders’ E&S standards and requirements (further discussed in section 1.7). The key environmental and social reports considered in this NTS includes:

- Environmental impact statement (EIS) and Environmental differential assessment (EDA)[2]
- Climate change risk assessment (CCRA)
- Critical habitat assessment (CHA)
- Cumulative impact assessment (CIA)
- Human rights impact assessment (HRIA)
- Focused social impact assessment (FSIA)
- Environmental social and management system (ESMS)
- Biodiversity action plan (BAP)
- Livelihood restoration plan (LRP)
- Stakeholder engagement plan (SEP)
- Labour management plan (LMP)
- Emergency response plan (ERP)
- Health and Safety plan (H&S Plan)
- Community health and safety management plan (CHSMP)

[1] Formerly known as Bureau of Energy (能源署); renamed the Energy Administration in 26 September 2023.

[2] The Project’s EIS and EDA reports are publicly disclosed online

The NTS briefly describes the Project, main findings from surveys, assessments of potential impacts and mitigation measures. The NTS document includes the following components:

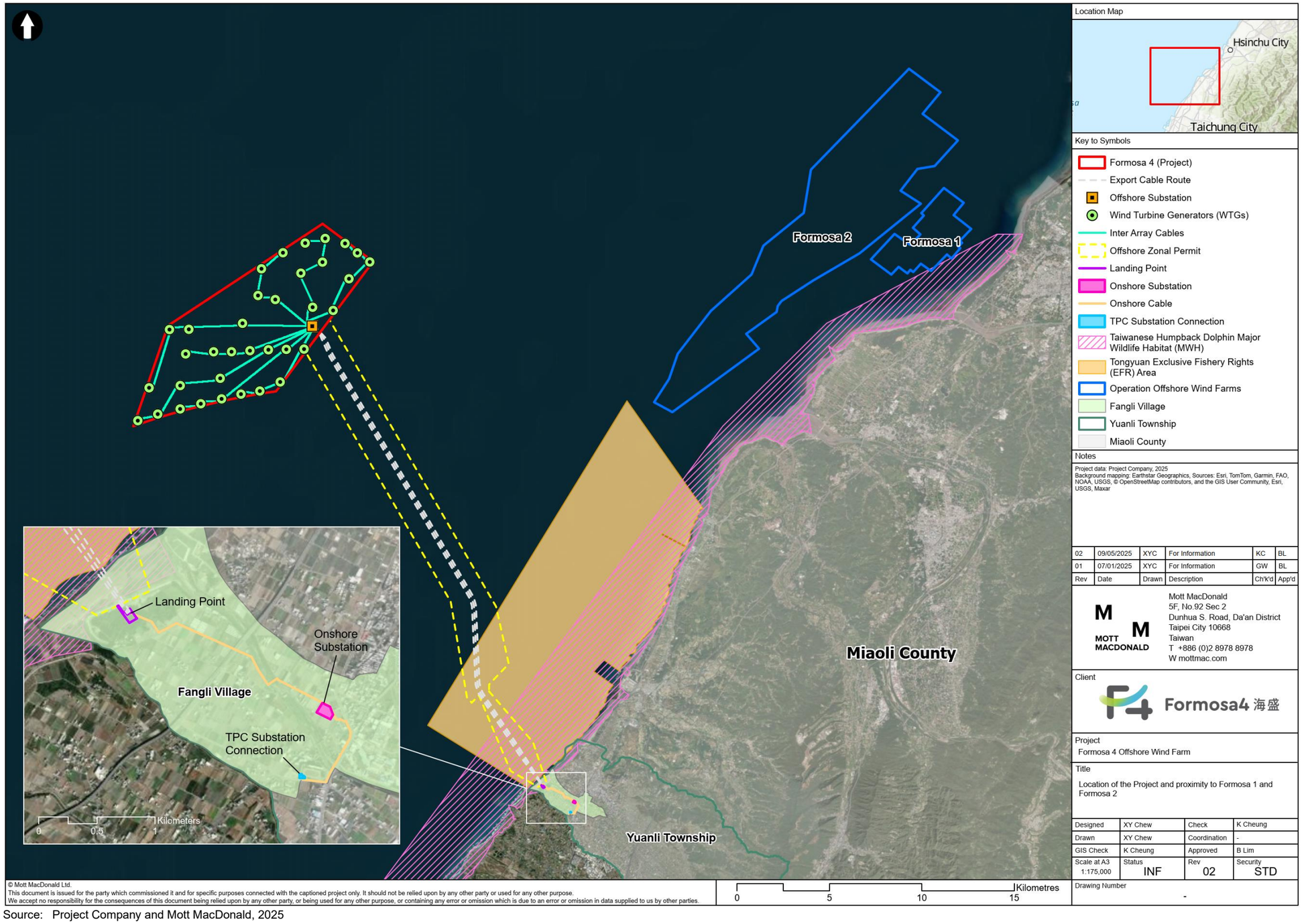
- Description of the Project
- Policy, legal and administrative framework
- Description of the baseline and sources of information
- Anticipated Environmental and Social (E&S) impacts and mitigation measures
- E&S Management System
- Information disclosure, consultation and participation
- Grievance mechanism

1.3 Project background and location

The Project's offshore windfarm area will be approximately 58km^2 in size and located 18km offshore from Tongxiao Township (通霄鎮), Miaoli County, on the western coast of Taiwan (see Figure 1.1).

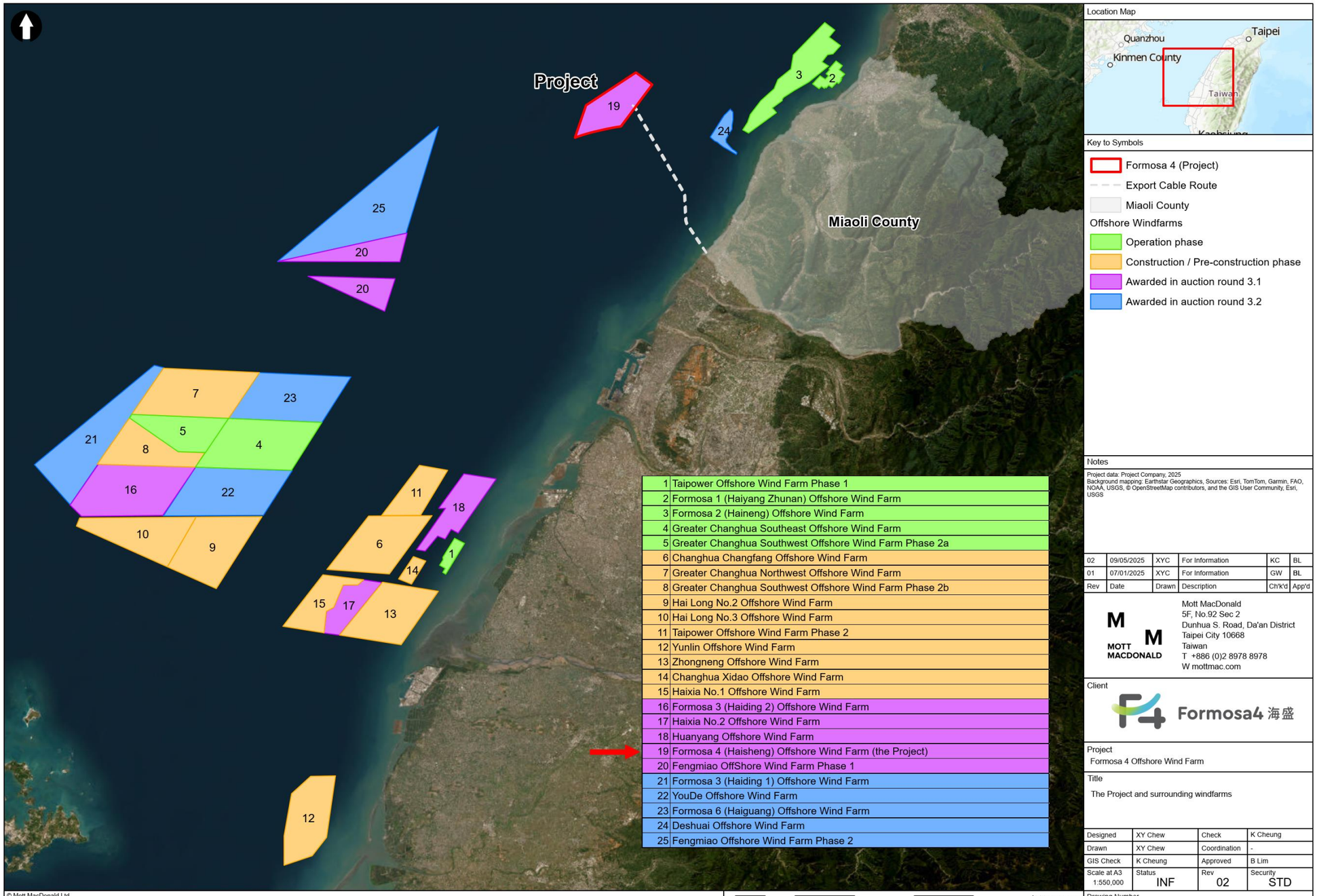
The Project is located further offshore from the neighbouring Formosa 1 and Formosa 2 windfarms. The Project's location is illustrated in Figure 1.1 and Figure 1.2.

Figure 1.1 Location of the Project and proximity to Formosa 1 and Formosa 2



Source: Project Company and Mott MacDonald, 2025

Figure 1.2: The Project and surrounding windfarms



Source: Project Company and Mott MacDonald, 2025

The Project has successfully obtained regulatory approval for its final environmental impact statement (EIS) and environmental deviation assessment (EDA) from the Ministry of Environment (MoEnv) on 11 August 2023 and 22 July 2024, respectively.

The Project received approval from MoEA on 30 December 2022 for up to 495MW of installed capacity. It is planned to consist of 35 wind turbine generators (WTGs), each of 14.142MW capacity. The total installed capacity will be 495MW. The WTGs will be located at water depths of approximately 56m to 72m below mean sea water level (MSWL). The Project has two export cable strings and one planned landing point at Fangli village, which is to be connected to a Project dedicated onshore substation (OnSS) then to Taiwan Power Company (TPC) OnSS. The operation period is planned for 20 years, based on the asset life.

1.4 Project components

The details of the Project is presented in Table 1.1 below.

Table 1.1: Summary of the Project's components and schedule

Aspect	Project
Project components	
Windfarm capacity	495MW
Windfarm area	58km^2
Number of WTGs (and capacity)	35 WTGs (14.142MW each)
Offshore substation (OSS)	One (1) planned OSS
Onshore substation (OnSS)	One (1) planned OnSS in Fangli village
Transmission	66kV / 161kV / 230kV
Inter-array cables (IAC)	Eight (8) 66kV IAC strings
Export cables	Two (2) 230kV export cable strings with approximate length of 27km to the landing point, sharing the same cable alignment route. Cable landing point is located at Fangli village, Yuanli Township.
Transmission line (onshore)	One (1) 161kV transmission cable with approximate length of 4km from OnSS to grid connection point
Grid connection point	Fangli (TPC), located in Yuanli Township, Miaoli County
Construction commencement	Onshore: Q2 2025 (targeted) Offshore: Q2 2026 (targeted)
Construction completion	Onshore: Q4 2027 (targeted) Offshore: Q4 2028 (targeted)
Commercial operation date (COD)	Targeting Q2 2029

Source: Project Company and Mott MacDonald

1.5 Implementation schedule

The key milestones for the Project's implementation, with current assumptions, are summarised in Table 1.2 below. The offshore construction is expected to commence in 2025, with the Commercial Operation Date (COD) by Q2 2029.

Table 1.2: Project implementation schedule

Project milestone	2025				2026				2027				2028			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Onshore construction																
Offshore construction																
COD	Targeting Q2 2029															

Source: Project Company and Mott MacDonald, 2025

1.6 Project alternative analysis

The alternative assessment in the Project's final EIA (section 8.3) included alternatives such as 'no project' alternatives, site alternatives and technology alternatives.

The Project is designed to align with the energy policy in accelerating Taiwan's growth of offshore wind farms, promoting diverse energy sources, self-sufficiency, and environmental conservation. Therefore, the Project is in a positive position to support Taiwan's goals and renewable energy development in the Asia-Pacific region. In addition, the current location was the only allocated site for this Project.

In terms of technology alternatives, this Project allows for the installation of a wind turbine using a jacket foundation structure. But will also consider future piling methods that enter the market. The Project also considers the smallest installation capacity unit for wind turbines (9.5 MW to 20 MW) with the maximum number of devices needed within their EIA. The Project will also consider the most applicable turbine model and capacity in the future market.

1.7 Applicable standards

The Formosa 4 Project has been subject to the Taiwanese EIA permitting process and has successfully obtained regulatory approval for its final environmental assessment and environmental deviation assessment from the Ministry of Environment (MoEnv) on 11 August 2023 and 22 July 2024, respectively.

As part of the Project's financing approach, the Project has been required to demonstrate adherence to the Equator Principles[3]. As such, further environmental and social assessments (ie CCRA, CHA, CIA, HRIA, FSIA, BAP and LRP) have been developed in accordance with the following Applicable Standards:

- Equator Principles 4 (Jul' 2020).
- International Finance Corporation (IFC) Performance Standards (PSs) 1 to 8 (Jan' 2012), and it's associated supporting guidance notes.
- World Bank Group (WBG) Environmental, Health, and Safety (EHS) Guidelines, including:
  - IFC/WBG General EHS Guidelines (Apr' 2007).
  - WBG EHS Guidelines for Wind Energy (Aug' 2015).
  - WBG EHS Guidelines for Electric Power Transmission and Distribution (Apr' 2007)

[3] Home Page - Equator Principles

A gap analysis was conducted during the earlier stages of the Project to identify specific areas where the Project did not fully align with the Applicable Standards referenced above. This analysis highlighted key topics requiring further assessment to ensure compliance. In response, additional environmental and social assessments were carried out, as detailed in Sections 3.1 and 3.3.

2 Baseline conditions

2.1 Overview

As part of the local EIA, primary and secondary baseline data were collected for key environmental and social (E&S) parameters to inform the potential Project impact assessment process. Key E&S baseline conditions are presented in the following subsections. Further details on survey monitoring frequency and number of locations undertaken as part of the local EIA can be found on the Ministry of Environment (MoEnv) website[4].

2.2 Environmental baseline

As mentioned above, primary and secondary baseline data were collected for key environmental and social (E&S) parameters to inform the impact assessment process. Environmental components that are most relevant to the Project within the context of potential environmental impacts include air quality, noise, vibration, surface water quality, groundwater quality, soil quality, electromagnetic field and biodiversity.

The EIA reports, including an EIS and EDA are available online on the Ministry of Environment (MoE) website[5][6]. The results were generally compliant with Taiwanese national standards. The summary is presented in Table 2.1 below.

In addition, commentary has been included as to whether the baseline results are compliant with the Applicable Standards (namely, the WBG EHS guidelines).

Table 2.1: Summary of environmental baseline conditions

Environmental aspect	Summary of baseline conditions
Air quality	Baseline concentration of air pollutants ($PM_{2.5}$, PM_{10}, SO_2, NO_2, NO, CO, TSP, and O_3) and the background air quality within the area of influence of the project were found to be compliant with both national air quality standards and WHO Ambient Air Quality Guidelines as referenced in Table 1.1.1 of the WBG EHS Guidelines.
Noise and vibration	**Air-borne noise** Results showed the baseline air-borne noise levels at potential onshore residential receptors were compliant with national noise standards. The WBG EHS noise level guidelines have more stringent numeric values than the Taiwanese standard. it is noted that the baseline noise levels sampled are already above these values. Therefore, in accordance with the WBG EHS Guidelines for such siutations, a maximum increase of 3 dB from background levels is adopted as the threshold for construction impact assessment. Please refer to Table 3.1 for the detail. **Low frequency noise**[7] Baseline low frequency noise levels at potential sensitive receptors are generally within Taiwanese standards, with the exception of exceedances recorded at the following locations: ● Zhunan Wetland Fusheng Temple: maximum recorded low-frequency noise level was 43.4 dB which exceeds the regulatory limit (ie 39 dB)

[4] MoEnv EIA Inquiry System (環境部環評書件查詢系統) https://eiadoc.moenv.gov.tw/eiaweb/

[5] Formosa 4 Offshore Wind Farm Environmental Impact statement (EIS) https://eiadoc.moenv.gov.tw/eiaweb/11.aspx?hcode=1110101A&srctype=0

[6] Formosa 4 Offshore Wind Farm Environmental differential assessment (EDA) https://eiadoc.moenv.gov.tw/eiaweb/10.aspx?hcode=1120773A&srctype=0

[7] Low-frequency noise (LFN) refers to sound that occurs at the lower end of the audible spectrum, typically in the range of 20 to 200 Hz.

Environmental aspect	Summary of baseline conditions
	● Houlong Qinghai Temple: maximum recorded low-frequency noise level was 43.6 dB which exceeds the regulatory limit (ie 39 dB) It is noted that there are no specific standards within the WBG EHS noise level guidelines specific to low frequency noise. **Vibration** Results showed the baseline vibration levels at potential onshore residential receptors were compliant with national guideline. It is noted that there are no specific vibration standards within the WBG EHS guidelines.
Underwater noise	Underwater noise monitoring was conducted at five locations to understand underwater noise baseline. The underwater noise results exhibits periodic variations as a result of tidal and / or biological fluctuations. The underwater noise results are: ● At 20Hz range: 108.9 dB to 140.6 dB ● At 100 Hz range: 102.9 dB to 122.8 dB ● At 31.5Hz range: 109.1 to 130.5 dB ● At 50Hz range: 107.1 to 132.1 dB ● At 800Hz range: 92.4 to 115.6 dB As based on the survey results, it is noted that no particular exceedances have been reported, as such the results indicated general compliance with Taiwanese standards. The results are therefore aligned with WBG EHS guidelines, which provide general guidance. No major concerns are noted.
Surface water quality	Baseline surface water quality monitoring was undertaken at various waterbodies around the Project's onshore facilities. The results indicated general compliance with Taiwanese standards, with the exception of recorded exceedances at the following locations: ● Zhunan area: exceedances in BOD, phenol and DO levels against Class D water quality standards ● Tongxiao area: exceedances in ammonia nitrogen and BOD levels against Class C water quality standards ● Fangli river: exceedances in ammonia nitrogen, BOD and Suspended solids levels against Class C water quality standards The results are therefore generally aligned with the WBG EHS guidelines which provide general guidance; site-specific exceedances caused by the Project activities should be addressed in mitigation planning.
Groundwater quality	● Groundwater quality baseline and water levels monitoring were mainly derived from Taiwanese historical records. The records indicated minimum fluctuations for groundwater levels and groundwater quality was compliant with the Taiwanese standards. ● The results are therefore aligned with WBG EHS guidelines, which provide general guidance. No major concerns are noted.
Seawater quality	● The project conducted a marine water quality survey in accordance with the standard issued by MoEnv. The survey results indicated that all parameters were compliant with the Taiwanese standards. ● The results are therefore aligned with WBG EHS guidelines, which provide general recommendations. Parameters for monitoring are included.
Marine sediment quality	The project conducted a marine sediment quality survey in accordance with the standard issued by MoEnv. As no national standards have been established for marine sediment, the standard developed by the National Oceanic and Atmospheric Administration (NOAA) is adopted for assessment in this project. The survey results indicated that all parameters were compliant with the NOAA standard.
Intertidal zone water quality	● The project conducted an intertidal zone water quality survey in accordance with the standard issued by MoEnv. The survey results indicated that all parameters were compliant with the Taiwanese standards. ● There is no specific water quality guideline for the intertidal zone in the WBG guidelines. The baseline monitoring result, which adopts the Taiwanese seawater quality standard, is compliant with WBG EHS guidelines for water quality.

Environmental aspect	Summary of baseline conditions
Soil quality	● Soil quality monitoring included monitoring of pH value and metals of the soil within the Project area and results were found to be compliant with the Taiwanese standards. ● No exceedance noted and therefore aligned with IFC PS3, which supports soil monitoring. No specific guidelines are included in the WBG EHS guidelines.
Electromagnetic field	● Baseline electromagnetic field (EMF) emissions were measured at sensitive receptors situated along residential properties and streets. The results indicated that all parameters were compliant with both the Taiwanese standards and International Commission on Non-Ionizing Radiation Protection's (ICNIRP) standard. In addition, no other potential EMF emission sources were identified during the baseline surveys. ● The results are therefore aligned with WBG EHS guidelines as ICNIRP is internationally recognized and referenced in WBG EHS.

Source: EIS, 2022 and EDA, 2023 (https://eiadoc.moenv.gov.tw/eiaweb/)

In terms of biodiversity, baseline surveys identified several species including some protected species which are presented in Table 2.2 below.

Table 2.2: Summary of biodiversity baseline conditions

Aspect	Species recorded
Terrestrial flora and fauna	
Terrestrial plants	● Based on five surveys conducted for the EDA in February and December 2023, a maximum of 426 flora species were recorded in December 2023. The majority of flora species (56.6%) were noted to be native species and 49.5% of flora species are also considered to be herbaceous plants. No wild rare plant species was identified. ● In accordance with the EHS guidelines for wind Energy, areas of local, regional, and international ecological importance – such as Important Bird Areas (IBA) and Key Biodiversity Areas (KBAs) etc. – will need to be identified to inform project site selection. While this requirement is not mandated under Taiwan's Environmental Impact Assessment (EIA) framework, the Project has provided additional information to address this gap. Please refer to the CHA (Section 3.3.2) and BAP (Section 4.3.2) for further details.
Terrestrial mammals	● Based on five surveys conducted for the EDA in February and December 2023, a total of 10 mammal species were recorded. None were considered to be globally threatened species. ● The baseline surveys are aligned with the survey requirements outlined in the EHS Guidelines for Wind Energy. The resulting data is considered sufficient to support subsequent assessments—namely the CHA (Section 3.3.2) and BAP (Section 4.3.2)—in accordance with the requirements of IFC PS6.
Terrestrial birds	Based on five surveys conducted for the EDA in February and December 2023, a total of 63 bird species were recorded. Of the identified species, the following national protected bird species were recorded: ● Crested Serpent Eagle (大冠鷲) (*Spilornis cheela*, Taiwan Category II protected species, IUCN Least Concern) ● Crested Goshawk (鳳頭蒼鷹) (*Accipiter trivirgatus*, Taiwan Category II protected species, IUCN Least Concern) ● Black-winged Kite (黑翅鳶) (*Elanus caeruleus*, Taiwan Category II protected species, IUCN Least Concern) ● Brown Shrike (紅尾伯勞) (*Lanius cristatus*, Taiwan Category III protected species, IUCN Least Concern) ● Collared Scops Owl (領角鴞) (*Otus lettia*, Taiwan Category II protected species, IUCN Least Concern) Of the identified species, the following bird species of international conservation significance were recorded: ● Siberian Sandplover (*Charadrius mongolus*) (IUCN Endangered) ● Sharp-tailed Sandpiper (*Calidris acuminata*) (IUCN Vulnerable) ● Javan Myna (*Acridotheres javanicus*) (IUCN Vulnerable)

Aspect	Species recorded
	The baseline surveys are aligned with the survey requirements outlined in the EHS Guidelines for Wind Energy. The resulting data is considered sufficient to support subsequent assessments—namely the CHA (Section 3.3.2) and BAP (Section 4.3.2)—in accordance with the requirements of IFC PS6.
Herpetofauna/ Invertebrate	Based on five surveys conducted for the EDA in February to December 2023, six amphibian, 12 reptile and 38 butterfly species were recorded. All the recorded species are not globally threatened species. Of the identified species, the following reptile and amphibian species of international conservation significance were recorded: ● Chinese Stripe-necked Turtle (*Mauremys sinensis*) (IUCN Critically endangered) ● Chinese Cobra (*Naja atra*) (IUCN Vulnerable) ● Taipa Frog (*Rana longicrus*) (IUCN Vulnerable) The baseline surveys are aligned with the survey requirements outlined in the EHS Guidelines for Wind Energy. The resulting data is considered sufficient to support subsequent assessments—namely the CHA (Section 3.3.2) and BAP (Section 4.3.2)—in accordance with the requirements of IFC PS6.
Coastal and marine birds	
Marine birds	Based on 10 surveys conducted for the EIS in July 2020 to September 2021, a total of 22 marine birds species were recorded, of which two are nationally protected species: ● White-fronted Tern (白眉燕鷗) (*Sterna striata*, Taiwan Category II protected species, IUCN Near Threatened) ● Brown Shrike (紅尾伯勞) (*Lanius cristatus*, Taiwan Category III protected species, IUCN Least Concern) Of the identified species, the following bird species of international conservation significance were recorded: ● Grey Plover (*Pluvialis squatarola*) (IUCN Vulnerable) The baseline surveys are aligned with the survey requirements outlined in the EHS Guidelines for Wind Energy. The resulting data is considered sufficient to support subsequent assessments—namely the CHA (Section 3.3.2) and BAP (Section 4.3.2)—in accordance with the requirements of IFC PS6. Additionally, a Collision Risk Model (CRM) was developed as part of the EIA to assess potential impacts on marine bird species observed during the baseline surveys, consistent with the EHS Guidelines for Wind Energy. Upon the completion of the CHA, an updated CRM[8] was conducted to further evaluate collision risks of the identified critical habitat bird species. The model results indicate that the total number of critical habitat bird collisions is estimated at 0.784 birds/year, suggesting that the anticipated impact on critical habitat bird populations is relatively low.
Coastal birds	Based on five surveys conducted for the EDA in February and December 2023, a total of 67 species were recorded, of which 4 species are nationally protected bird species: ● Black-winged Kite (黑翅鳶) (*Elanus caeruleus*, Taiwan Category II protected species, IUCN Least Concern) ● Common Kestrel (紅隼) (*Falco tinnunculus*, Taiwan Category II protected species, IUCN Least Concern) ● Little Tern (小燕鷗) (*Sternula albifrons*, Taiwan Category II protected species, IUCN Least Concern) ● Brown Shrike (紅尾伯勞) (*Lanius cristatus*, Taiwan Category III protected species, IUCN Least Concern) Note: The Black-winged Kite, Little Tern and Brown Shrike were recorded in the Project's impact area for onshore components, while the Common Kestrel was recorded in the EDA survey's control area. The baseline surveys are aligned with the survey requirements outlined in the EHS Guidelines for Wind Energy. The resulting data is considered sufficient to support subsequent assessments—namely the CHA (Section 3.3.2) and BAP (Section 4.3.2)—in accordance with the requirements of IFC PS6.

[8] Updated collision risk modelling for critical habitat bird species only (海盛離岸風場鳥類行動計畫潛在關注鳥種的撞擊影響評估), dated 30 June 2026. This updated CRM was conducted after the completion of the EIA/EDA.

Aspect	Species recorded
Cetacean survey	
Marine mammals	● Based on 23 surveys conducted for the EIS in May 2020 to April 2021, no cetacean was observed during the survey. ● During cetacean surveys conducted for the Taiwanese humpback dolphin permit[9] in July to November 2023, a group of Taiwanese humpback dolphin (*Sousa chinensis ssp. Taiwanensis*) were observed on 19 August 2023. The sighting occurred within the Taiwanese Humpback Dolphin Major Wildlife Habitat (MWH) and is located at a considerable distance from the Project site. ● The baseline surveys are aligned with the survey requirements outlined in the EHS Guidelines for Wind Energy. The resulting data is considered sufficient to support subsequent assessments—namely the CHA (Section 3.3.2) and BAP (Section 4.3.2)—in accordance with the requirements of IFC PS6.

Source: EIS, 2022 and EDA, 2023 (https://eiadoc.moenv.gov.tw/eiaweb/)

2.3 Social baseline

Social baseline components, including impacts to livelihood, visual impacts and more, were captured through stakeholder opinion surveys conducted as part of the EIA requirements. Stakeholders identified for engagement include local coastal residents, local residents in proximity to the onshore substation, fisher folk of key fishing ports in Miaoli County, as well as key opinion leaders of the community (including fishermen's associations).

In addition, commentary has been included as to whether the baseline results are compliant with the Applicable Standards (namely, the IFC PS and WBG EHS guidelines).

Details of the social surveys conducted can be accessed in the EIS published online. Social baseline conditions for the Project are summarised in Table 2.3.

Table 2.3: Summary of social baseline conditions

Social aspect	Summary of baseline conditions
Stakeholders' opinion survey	According to the results of the public opinion survey, approximately 70% of respondents expressed support for the Project. The main reasons for supporting the Project includes the potential to increase electricity supply and reduce carbon dioxide emissions. Approximately 30% of respondents opposed the Project, primarily due to concerns regarding potential impacts on the marine ecosystem and fishing grounds. Further, as part of the local EIA process, over 242 consultations were conducted with the key Project stakeholders and local communities. This included regular visits to fisher folk to understand local concerns, ensure continuous dialogue, and maintain positive community relations. Based on the feedback from key stakeholders and local communities, future initiatives should include a focus on enhancing collaboration through the training of fisher folk as Marine Mammal Observers (MMOs), the employment of patrol vessels, and the organisation of harbour clean-up events. The stakeholder engagement undertaken for the EIS and EDA meet the local EIA as well as IFC PS 1 and EP5 requirements for meaningful engagement and ongoing consultation. The Project should develop a stakeholder engagement plan to capture key stakeholders and establish further ongoing engagements and management strategies. This has been presented in Section 5.
Involuntary resettlement	● The implementation of the Project will not result in resettlement or physical displacement. ● Therefore, IFC PS5 is not triggered for involuntary resettlement or physical displacement.
Indigenous Peoples	● This implementation of the Project was not identified to pose particular risks or impacts to Indigenous Peoples (IP). No stakeholder engagement activities specific to IPs were deemed to be required. This was further confirmed from the socio-economic primary data surveys undertaken by the Project. ● Therefore, IFC PS7 is not triggered.

[9] Miaoli Offshore Windfarm 3 Taiwanese Humpback Dolphin Major Wildlife Habitat – Application for development and utilisation (苗栗離岸風力發電計畫三 中華白海豚野生動物重要棲息環境 - 開發利用申請書)

Social aspect	Summary of baseline conditions
Economic displacement	● The offshore export cable route of the project overlaps with coastal fishing grounds and the Tongyuan exclusive fishing rights (EFR) area. It is anticipated that fisher folk may experience economic displacement due to the temporary prohibition of vessel access to fishing grounds during the construction period. This restriction is implemented as a precautionary measure to ensure the safety of fisher folk, as a minimum buffer distance is required to be maintained from the Project's construction vessels. ● IFC PS5 requires livelihood restoration for economic displacement. Socio-economic surveys were undertaken to achieve a comprehensive understanding of the socio-economic profile and characteristics of the affected households, and develop meaningful restoration programmes to meet IFC PS5 (See Section 4.3.3).
Land-based cultural resources	As per baseline surveys, cultural heritage sites located closest to the onshore facilities include: ● Two historic buildings – Former Yuanli Relay Station (原苑裡中繼所) – Fangli Shuntian Temple (房里順天宮) ● One county-designated monument – Fangli Cai Quan Sheng Hao (房裡蔡泉盛號) ● One archaeological site – Zhentoushan Site (枕頭山遺址) The nearest cultural resources are located at least 270 m away from the Project's onshore facilities, as such construction activities are not anticipated to have direct impacts. The results are aligned with IFC PS8 which requires avoidance and buffer zones. No direct impacts are anticipated as outlined above.
Underwater cultural resources	● As based on the baseline surveys, there have been six underwater cultural heritage sites identified. Construction activities are expected to avoid these underwater cultural heritage sites, as such no direct impacts are anticipated. ● The results are aligned with IFC PS8 and WBG EHS guidelines for wind energy which support avoidance of underwater heritage.
Traffic and transportation	● As based on baseline surveys, onshore traffic surveys and simulation analysis were undertaken to consider Project's activities. The surrounding road system is mainly composed of "two-lane suburban highways" and "multi-lane suburban highways". A temporary increase in vehicular traffic during the construction phase is anticipated. Vessel collision risk simulation analysis was undertaken to consider Project's activities. The primary additional risk following the establishment of the wind farm is the possibility of vessels unintentionally entering the wind farm and colliding with structures, despite having no issues with propulsion. ● The baseline surveys are aligned with the WBG EHS guidelines which recommend traffic management planning which the baseline supports.
Visual impact and tourism	● As per baseline surveys, the construction phase of the Project is anticipated to have minimal impacts on visual or recreational activities. ● During the operation phase, visual impacts has been assessed as negligible as the wind farm is located at least 20km offshore. ● The baseline results are aligned with the WBG EHS guidelines for wind energy which supports offshore siting to reduce visual impacts.

Source: EIS, 2022 and EDA, 2023 (https://eiadoc.moenv.gov.tw/eiaweb/)

3 Key E&S impacts

3.1 Overview

This section presents the main construction and operation impacts identified through the EIA reports (EIS and EDA) as well as the additional E&S assessments (CCRA, CHA, CIA, HRIA, and FSIA). Mitigation and monitoring measures have also been proposed as part of the EIA and additional assessments to manage the potential E&S impacts which are summarised in this section.

3.2 Expected Project E&S impacts

Potential environmental and social impacts may arise throughout the project lifecycle, especially during the construction phase. Typical onshore activities relevant to the construction phase that may impact the environment include land clearing for site preparation and access routes, excavation, construction activities, laying of land cables, transportation of materials and fuels. Offshore activities which may result in environmental impacts may include piling, laying of submarine cables, installation of WTG foundations and WTG installation.

During the operation phase, no personnel will be at the onshore substation or WTG except during scheduled maintenance activities. Operational WTG may result in potential environmental and social impacts, including impacts on noise quality, waste management, biodiversity impacts and fishery and livelihood impacts.

The main environmental and social impacts identified in the EIS and EDA are presented in Table 3.1. Commentary has been included as to whether identified impacts and proposed measures are aligned with the Applicable Standards.

Table 3.1: Summary of project impacts identified in EIA

Aspect	Activity / aspect	Identified impact
Construction phase		
Air quality	Decreased air quality from fugitive dust from exposed construction sites, and emissions from construction machinery vehicles, and working vessels.	• Air quality modelling was undertaken as part of the EIA. As part of the model, pollutant dispersion to sensitive receptors was monitored. The results have indicated that background air quality and total incremental concentrations would generally be compliant within the Taiwanese standards. • Based on the simulation, the results are also compliant with WHO ambient air quality standards referenced in the WBG EHS guideline.
Noise and vibration	Increased noise and vibration from movement of construction vehicles, and machineries.	• Noise and vibration modelling was undertaken as part of the EIA. As part of the model, it considered key sources of noise and vibration from the Project (ie construction activities for onshore work and movement of construction vehicles), and noise and vibration levels are expected to generally be compliant within the Taiwanese standards. • The WBG guidelines adopt stricter standards than the Taiwanese standard. It is noted that most baseline survey results have exceeded the WBG noise level guideline, even in the absence of construction simulation data. Following simulation, one receptor located in a residential area near the onshore substation is predicted to have a potential increase of 4.1 dB from the baseline values during construction activities. Mitigation measures are required as per IFC PS3 which will be implemented to minimise the impacts. Please refer to Table A.1 for the mitigation measures.
Underwater noise	Increased underwater noise from WTG foundation piling activities and construction vessels.	• An underwater noise modelling was undertaken as part of the EIA. As part of the model, it considered underwater noise levels within a 750m buffer around construction sites (due to pilling activities). As based on the modelling results, it identified that underwater noise produced is approximately 175 dB prior to any implementation of mitigation measures. Underwater noise was subsequently re-modelled, incorporating the application of noise reduction mitigation measures such as bubble curtains. With implementation of mitigation measures, underwater noise levels will reduce to between 158 to159 dB, as such it would be compliant with the Taiwanese standards[10]. • The mitigation measures proposed aligns with the WBG EHS guidelines for wind energy and IFC PS6.
Surface water quality	Decreased surface water quality from runoff from onshore substation and domestic wastewater from construction workers.	• Decreased surface water quality as a result from increased wastewater discharge from the Project is expected. Key sources of wastewater from the Project which may impact surface water quality mainly include runoff from the onshore substation site and domestic wastewater discharge. The Project has calculated the wastewater generation rates calculated and considered waste management manageable. • Mitigation measures for water quality have been proposed in the EIS and EDR, which include measures to mitigate the potential identified impacts which are in line with the general guidance in the WBG EHS guidelines.
Groundwater	Decreased groundwater quality from excavation at onshore substation.	• Decreased groundwater quality as a result of construction activities including excavation at onshore substation is expected. It is noted that impact on groundwater quality from direct run off during excavation will be temporary, and no groundwater upwelling is anticipated.

[10] Ocean Conservation Adminstration, Ocean Affairs Council - 水下噪音指引 公告版 (水下噪音指引 v2). Note: Taiwanese underwater noise standards are based of German standard (Investigation of the Impacts of Offshore Wind Turbines on the Marine Environment (StUK4)).

Aspect	Activity / aspect	Identified impact
		● Mitigation measures for groundwater quality have been proposed in the EIS and EDR, which include measures to mitigate the potential identified impacts which are in line with the general guidance in the WBG EHS guidelines.
Seawater quality / Marine sediment quality	Decreased seawater and marine sediment quality from WTG foundation works and laying of subsea cables.	● Decreased seawater (ie increment in suspended solids levels) and marine sediment quality as a result of offshore Project activities including foundation works and laying of subsea cables are anticipated. Installation of foundation and offshore cables may temporarily increase suspended solids (SS) levels, impacting seawater quality. SS modelling has been conducted for foundation installation and cable works, whereby temporary, minor negative impact is expected. ● There is no specific marine sediment quality guideline in the WBG guidelines. Mitigation measures for seawater quality have been proposed in the EIS and EDR, which include measures to mitigate the potential identified impacts which are in line with the general guidance in the WBG EHS guidelines for wind energy.
Intertidal zone water quality	Decreased intertidal zone water quality from laying of cables in the intertidal zone.	● Decreased water quality (ie increment in suspended solids levels) as a result of Project activities including laying of cables in the intertidal zone are anticipated. It is assessed that the decrease in water quality is localised and temporary with limited impact due to local diurnal tidal patterns. ● There is no specific water quality guideline for the intertidal zone in the WBG guidelines. Mitigation measures for seawater quality have been proposed in the EIS and EDR, which include measures to mitigate the potential identified impacts which are in line with the general guidance in the WBG EHS guidelines for wind energy.
Waste management	Increased solid waste generation from construction activities and workers.	● Approximately 43.11 kg of solid waste may be generated daily. Waste will be collected at each construction site, with disposals undertaken by appropriately licensed waste companies managed by the local authority. It is acknowledged that the waste infrastructure required by the Project exists in the area, and the Project waste is not expected to burden the local waste handling capacity. During the construction phase, the project will comply with local waste regulation, Waste Disposal Act, to manage the disposal and reuse. ● The proposed measures for the construction phase are aligned with IFC PS3 and WBG EHS guidelines which support proper waste handling.
Biodiversity - terrestrial flora and fauna	Terrestrial flora and fauna disturbance as a result of vegetation clearance, road traffic collisions and accidental pollution events.	● As the terrestrial habitat has been heavily altered by human activities unrelated to the Project, the terrestrial habitat primarily supports widespread non-native flora species. As a result, the impact on terrestrial flora is expected to be minimal. With respect to terrestrial fauna, the survey area consists of secondary forests, grassy shrubland, agricultural land and human infrastructure. Given that baseline surveys have primarily observed urban wildlife species that are adapted to human-disturbed areas, any further habitat disturbance generated from construction activities are expected to result in a localised and temporary impact. However, the movement of construction vehicles may pose a risk of roadkill incidents. Appropriate mitigation measures are necessary to reduce this risk. ● Following the identification of critical habitat species, the potential impacts of the Project from construction activities were assessed in relation to the biodiversity values for which critical habitat has been designated. Project impacts to terrestrial fauna and flora, including the residual impacts after consideration of the proposed mitigation measures are considered to be adverse not significant. In addition, irrespective of the project impacts, a project-specific BAP has

Aspect	Activity / aspect	Identified impact
		been developed to demonstrate net gain in Critical Habitats and no net loss in Natural Habitat, as required by IFC PS6. Please refer to the CHA (section 3.3.2) and BAP (section 4.3.2) of the project for further details.
Biodiversity - marine habitat	Disturbance to the marine habitat as a result of decreased water quality and accidental pollution events generated by the installation of WTG foundations and laying of submarine cables.	● The seabed, where is the Project's offshore components are primarily situated on, is predominantly composed of sand and mud substrate. Seabed ecosystem and marine habitat are expected to be temporarily disrupted by the construction activities. Marine animals, if being disturbed, are expected to move and migrate to other locations during the construction period. Hence, changes made to the biodiversity during construction will be restored to its original condition after the construction period. ● Following the identification of critical habitat species, the potential impacts of the Project from construction activities were assessed in relation to the biodiversity values for which critical habitat has been designated. Project impacts to marine fauna and flora, including the residual impacts after consideration of the proposed mitigation measures are considered to be adverse not significant. In addition, irrespective of the project impacts, a project-specific BAP has been developed to demonstrate net gain in Critical Habitats and no net loss in Natural Habitat, as required by IFC PS6. Please refer to the CHA (section 3.3.2) and BAP (section 4.3.2) of the project for further details.
Biodiversity - marine mammals and fish	Marine mammal and fish disturbance as a result of habitat change, underwater noise and vessel strikes.	● The Project area (except the export subsea cable) is not located in the protected coastal habitats of Taiwanese White Dolphin. The increasing number of vessels within the Project area during construction as well as underwater construction activities, ie piling, will emit a high level of underwater noise. Marine mammals and fishes, especially dolphins may be disturbed and displaced. ● Following the identification of critical habitat species, the potential impacts of the Project from construction activities were assessed in relation to the biodiversity values for which critical habitat has been designated. Project impacts to marine fauna and flora, including the residual impacts after consideration of the proposed mitigation measures are considered to be adverse not significant. In addition, irrespective of the project impacts, a project-specific BAP has been developed to demonstrate net gain in Critical Habitats and no net loss in Natural Habitat, as required by IFC PS6. Please refer to the CHA (section 3.3.2) and BAP (section 4.3.2) of the project for further details.
Fishery impacts	Impact on local fishery and fishing activities as a result of prohibition of non-Project vessels entering the fishing ground during construction.	● Construction activities offshore may result in impact access of non-Project vessels entering fishing ground, affecting vessel traffic from Taichung Port, interfering with fishing routes and designated fishing rights areas. Mitigation measures will be implemented to minimise the impacts on fisheries. ● Where economic displacement and/or livelihood impacts occur due to the Project, IFC PS 5 requires assessment and plan to restore livelihood. The Project has developed a Livelihood Restoration Plan (LRP) with restoration programmes and measures in line with IFC PS 5 requirements.
Public infrastructure and services	Increased pressure and demand on public facilities as a result of influx of Project labour	The Project intends to use community hospitals or clinics only in the event of emergencies or accidents, as such impacts on public facilities are considered minimal. This is in line with IFC PS4 which supports emergency-only use of public health services.
Visual impact and tourism	Coastal recreation and scenic areas may be affected by the presence of construction activities	● The wind farm is located 20 km offshore, the visual impact on coastal residents and visitors is considered negligible. There might be visual impact at the onshore construction site, where there would be temporary storage of building materials on site, or emission of dust from the construction activities.

Aspect	Activity / aspect	Identified impact
		● In terms of tourism, there may be an impact on local traffic on land during the construction phase. The transportation of machinery or materials via heavy truck may lead to traffic disturbances due to slower traffic. ● The WBG EHS guidelines for wind energy support offshore siting to reduce visual impacts.
Cultural impact	Disturbance to cultural heritage sites as a result of onshore and offshore construction activities.	The cultural heritage site in the Fangli area is located at least 270 m from the construction area and is considered unlikely to be affected during construction. The Baishatun Mazu Pilgrimage, recognised as an important intangible cultural heritage, remains a significant religious event. Given that the annual pilgrimage route varies, the construction schedule will be adjusted in accordance with the dates of annual events to minimise potential disruption. A sonar survey was carried out at the offshore locations to identify any suspected underwater cultural heritage targets. A total of six (6) suspected underwater cultural heritage targets[11] were detected within the survey areas of both the wind farm site and the cable route. The minimum distance between any wind turbine and a suspected under water cultural target is no less than 500 m, while the shortest distance between the cable and a suspected underwater cultural heritage target is at least 120 m. A safety buffer zone of 25 m will be established around each target to ensure they remain undisturbed during the construction phase. Excavation and ground disturbance works should be undertaken with appropriate care and due diligence. In accordance with Article 33 of the Cultural Heritage Preservation Act, a chance finds procedure must be followed should any cultural heritage resources be encountered, whether onshore or offshore. This is in line with IFC PS8 and WBG EHS guidelines which support proactive heritage protection.
Traffic and transportation	Increase onshore and vessel traffic	● The Project is estimated to generate a maximum of 44 one-way vehicle trips per hour during the construction phase. An assessment of the traffic impacts during construction indicates that the traffic across all affected road sections is expected to remain consistent with current conditions. There will also be an increase vessel movement offshore during construction. Based on the traffic impact assessment during the construction phase, the additional traffic volume is not expected to affect the traffic on any sections, which will remain consistent with current conditions. ● The traffic impact assessment supports IFC PS4 compliance.
Operation phase		
Airborne noise	Decreased noise quality from WTG rotating blades	● Based on the noise simulation results, when all WTGs operate simultaneously, both the continuous frequency (20Hz to 20Hz) and low frequency (25Hz to 200Hz) airborne noise level at the nearest onshore sensitive receptor were considered negligible and compliant with the Taiwanese standards.

[11] If suspected underwater cultural heritage target is identified during the survey, the developer must immediately notify the competent authority. The authority will arrange further investigation and assessment to determine whether the object qualifies as underwater cultural heritage. Until such determination is made, no development activities that may affect the object are permitted.

Aspect	Activity / aspect	Identified impact
		● The assessment undertaken supports IFC PS3.
Vibration	Vibration impacts are expected to be negligible during operation stage.	● As the WTGs will be installed at least located 20km offshore from Tongxiao Township (通霄鎮), Miaoli County, the vibration produced during the rotation of the WTGs will not bring impact to the receptors on land. Besides, based on the assessment of the vibration impact to the marine life, the vibration produced from the WTGs are considered to have minimal/negligible effect to marine habitat. ● The simulation confirms minimal impact; consistent with WBG EHS guidelines for wind energy.
Underwater noise	Underwater noise may be generated from vibrations of the WTGs that are transmitted through the water body.	● Underwater noise would be generated during operation of WTGs. Under full generation capacity and with the maximum number of wind turbines installed, modelling indicates that the operational noise from a single turbine attenuates to background levels at a distance of approximately 150m. Hence, there should be no significant impact to the marine habitat. ● The mitigation and modelling support compliance with IFC PS6 and WBG EHS guidance.
Groundwater quality	Groundwater extraction will not be required.	No significant impact is expected. As no risk identified, it is consistent with IFC PS3.
Electromagnetic field	Onshore substation and land cables may have an impact on existing EMF level	Based on the electromagnetic field simulation, the estimated electromagnetic field values exposed to sensitive receptors are all compliant with both the Taiwanese standard and International Commission on Non-Ionizing Radiation Protection's (ICNIRP) standard. IFC PS4 and WBG EHS guidelines support ICNIRP standards and therefore compliant.
Waste management	Increased in solid waste generated from the onshore substation and from offshore vessels	● Minimal waste is expected to be generated daily from onshore and offshore activities. The waste generated is not expected to burden local waste handling capacity. Waste generated offshore on crew transport vessels are expected to be equipped with the capacity to contain waste generated by workers on board. Marine Pollution Prevention Law, Waste Disposal Act and relative local regulation will be complied with. ● The proposed measures for the operation phase are aligned with IFC PS3 and WBG EHS guidelines which support proper waste handling.
Biodiversity – marine mammals and fish	Marine mammal and fish disturbance as a result of underwater noise, EMF, heat emissions, barrier effect and vessel strikes.	The WTGs structure may act as fish aggregation device to attract fishes and will bring benefit to the biodiversity. The maximum sound pressure level during Project's operation is similar with the surveyed background level. The results of simulation indicate that operational noise generated by the wind turbines is limited in impact, with effects on marine mammals assessed as negligible. ● Following the identification of critical habitat species, the potential impacts of the Project from operation activities were assessed in relation to the biodiversity values for which critical habitat has been designated. Project impacts to terrestrial fauna and flora, including the residual impacts after consideration of the proposed mitigation measures are considered to be adverse not significant. In addition, irrespective of the project impacts, a project-specific BAP has been developed to demonstrate net gain in Critical Habitats and no net loss in Natural Habitat, as required by IFC PS6. Please refer to the CHA (section 3.3.2) and BAP (section 4.3.2) of the project for further details.

Aspect	Activity / aspect	Identified impact
Biodiversity – offshore birds and bats	Offshore birds and bat disturbance as a result of collisions with wind turbine blades and barrier effect.	● Seabirds and migratory birds might be at risk of collision when passing through the WTGs. Hence, bird collision risk modelling (CRM) was conducted as part of the EIA to assess the possible risk. With regards to the Black-faced spoonbill, Chinese sparrowhawk and Grey-faced buzzard, the estimated maximum annual collision numbers are well below the species' Potential Biological Removal (PBR) threshold. Based on a worst-case scenario[12], the number of bird collisions have been estimated at 33.7 birds/year. However, it is noted that approximately 97.7% of birds flying across the ocean soar at a height of 0-25 meters, and the height of wind turbine blade is at least 25 meters tall. Seabirds represent the dominant avian group in offshore areas, with Procellariiformes being the most frequently observed during the wind farm surveys. Given the wide-ranging nature of seabird activity, the potential habitat loss effect resulting from wind farm development is not considered significant. Furthermore, the wind turbines are designed with a minimum spacing of 750 m in the direction perpendicular to the prevailing wind, and at least 1,300 m in the direction parallel to the prevailing wind. A minimum clear spacing of 400 m between turbines is maintained. This layout provides sufficient space for birds to navigate through the wind farm, thereby reducing the likelihood of collision, even if birds enter the operational area. In addition, there were case studies based on Denmark, Sweden OWF and local Wanggong wind farm of the bird strike rate, the possibility of birds coming in contact with the blades is considered low with the establishment of bird corridor plan. ● Following the identification of critical habitat species, the potential impacts of the Project from construction and operation activities were assessed in relation to the biodiversity values for which critical habitat has been designated. Project impacts to terrestrial fauna and flora, including the residual impacts after consideration of the proposed mitigation measures are considered to be adverse not significant. In addition, irrespective of the project impacts, a project-specific BAP has been developed to demonstrate net gain in Critical Habitats and no net loss in Natural Habitat, as required by IFC PS6. Please refer to the CHA (section 3.3.2) and BAP (section 4.3.2) of the project for further details. ● Upon the completion of the CHA, an updated CRM[13] was conducted to further evaluate collision risks of the identified critical habitat bird species. The model results indicate that the total number of critical habitat bird collisions is estimated at 0.784 birds/year, suggesting that the anticipated impact on critical habitat bird populations is relatively low.
Fishery impacts	The presence of the WTGs may affect fisheries depending on the fishing method.	● Loss of fishing area and thus marine resources due to the develop of project's wind farm area, which is mostly located in offshore fishing waters, is expected to be minimally significant during the construction phase, and not significant during the operation phase. Only few vessel owners who are capable of reaching that area may be minimally impacted. ● Fish assemblage is expected to occur following the installation of WTGs, which will benefit the local fisheries.

[12] Assuming an individual WTG capacity of 9.5MW and 98% avoidance rate of birds.

[13] Updated collision risk modelling for critical habitat bird species only (海盛離岸風場鳥類行動計畫潛在關注鳥種的 撞擊影響評估), dated 30 June 2026. This updated CRM was conducted after the completion of the EIA/EDA.

Aspect	Activity / aspect	Identified impact
		● The Project avoids artificial reef areas and traditional fishing grounds. Maintenance vessels will operate mainly from Taichung Port and will minimise impact on fisheries. ● The Project has developed a LRP with restoration programmes and measures in line with IFC PS 5 requirements. Programmes and compensation extend to impacts from the project's windfarm area.
Public infrastructure	The presence of Project labour may impact public facilities (eg roads and healthcare facilities).	Traffic at nearby roads surrounding the Project are assessed to be generally unaffected. The WTGs will be operated under a wholly automated surveillance system and there will not be a need for on-site operators except for maintenance personnel during maintenance activities. Provision of services by local public facilities are not expected to be impacted. This is aligned with IFC PS4 which supports low community service burden.
Visual impact	Coastal recreational and scenic areas may be affected by the presence of the WTGs.	Since the WTGs are located at least 20km from the shore, the extent of change in the existing landscape is determined to be quite small and the significance of the impact is low. The WBG EHS guidelines for wind energy support offshore siting to reduce visual impacts.

Source: EIS, 2022 and EDA, 2023 (https://eiadoc.moenv.gov.tw/eiaweb/)

3.3 Summary of additional E&S assessments

As the Project is required to comply with the EP4 to fulfil the obligations set by the Lenders, additional E&S assessments have been conducted, which further identified potential impacts and associated mitigation measures. The sub-sections below summarise the additional E&S assessments undertaken for the Project.

3.3.1 Summary of climate change risk assessment

The climate change risk assessment (CCRA) follows the methodology within the Equator Principles 4 (2020) and the updated guidance note[14]. The CCRA aims to assess whether the Project identifies and addresses current and anticipated physical climate-related risks facing the Project's operation over the 20 – 25 year operating period. Furthermore, the CCRA also assesses whether the Project incorporates plans and processes appropriate to managing those risks.

A greenhouse gas (GHG) emissions assessment of the estimated emissions during the construction and operational phases of the Project has been undertaken. The GHG emissions assessment concluded that the annual GHG emissions of the Project during construction and operation phase are below 100,000 tonnes CO_2e.

The CCRA considers both the chronic and acute impacts of climate change and their impacts on the project components, including impacts to physical assets, operations and value chain, under different climate change scenarios and time horizons. The time period covered by the assessment considers risks up until the period of 2041 – 2060, which is based on the anticipated operating period of 20 years following the end of construction activities in 2028. The CCRA includes three future Climate Change Scenarios, a high emissions scenario (SSP[15]5-8.5), a middle-of-the-road scenario (SSP2-4.5) and a low-emission scenario consistent with a below 2°C future (SSP1-2.6), as recommended by Taskforce on Climate related Financial Disclosures (TCFD) guidance of climate change risk assessments.

The CCRA has considered six climate hazards as follows:

- Temperature – Increase in extreme temperatures
- Precipitation – Increase in extreme precipitation events
- Wind – Wind speed variability
- Typhoon – Increased proportion of super typhoons
- Flooding – Rise in sea level and increased precipitation
- Lightning – Increase in frequency of lightning strikes

The CCRA assessment indicated that the risks posed by climate hazards, exacerbated by climate change, range from low to medium. A total of 19 risks, of which 11 are identified to be of a medium risk rating and the remaining 8 risks are of a low rating. Examples of medium risks includes impact on working conditions, damage to infrastructure and reduced access.

The significance and vulnerability of the identified risks were assessed, with proposed adaptation measures. Examples of adaptation measures includes higher safety standards to minimise operational risks and regular maintenance to protect facilities which may be likely to encounter flooding. No high or extreme risks to the Project have been identified as a result of projected climate change to the 2050s, but a watching brief of risks identified is recommended to be maintained throughout the Project lifetime and adaptively managed. Appendix D, Table

[14] Guidance Note on Climate Change Risk Assessment, Equator Principles (May 2023)

[15] Shared socioeconomic pathways

D.1 presents a summary of the Project's climate change risk register, including key details of the climate hazards, impact type, consequence and proposed adaption measures.

3.3.2 Summary of critical habitat assessment

The critical habitat assessment (CHA) follows the methodology in IFC GN6 of June 2019 (IFC, 2019). Critical habitat is defined in Paragraph 16 of IFC Performance Standard 6 (PS6) (IFC, 2012) and Note 53 of IFC GN6 (IFC, 2019) as an area of high biodiversity value that includes at least one or more of the five values specified in Paragraph 16 of PS6 and/or other recognised high biodiversity values. The CHA was undertaken to determine whether the Project footprint and its relevant ecological appropriate area of analysis (EAAAs) are located in critical habitat. The EAAAs established for the CHA were delineated based on the habitats of relevant species/groups (ie terrestrial flora and fauna, marine flora and fauna, migratory birds).

The Integrated Biodiversity Assessment Tool (IBAT) was applied to obtain potential biodiversity-related features (ie species, protected areas and Key Biodiversity Areas) in the EAAAs. Project documentation including the approved environmental impact assessment (EIA) of this Project was reviewed as part of this CHA. Various international and national checklists (eg IUCN Red List of Threatened Species, Taiwan protected species lists (保育類野生動物名錄)), Important Bird Areas in Taiwan and Map of Taiwan's Wetlands as well as research papers were also reviewed to inform the critical habitat determination process.

The CHA determined that the critical habitat features as relevant to the Project are:

- **Marine flora and fauna**: Taiwanese humpback dolphin (*Sousa chinensis ssp. Taiwanensis*), Taiwanese Wedgefish (*Rhynchobatus immaculatus*), Brown Guitarfish (*Rhinobatos schlegelii*), Ringed Guitarfish (*Rhinobatos hynnicephalus*), Taiwan Picnic Seabream (*Acanthopagrus taiwanensis*) and *Bothus assimilis*
- **Migratory birds (including seabirds at sea)**: Black-faced spoonbill (*Platalea minor*), Oriental stork (*Ciconia boyciana*), Chinese crested tern (*Thalasseus bernsteini*), Baer's Pochard (*Aythya baeri)* and Kentish Plover (*Charadrius alexandrinus*)
- **EAAA for marine fauna and flora:** Coral reef ecosystems

Subsequently, the Project's offshore and onshore impacts during construction and operation phases, as described in the Project EIA, were assessed against the critical habitat features. The proposed mitigation measures contained within the Project EIA will be implemented to prevent significant impacts to the biodiversity values for which critical habitat has been designated and the supporting habitat, as well as prevention of a net reduction in the global, national and/or regional population of any Critically Endangered or Endangered species. Given that there is critical habitat species identified, a biodiversity action plan (BAP) containing additional recommendations and further details on the actions required to achieve net gains for critical habitats and species is developed for the Project (refer to Section 4.3.2 for further details).

3.3.3 Summary of cumulative impact assessment

The cumulative impact assessment (CIA) follows the six steps outlined in the IFC CIA Good Practice Handbook[16]. The CIA has been undertaken to identify the Project related environmental and social impacts (as well as associated risks) in terms of their potential to contribute to cumulative impacts on valued environmental and social components (VECs) on which other existing or future developments may also have detrimental effects. In addition, the CIA aims to assess the significance of the Project's abovementioned (cumulative) impacts to

[16] IFC Good Practice Handbook: Cumulative Impact Assessment and Management, 2013

propose measures to avoid, minimise and/ or offset these impacts to the extent practically possible.

The CIA has undertaken a scoping process to identify the applicable VECs for the Project. The spatial and temporal boundaries in which activities and/ or other developments potentially contribute to impacts cumulatively were also defined.

The CIA has considered the following VECs, and discussed its baseline status and cumulative impacts:

- Biodiversity VECs:
  - Marine habitat
  - Marine flora and fauna
  - Migratory birds (including seabirds at sea)
- Socio-economic VECs:
  - Community livelihood: fisheries resources and zones

The CIA report concluded the cumulative residual impact following implementation of proposed mitigation measures for all VECs to be not significant, except for the collision risk with wind turbines for migratory birds (including seabirds at sea). For the bird collision risk, it is expected to be reduced to not significant with the successful implementation of the BAP actions (Section 4.3.2).

3.3.4 Summary of human rights impact assessment

The objective of the HRIA is to identify and evaluate the potential human rights impacts of the Project, while supporting the enhancement of social management and mitigation measures. It aims to provide actionable measures to safeguard and ensure meaningful engagement with affected communities and workers. Those whose human rights may be at risk include:

- Project and supply chain workers;
- Local onshore communities who may be impacted by construction and transport activities;
- Other sea users whose offshore activities and livelihood may be disrupted.

The HRIA seeks to help the Project prevent such occurrences, instead striving to achieve socially inclusive outcomes by identifying and mitigating impacts through a human rights lens.

Primary baseline surveys were conducted between March and April 2025 to gather socioeconomic data and firsthand feedback from potential affected households and persons. Data collected to date, including self-assessment questionnaires (SAQs), key informant interviews (KIIs) (ie 10 sessions), focus group discussions (FGDs) (ie seven FGDs) and socio-economic household surveys (ie 200 responses) of Project Affected Households (PAHs), have been incorporated into the HRIA to assess impacts and provide recommendations on mitigation measures programmes, stakeholder engagement, roles and responsibilities, evaluation and monitoring.

Table B.4 presents a summary of additional monitoring to be undertaken as part of the Project's human rights impact assessment.

To proactively address human rights impacts, a suite of labour management documents has been developed by the Project Company to guide the management and improve the oversight of its subcontractors working on the Project sites. The Project has a suite of labour management documents addresses key potential labour risks and outlines standards and expectations for recruitment process, labour and working conditions, audit or inspection audits procedures and checklists, and overall code of conduct for contractors, sub-contractors and supplier. The Project will develop and implement a standalone labour management plan.

As part of this assessment, the priority ranking summary highlights key human rights considerations for the project company, offering insights to proactively strengthen responsible practices and ensure positive outcomes.

3.3.5 Summary of focused social impact assessment

The focused social impact assessment (FSIA) aims to provide identification, assessment and management of potential social impacts associated with the Project and its activities.

The following social aspects were discussed within the FSIA in terms of baseline status, impact assessment, impact significance, mitigation measures and residual impact significance:

- Human rights
- Labour and working conditions, including employment generation
- Amenity and environment, including air quality and noise
- Community health, safety and security risks, including exposure to communicable disease, workers' influx effects and traffic
- Economic displacement and livelihoods
- Culture and sense of community

Baseline data and mitigation measures have been extracted from existing Project documents as well as secondary data. In particular, information from the Project's HRIA and LRP (see Section 4.3.3) are referenced, which leverage socio-economic survey data collected from March to April 2025. The determination of final mitigation and management measures have been based on the main outcomes of the primary data collection and impact assessment. The main social impacts will occur during the construction phase and then dissipate during operations.

The FSIA provides an overall summary of the identified social impacts. Implementation of adaptive management and recommended mitigation measures will help to minimise the extent and significance of identified impacts.

4 E&S management

4.1 Overview

This section aims to provide an overview of the E&S management applied for the Project. It should be noted that the Project has developed and implemented an environmental and social management system (ESMS) to oversee all environmental and social tasks associated with the Project.

4.2 Organisation chart

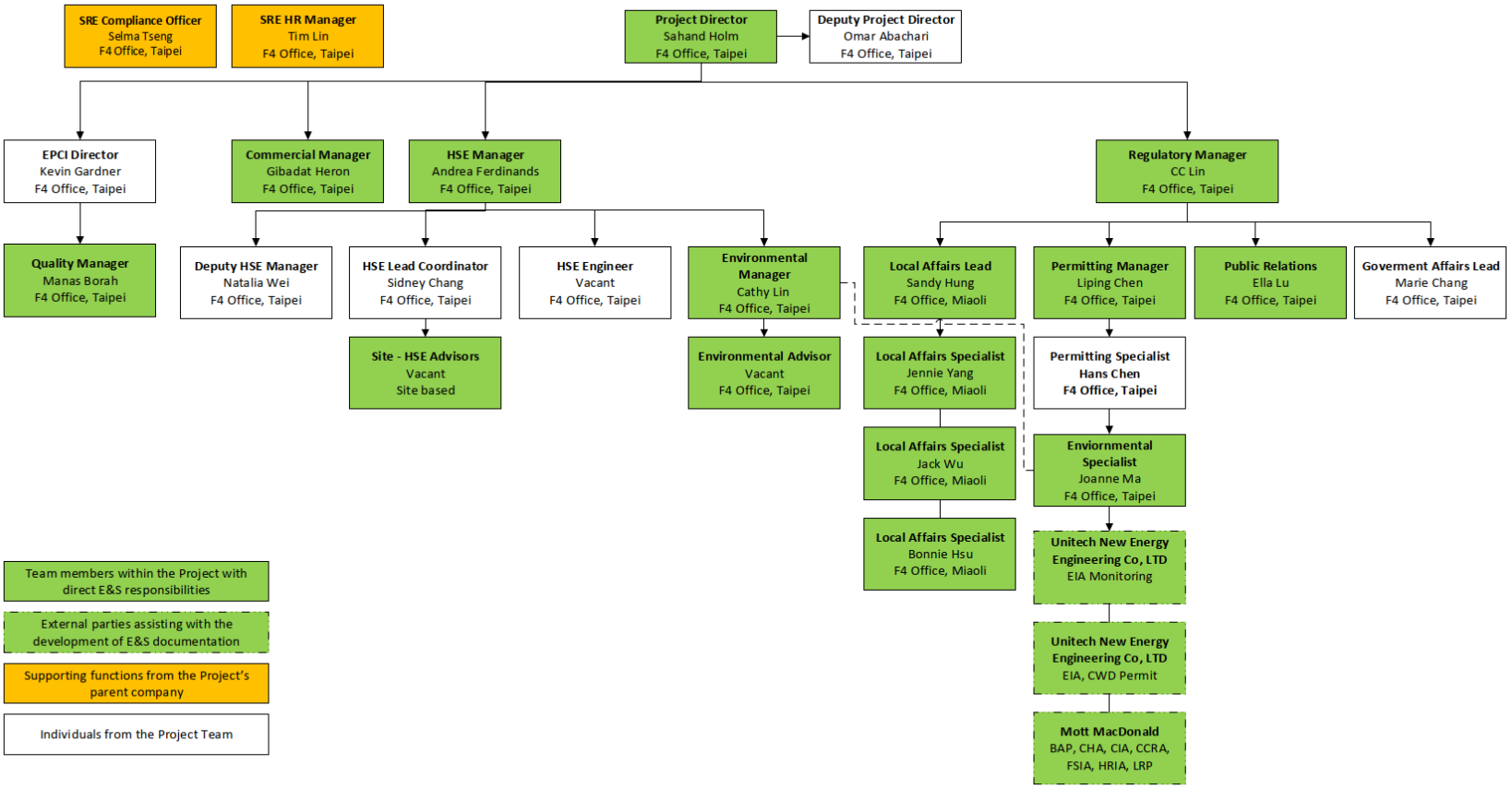
Figure 4.1 presents the Formosa 4 Organisation Chart. As based on this chart, the Project Director has ultimate responsibility for the Project's performance and must ensure that sufficient resources are provided to deliver and monitor all E&S commitments. To achieve this, the day-to-day responsibility is delegated to two key functions within the Project – ie the Health, Safety and Environment (HSE) team and the Project Regulatory Team.

The dedicated Project Environmental and Social Management (ESM) Team members are highlighted in green in the Figure 4.1.

The organisation chart also illustrates the supporting functions (ie highlighted in orange) from the Project's parent company, Synera Renewable Energy (SRE) that play a part in delivering E&S responsibilities.

The dashed line presented in Figure 4.1 indicates the interface between the HSE team and Regulatory team in relation to E&S management.

Figure 4.1: Formosa 4 Organisation Chart



Source: Project Company

4.3 Project mitigation and monitoring measures

4.3.1 Overview

Although the impact assessment has determined negligible or low predicted impacts for most aspects, the Project has still proposed the implementation of various mitigation measures for the different phases of the Project (construction and operation). Appendix A summarises the construction and operation phase measures, respectively.

Additionally, Appendix B summarises the pre-construction, construction and operation phase environmental monitoring in accordance with the Project's EIS and EDA. It is worth noting that the monitoring measures were included as part of the approved EIA.

The dates/ proposed commencement dates for monitoring during the pre-construction, construction and operation phases are as follows:

- Pre-construction phase (onshore): Q2 2024
- Pre-construction phase (offshore): Q2 2025
- Construction phase (onshore): Q2 2025
- Construction phase (offshore): Q2 2026
- Operation phase: Targeted start in Q2 2029

As an outcome of the Project's CHA (refer to section 3.3.2), a Biodiversity Action Plan (BAP) has been developed which is summarised below. In addition, to meet the IFC PS5, a Project specific Livelihood Restoration Plan (LRP) has been developed which details the livelihood restoration programmes proposed for local and affected communities, summarised below.

4.3.2 Summary of biodiversity action plan

The overall aim of the Biodiversity Action Plan (BAP) is to achieve a net gain for species for which critical habitat has been determined as defined by the IFC PS6 assessment process as well as no net loss of natural habitats and species groups with significant residual impacts (such as migratory bird from land based important bird and biodiversity areas).

A total of six BAP actions are outlined as per the final stage of the mitigation hierarchy to achieve no net loss in natural habitats and net gain of critical habitat features in accordance with IFC PS6 guidance. The losses and gains of marine fauna are measured qualitatively, while migratory birds, including seabirds at sea are assessed both qualitatively and quantitatively.

Actions for critical habitat marine species include the following additional conservation actions:

- Action 1: Collaboration between other windfarm developers, researchers, NGOs, regulators or cross sector partners to monitor and evaluate cumulative biodiversity impacts on marine fauna, especially Taiwanese Humpback Dolphin and Taiwan picnic seabream to identify if additional management measures are required.
- Action 2: Establish, implement, and support educational activities and stakeholder engagement related to conservation of marine habitat and species in the wider area of the Project. Action 3: Support potential academic research on critical habitat marine species Action 4: Assist local fisheries in transitioning to sustainable practices, removing abandoned fishing nets, and promoting international knowledge exchange for long-term biodiversity conservation.

Actions for critical habitat migratory bird species include the following additional conservation actions and offsets:

- Action 5: Collaborate with other Taiwanese offshore windfarm developers, researchers, NGOs regulators and cross sector partners to monitor and evaluate cumulative biodiversity impacts on migratory seabirds and bird species with significant collision risks to identify if additional management measures are required.
- Action 6: Restoration and enhancement of wading bird habitat for the critical habitat bird species

Key staff involved in the implementation of the mitigation measures and BAP actions as well as their responsibilities for these actions have been identified. To maintain an up-to-date understanding of the continued effectiveness and viability of the BAP actions, an internal review and update of the BAP actions will be conducted regularly. The BAP is a live document which may entail periodic updates with Project progression. This will either be done as a separate document or as a component of the BAP in a chapter.

4.3.3 Summary of livelihood restoration plan

The livelihood restoration plan (LRP) demonstrates the Project's commitment to comply with Taiwanese laws and IFC PS5 requirements on economic displacement and livelihood restoration. The LRP was developed to meet the following objectives:

- Describe the socio-economic setting and livelihood impacts, based on primary and secondary information sources
- Describe entitlements based upon prevailing Taiwanese regulations, the ‘Fishermen Compensation and Cooperation Agreement’ (FCCA) between the Project Company and Miaoli’s Fishermen Associations (ie Tongyuan Fishermen Association (TFA)), and the PS5 eligibility criteria
- Develop a framework for potential livelihood restoration measures to supplement the planned FCCA by the Project Company with TFA. These include:
  - Assisting affected people in their efforts to improve, or at least restore, their livelihoods to a pre-economic displacement level
  - Implementing livelihood restoration activities as sustainable development programmes and providing sufficient investment resources to enable affected people to benefit from the Project
- Provide an overview of the implementation processes, schedules, budgets and monitoring and evaluation mechanisms
- Include activities that are planned and implemented with appropriate disclosure of information, meaningful consultation, and informed participation of those affected

Table B.5 presents a summary of monitoring to be undertaken as part of the Project’s livelihood restoration plan.

The LRP provides impacts and needs-driven recommendations with regards to livelihood restoration programmes, stakeholder engagement, roles and responsibilities, and monitoring and evaluation that should be considered by the Project.

The LRP documentation is a live document, it will continue to be updated in accordance with the status of the Project and will record how the Project has engaged with Project Affected Persons (PAPs), particularly fisher folk, to determine the appropriateness and likely effectiveness of the livelihood restoration measures proposed.

4.3.4 Summary of labour management plan

The labour management plan (LMP) outlines the Project’s approach to managing labour and workforce-related practices across all phases of the project lifecycle, including construction, operation, and decommissioning where applicable. The LMP applies to all categories of workers

associated with the Project's activities, covering direct employees (ie full-time, part-time, seasonal, temporary, and migrant), contractors, subcontractors, and primary suppliers. The LMP reflects the Project's commitment to responsible labour practices and will be reviewed periodically to ensure ongoing relevance and effectiveness.

Key objectives of the LMP include:

- Ensure full adherence to applicable national labour laws, environmental, health and safety, and social (E&S) standards, as referenced in the Section 2 of this Plan.
- Define responsibilities and establish systems for the effective administration of labour-related matters throughout the project lifecycle.
- Identify potential labour risks and implement appropriate mitigation measures to safeguard worker welfare and operational integrity.

At the time of drafting the LMP (July 2025), the Project has engaged seven (7) contractors, both local and international, to provide various services. The services that these contractors provide include:

- Environmental assessment and monitoring
- Geotechnical and geophysical surveys
- Engineering design and analysis
- Engineering, procurement and construction (EPC)
- Substation design and engineering, and
- Equipment design, interface, and supply.

In terms of suppliers, the Project has appointed approximately 15 companies, predominantly local, to deliver a range of services/supplies. These include the manufacturing and supply of control cables, power cables, SCADA systems, panels, inverter system DC batteries, auxiliary transformers, switchgears, and medium-voltage GIS. While some contractors and suppliers are still in the selection phase, the LMP is meant to be applicable to all procured business partners.

The contractors may engage subcontractors who may potentially employ migrant labour. While these workers are not directly contracted by the Project, their potential involvement in project activities may warrant consideration within the scope of this Labour Management Plan, particularly in relation to labour standards, working conditions, and grievance mechanisms. The Project maintains oversight of labour practices across all tiers of the supply chain to ensure compliance with applicable labour laws, standards, and this Labour Management Plan.

4.3.5 Summary of emergency response plan

The Project has developed an emergency response plan (ERP) that is applicable to all offshore and onshore site(s) where project development related activities are undertaken. The ERP covers all types of foreseeable emergency situations that could occur at the Project sites, including but not limited to fires, typhoons, earthquakes, and other adverse weather conditions. It also covers project vessel related incidents such as man overboard (MOB) and incapacitated vessels, as well as environmental incidents like fuel or oil spills. Additionally, the ERP includes procedures for dealing with typical emergency scenarios offshore and onshore.

The ERP has been developed with the key objectives to:

- Outline the Employer's emergency response process in place for the Project.
- Document the different parties involved in the Employer's emergency response process.
- Define roles and responsibilities of each party involved in the Employer's emergency response.

- Describe the communication lines between these parties to manage emergencies effectively and expediently.
- Detail specific emergency procedures for various types of emergencies (ie fire, medical emergencies, natural disasters, chemical spills).
- List emergency contact information for internal and external responders.
- Provide Contractors and Subcontractors with minimum requirements related to emergency response on Project related Sites.

The ERP is created for casualty minimisation, damage and environmental mitigation, and recovery of an incident situation. It achieves incident support via:

- A standard emergency management procedure
- A clear line of communication, to maintain an accurate level of information and efficient “real time” updates to and from all related parties
- An effective decision-making process during the response and control stages
- Support to families and relatives
- Management of any media visitors and external communication
- A clear framework for managing and disseminating information regarding the emergency control and recovery process, as well as any subsequent investigation.

4.3.6 Summary of health and safety plan

The Project has developed a health and safety plan with the purpose to provide an introduction and overview of the Project’s Health and Safety Management System. It is intended that this health and safety plan will be shared with potential Contractors and other relevant stakeholders. It will define and give guidance to:

- The Project’s Health and Safety Management System
- The minimum health and safety requirements that the Employer’s Personnel and Contractor’s Personnel and stakeholders shall adhere to

The Project Company will schedule at least yearly meetings to update the Project’s health and safety plan as per changes in good industry practice, laws, knowledge, incidents & learning, commonly agreed improvements etc. Additionally, the health and safety plan shall be reviewed and revised as the Project moves through the phases of its lifecycle.

4.3.7 Summary of community health, safety, and security plan

The Project has developed a community, health, safety, and security plan (CHSSP) with the purpose to identify issues and risks arising from the Project activities and to ensure the following:

- Mitigate potential impacts of the Project related activities that may affect the health, safety and security of communities within the Project area and along the transportation route
- Maintain a healthy workforce and labour pool in the community, and
- The Project has adequate mitigations implemented and / or the accurate permissions / consents are in place

As part of the CHSSP, the following key topics are covered:

- Air quality and water quality
- Structural safety of Project infrastructure
- Life and fire safety of Project infrastructure
- Traffic safety

- Control of hazardous materials
- Disease prevention
- Emergency preparedness and response
- Wind turbine generators
- Aviation
- Marine navigation
- Electromagnetic interference
- Public access
- Abnormal load transportation
- Workplace bullying and sexual harassment

5 Stakeholder engagement

5.1 Overview

Stakeholder engagement (including information disclosure, public consultation, and surveys) have been conducted throughout the Project development as part of the local EIA process. A Stakeholder Engagement Plan (SEP) has been developed (refer to section5.2 below), which details the Project's future stakeholder engagement planning and events, as well as methods and process by which the Project's stakeholders and other interested parties are consulted in relation to the proposed Project. It also demonstrates the Project Company's commitment to a meaningful and effective stakeholder engagement throughout the Project life cycle.

In addition to ongoing correspondence with relevant authorities to secure land use permissions, Environmental Impact Assessment (EIA) approval, and other necessary permits, a series of stakeholder engagement activities have been carried out.

Project information has been disclosed through various public consultation events, meetings, and via the Taiwan EIA website. Table C.1 provides a summary of the public and private meetings, interviews, and focus group discussions held to disseminate project-related information.

Coordination with the Miaoli County Government and other relevant authorities has confirmed that the area designated as F4 does not involve Lands Reserved for Aboriginal People. Furthermore, the project has not been identified as posing specific risks or impacts to Indigenous Peoples. As such, no stakeholder engagement activities specifically targeting Indigenous communities were considered necessary or undertaken.

5.2 Stakeholder engagement plan

The Stakeholder Engagement Plan (SEP) for the Formosa 4 Offshore Wind Farm Project has been developed to guide the disclosure of information, consultations, and grievance management with external stakeholders and the general public throughout the project lifecycle.

The SEP is designed to ensure effective stakeholder engagement by outlining strategies for information disclosure, consultation, and grievance handling with primary external stakeholders and the general public. It focuses on managing relationships with local authorities, specific organizations, and broader community groups while aligning communication activities with public needs.

The SEP also captures how the project has fulfilled the consultation requirements of acquired consents, permits, and approvals and reflects on how future compliance with additional requirements will be achieved. The purpose of the SEP is to provide a consultation and participation strategy for the Project which:

- Identify stakeholder groups that may be affected by or have an interest in the project
- Ensure stakeholders are meaningfully engaged through transparent information disclosure and consultations on environmental, social, and other relevant issues
- Maintain constructive, ongoing relationships with stakeholders through meaningful engagement during project implementation
- Facilitate a grievance mechanism, known as the Formosa 4 Local Grievance Mechanism ("grievance mechanism"), allowing communities and other stakeholders to register complaints, queries, or comments for timely resolution.

It ensures alignment with both local regulatory requirements and international best practices, thereby supporting the project's environmental and social objectives while fostering sustainable community relationships.

5.3 Identified stakeholders

Under EP4, affected communities are defined as those within the Project's local area of influence that are likely to be adversely impacted by the Project. The Project has established an Environmental and Social Management System (ESMS) and a Stakeholder Engagement Plan (SEP) to facilitate stakeholder consultations and manage grievances raised by external stakeholders and the general public.

Under the policy of these management plans, all relevant stakeholders were identified, and their concerns and interests were carefully analysed to determine suitable engagement strategies. Key stakeholders likely to be significantly affected by or influential in the project include:

- Affected Communities
- Tongyuan Fishermen's Association (TFA)
- Local Authorities
  - Miaoli County Government
  - Yuanli Township Office, and
  - Fangli Village
- Central Authorities
- Environmental Protection Supervision Committee (EPSC)
- Additional Interest-Based Stakeholders
- Other wind farms located near the project area

5.4 Grievance mechanism

The Project is committed to maintaining a transparent and accessible grievance mechanism, including affected communities, local groups, and the general public. This mechanism ensures that concerns related to potential adverse impacts on the community, environment, or quality of life can be raised and addressed in a timely and fair manner.

The objectives of the grievance mechanism are to provide a clear and culturally appropriate process for submitting complaints; ensure grievances are acknowledged, assessed, and resolved promptly; and promote accountability and continuous improvement. The mechanism supports early identification of issues, resolution through open dialogue, and prevention of escalation, contributing to the overall success of the Project's stakeholder engagement strategy.

The following process applies specifically to external stakeholders. It outlines the Project's approach to confidentiality and anonymity, as well as the grievance resolution mechanism to ensure fair and effective handling of all stakeholder concerns.

- Step 1: Receive (receive, acknowledge and record)

  Grievances are formally received and acknowledged through a letter, email, or phone call. Each complaint is logged in a project-specific grievance register. To maintain fairness, any potential conflicts of interest among those handling the grievance must be disclosed and managed to ensure impartiality throughout the process.
- Step 2: Process (assess and assign)

  The grievance is reviewed to determine if the mechanism is appropriate for addressing the issue. Specific cases like sexual harassment or violence are referred to specialised

procedures or legal frameworks. The complaint is then categorised by topic, severity and assigned for investigation.

- Step 3: Investigation

  Investigations begin as soon as possible and may involve collecting evidence such as photos, witness statements, and interviews. Depending on the complexity or sensitivity of the issue, a third-party investigator may be engaged to ensure objectivity and fairness.

- Step 4: Resolution and implementation

  A resolution or corrective action is proposed and shared with the complainant. If accepted, it is implemented, and the grievance proceeds to closure. If not accepted, the resolution may be revised. If no agreement is reached, the grievance is closed, and the complainant may seek external remedies, including legal action or third-party review. Nonetheless, the Project prioritises resolving issues internally through collaboration.

- Step 5: Close Out

  Once a resolution is accepted and all related actions are completed, the grievance is officially closed. Documentation is finalised, and any compensation or corrective measures are carried out before closure.

- Filing and Documentation

  Throughout the entire process, detailed records are maintained—from the initial receipt to investigation and final resolution—to ensure transparency and accountability.

6 Further information and contact details

This NTS has provided an outline of the information presented in the Project's approved local EIS, subsequent EDA as well as various environmental and social assessments developed for the Project's international financing requirements.

The full local EIA is available on the MoEnv's website in accordance with disclosure requirements of the local Taiwan EIA legislations. In additional, Formosa 4 also publishes quarterly local EIA environmental monitoring reports on its official website: https://www.formosa4windpower.com/環境與社會管理/

For further Project information, please contact:

Address: F4 Project Co., Ltd.

10F., No. 108, Sec. 5, Xinyi Rd., Xinyi Dist., Taipei City 110, Taiwan (R.O.C.)

Website: https://www.formosa4windpower.com/

Email: F4-Info@sreglobal.com

Phone: +886 2 7756 2750

Contents

A. Mitigation measures

Table A.1 and Table A.2 is a summary of mitigation measures as per the approved local EIA reports, including an EIS and EDA are available online on the Ministry of Environment (MoE) website [17][18].

Table A.1: Summary of construction phase mitigation measures

Aspect	Proposed mitigation measures
Marine Environment	
Marine mammals	● The wind farm is located at least 18 km away from the Taiwanese Humpback Dolphin Major Wildlife Habitat (MWH), indicating that the project site is not a primary activity area for the species. The turbine layout has been designed to avoid disturbance to their ecological habitat. ● Mitigation measures for piling activities shall be implemented in accordance with relevant regulations issued by the Ocean Conservation Administration (OCA) of Taiwan. ● No acoustic deterrent devices (ADD) will be utilised. ● Pile-driving works will not be performed for two or more wind turbines at the same time. Offshore construction activities will be coordinated between Formosa 5 windfarm to avoid simultaneous piling of turbines in the same row. ● The Project will suspend all new wind turbine installation activities from one hour before sunset until sunrise. ● Soft start (ie ramp-up) foundation installation method for at least 30 minutes will be used. ● Noise reduction mitigation techniques (eg bubble curtain) will be used during pilling works to minimise underwater noise. The Project will utilise optimal noise mitigation methods, whereby actual adoption is based on the optimal noise mitigation of piling at the time of construction. ● A “stop work” warning zone of 750m and pre-warning zone of 750-1500m radius from the foundation will be established and maintained during installation, with the deployment of at least three qualified Taiwan cetacean observers (TCOs) on board conducting visual searches at four different directions of the warning zone and pre-warning zone. ● A stop work notice will be implemented when marine mammals enter the warning zone (ie 750m radius from foundation location). Construction units will suspend pile-driving operations and relaunch the countermeasure protocols before the use of percussive piling. ● During piling activities, a real-time acoustic monitoring system will be implemented, incorporating progressive underwater sound wave devices and visual cetacean monitoring to detect cetacean presence and assess sound exposure levels (SEL). ● Foundation installation can only commence if no cetacean activities are observed for at least 30 minutes in the warning zone of 750m.

[17] Formosa 4 Offshore Wind Farm Environmental Impact statement (EIS) https://eiadoc.moenv.gov.tw/eiaweb/11.aspx?hcode=1110101A&srctype=0

[18] Formosa 4 Offshore Wind Farm Environmental differential assessment (EDA) https://eiadoc.moenv.gov.tw/eiaweb/10.aspx?hcode=1120773A&srctype=0

Aspect	Proposed mitigation measures
	● Underwater noise monitoring will be conducted throughout the piling period. Four monitoring devices will be installed at a distance of 750m from the foundation centre, positioned in four directions. Piling noise levels will be continuously monitored, and piling energy will be adjusted as appropriate based on the monitoring data. ● Overall, 95% of underwater SEL must not exceed 160dB and peak sound pressure levels (SPLpeak) must not exceed 190dB at a distance of 750m from the foundation centre. ● The warning SEL threshold of a single piling event is noted to be 158dB during a single foundation installation event (30sec average). If the warning threshold is exceeded, additional response measures will be undertaken to reduce underwater noise. ● All video records of foundation installation works must be with date and time, and the recording must remain for at least five years. ● Thermal imaging devices to be used for cetacean monitoring. ● During the submarine cable laying operations, the cable-laying vessel will typically travel at speeds of approximately three to four knots, and guard vessels will be deployed in the vicinity of the cable-laying vessel. ● An observation zone of 750m will be established during submarine cable laying, whereby visual monitoring for cetaceans will be conducted by a TCO. Vessel speeds will be limited to a maximum of 3 knots if marine mammals enter the observation zone (ie 750m from cable laying). ● Submarine cable-laying vessel speeds can only return to original levels if no cetacean activities are observed in the observation zone of 750m. ● Vessel speeds will be limited to a maximum of 6 knots within 1.5km from the Taiwanese Humpback Dolphin MWH.
Bird ecology	● The intertidal zone at the submarine cable landing point will adopt underground construction methods (ie horizontal directional drilling (HDD)), to minimise disturbance to the intertidal area. ● During the construction period, no wastewater, waste materials, or spoil will be discharged or dumped, in order to avoid disturbing the original ecological functions of the intertidal mudflat. All waste will be centrally managed. ● The architectural design of the substation will minimise gaps and openings to prevent use by non-native bird species for roosting.
Marine ecology	● Pile-driving works will not be performed for two or more wind turbines at the same time. ● During the construction period, no wastewater, waste materials, or spoil will be discharged or dumped, in order to avoid disturbing the original ecological functions of the intertidal mudflat. All waste will be centrally managed. ● The intertidal zone at the submarine cable landing point will adopt underground construction methods (ie horizontal directional drilling (HDD)), to minimise disturbance to the intertidal area. ● Within the development area, collaboration will be sought with individuals most frequently encountering sea turtles (eg surface drift gillnet fisher folk). Based on the data they provide, including recorded times and locations of sea turtle sightings, a data analysis will be conducted.
Sea water quality	● The submarine cable route from the WTG to landing point will take the shortest distance feasible. ● A well-planned construction schedule will be developed, along with detailed construction plans and strict progress control. The construction area will be clearly defined to minimise the impact of activities such as turbine foundation installation and submarine cable laying on the water environment, thereby ensuring environmental quality. ● Contractors will be required to carry out sea water quality monitoring and other environmental monitoring commitments made in the EIA during the construction period, in order to assess the overall impact of marine works on sea water quality.

Aspect	Proposed mitigation measures
	● During submarine cable installation, turbidity curtains and pollution prevention membranes will be deployed to confined the raised suspended solids and materials to avoid diffusion. ● Contractors shall not discharge, spill, leak, or dump wastewater, oil, waste, hazardous substances, or other pollutants designated and announced by the central competent authority into the marine environment. ● Low-sulphur fuel (with sulphur content below 0.5%) available from international commercial ports such as Keelung, Taichung, and Kaohsiung will be used. ● Prior to the commencement of marine construction works, an emergency response plan and financial guarantee or liability insurance for pollution damage compensation will be submitted in accordance with Article 15 of the Marine Pollution Control Act, and approved by the central competent authority.
Underwater noise	● Underwater noise monitoring will be conducted throughout the piling period. Four monitoring devices will be installed at a distance of 750m from the foundation centre, positioned in four directions. Piling noise levels will be continuously monitored, and piling energy will be adjusted as appropriate based on the monitoring data. ● Overall, 95% of underwater SEL must not exceed 160dB and peak sound pressure levels (SPLpeak) must not exceed 190dB at a distance of 750m from the foundation centre. ● The warning SEL threshold of a single piling event is noted to be 158dB during a single foundation installation event (30sec average). If the warning threshold is exceeded, additional response measures will be undertaken to reduce underwater noise. ● Underwater noise warning mechanism and response measures are implemented, where if noise levels exceed permissible limits, construction team will be informed to make necessary correction / adjustments. ● Slow-start (progressive) piling will be implemented with continuous underwater noise monitoring.
Underwater Cultural Heritage	● All procedures will be carried out in accordance with the Cultural Heritage Preservation Act and the Underwater Cultural Heritage Preservation Act.
Terrestrial environment	
Air quality	● Mitigation measures will be formulated in accordance with relevant regulations issued by the MoEA. ● Site signage will be installed during the construction period. ● Implement dust control measures such as covering construction materials with dust proof cloths and / or nets ● Perimeter fencing and spill containment structures will be set up around the construction site. ● Air pollution control measures will be implemented over more than 90% of exposed areas at the onshore substation, with regular watering at least twice a day. ● During construction, main vehicle routes within the onshore substation will have air pollution control measures covering more than 90% of the area. ● Dust-generating activities such as excavation, backfilling, handling, loading / unloading, compacting, and screening will be preceded by watering to maintain surface moisture. ● Operations such as crushing, grinding, cutting, and scraping will be equipped with local exhaust systems or pressurised water spray facilities to suppress dust emissions.

Aspect	Proposed mitigation measures
	● Monitoring instruments and video surveillance systems will be installed for air pollution control facilities, with recordings and data retained for at least one month for inspection. ● Main construction vehicle route will be properly paved with concrete and / or asphalt to reduce dust ● Regular inspection and maintenance of machine and transport vehicles ● Watering and cleaning will be carried out at the onshore substation site to reduce dust accumulation. Exposed surfaces during construction will be watered appropriately, and surrounding roads will be maintained and cleaned to suppress dust. ● Excavated soil from onshore cable laying will be transported immediately without temporary storage to avoid dust pollution. ● Temporary soil storage areas at the substation site will be equipped with effective dust suppression measures such as dust proof cloths or nets. Perimeter runoff control measures will be installed to prevent wastewater discharge into nearby water bodies. ● Construction vehicles will avoid passing through densely populated areas where possible, and also reduce vehicle speed. ● All construction vehicles carrying construction goods and / or materials will be covered with dust proof cloths to supress dust. ● Vehicles transporting loose construction materials, surplus soil and rock, or construction waste must be washed before leaving the site. ● Contractual requirements will specify that contractors must prioritise the use of high-grade diesel or better-quality fuels with low sulphur oxide and particulate emissions for construction vehicles and machinery. Regular maintenance will be required to reduce pollutant emissions and protect local air quality. ● During the construction period, the road section extending 500m before and after the work site will be washed and swept (excluding rainy days) to reduce dust generated by construction activities and transport vehicles. ● More than half of the construction machinery and over four-fifths of the earth-moving vehicles will be certified with self-management labels. ● Air pollutant offset measures include subsidy for replacement of old vehicles and use of decomposition microorganisms for agricultural residues.
Surface water quality	● Construction materials are to be stored and covered at designated locations. ● Hazardous waste (ie oil and grease) from construction machinery will be appropriately stored, treated and disposed. ● Project will not discharge any wastewater into any surface water bodies. ● Project will be implemented in accordance with the approved wastewater runoff pollution reduction plan issued by the competent authority. ● Site management will be strengthened to prevent indiscriminate disposal of waste, thereby minimising potential impacts on groundwater quality. ● Water required during the construction period will be sourced legally. ● The construction site, including work areas and material storage zones, will be managed in accordance with the provisions of the Amendments to the Management Regulations for Air Pollution Control Installations for Construction Projects. ● Pollution prevention measures will be strictly implemented during the construction period to ensure that no leakage of oil or other pollutants occurs, thereby preventing contamination of soil and groundwater.
Noise and vibration	● Project will comply with noise control standards as per the Noise Control Act. ● Construction vehicles will be subject to speed and load limits. When passing sensitive areas such as schools and residential zones, sudden acceleration, deceleration, and horn use will be prohibited to reduce sudden noise increases. Concrete mixers will reduce engine speed while idling on site to minimise noise.

Aspect	Proposed mitigation measures
	● Contractors will be encouraged to prioritise the use of low-noise construction equipment. ● Construction schedules and activities will be carefully planned to avoid high noise levels during night-time or early morning hours. ● Project will comply with Miaoli County's noise control zones requirements, and restrict usage of power machinery between 8pm to 8am on normal days, as well as 6pm to 10am and 12pm to 2pm on public holidays.
Traffic and transportation	● Contractors will install clear traffic signs, warnings, and safety signage at key intersections and areas with frequent public access. Dedicated traffic personnel will be assigned to direct and manage traffic to ensure smooth flow. ● Traffic along transport routes will be periodically inspected during construction, and a traffic management plan will be developed accordingly. ● All Project vehicles are to follow planned transportation routes as per traffic management plan. ● Onshore construction will be carried out in phases, avoiding peak traffic hours (ie 7am to 9am, and 5pm to 7pm), and key school pick up hours including 7am to 9am and 4pm to 5pm. ● Large construction vehicles will be equipped with blind spot detection systems.
Waste management	● All waste disposal activities shall be handled by licensed local waste collection companies ● Domestic waste shall be collected in closed storage containers to prevent any contamination and or leakage ● Avoid overloading of excavated soil and construction waste onto transportation vehicles ● Waste generated by construction personnel will be collected and sorted on site to facilitate recycling. ● Waste parts, tyres, batteries, solvents, and other materials generated from equipment maintenance will be properly collected.
Terrestrial flora	● Air pollution control measures will be strengthened, including regular watering of exposed soil to prevent dust dispersion. Stockpiles, soil storage areas, and gravel trucks will be covered to reduce dust and its impact on plant growth. ● The onshore substation site will include a designated green buffer zone of a specified width (eg 1.5 metres) or proportion (eg 30%) in accordance with development and land-use regulations. ● The onshore substation site will be landscaped to the maximum practicable extent, with a focus on incorporating native tree species that are resilient to saline and drought-prone conditions. ● Land cable installation will prioritise existing road alignments to avoid tree removal. ● A comprehensive plan for tree removal and replanting related to onshore transmission facilities will be developed. ● If the construction of onshore project components requires the removal of trees with a diameter at breast height (DBH) greater than 10cm, the replanting of native trees will be conducted in a 1:2. For coastal areas, site-appropriate species will be selected. Prior to construction, the actual number and location of trees to be removed and replanted will be confirmed with the competent authority and relevant agencies. ● A professional team will be commissioned to carry out planting and replanting activities. ● Terrestrial works will avoid rare species listed in the Red Data Book as far as possible. If avoidance is not feasible, transplantation will be prioritised. If transplantation is not possible, compensatory planting of the rare species will be undertaken. ● Considering plant growth characteristics, replanting will be scheduled for spring where possible, and artificial methods to promote natural regeneration will be evaluated to ensure optimal growth conditions. ● Appropriate maintenance measures such as watering, fertilisation, and pruning will be implemented to ensure healthy plant growth.

Aspect	Proposed mitigation measures
	● If the Project involves protected forest land and existing trees cannot be avoided, it will comply with the Forestry and Nature Conservation Agency's Principles for Green Cover Compensation in Protected Forests and relevant provisions of the Forestry Act. Tree replanting within the construction area will be carried out only after approval from the competent authority. ● If the use of state-owned forest land is required, applications will be submitted in accordance with the Forest Act, and construction activities will only proceed upon approval. ● If invasive plant species are discovered within the onshore facilities during construction, assistance will be provided for their removal.
Terrestrial fauna	● The intertidal zone at the submarine cable landing point will adopt underground construction methods (ie horizontal directional drilling (HDD)), to minimise disturbance to the intertidal area. ● The speed of construction vehicles operating near the cable construction zones will be restricted to reduce the risk of wildlife roadkill. ● To minimise habitat disruption, existing roads will be used for construction wherever possible to preserve the current environment. ● Low-noise construction machinery will be used to reduce disturbances to wildlife. ● Contractors will be required to strengthen personnel training and prohibit the capture, harassment, or abuse of wildlife. ● Waste will be centrally managed to reduce the likelihood of attracting wild animals. ● No chemical herbicides, pesticides, or rodenticides will be used during the construction period.
Cultural heritage	● All works will comply with Articles 33, 34, 57, 77, and 88 of the Cultural Heritage Preservation Act during the construction period. ● Communication channels will be established with local opinion leaders and residents during the project. Local cultural sites and events will be identified, and special attention will be paid to the timing and routes of such events to avoid interfering with public participation.
Landscape aesthetics	● Temporary storage of construction equipment, materials, and waste from onshore transmission and distribution works must consider the overall landscape during the construction period. Materials must be placed in an orderly manner and not scattered randomly to avoid visual disruption.

Source: EIS, 2022 and EDA, 2023 (https://eiadoc.moenv.gov.tw/eiaweb/)
Note: For detailed mitigation measures, please refer to the EIA report available online.

Table A.2: Summary of operation phase mitigation measures

Aspect	Proposed mitigation measures
Marine mammals	Operation and maintenance vessel speeds will be limited to a maximum of 6 knots from the Taiwanese Humpback Dolphin MWH.
Bird ecology	Project design to mitigate bird collisions with wind turbine blades: ● The Project will follow Article 17 of the Aviation obstacle sign and obstacle light setting standard, whereby the wind turbine blades will install Type A obstructing lights. Its implementing method will follow horizontal direction intervals not exceeding 900m and be implemented on the corners or most outer row. The number of warning lights installed on the turbines will hence be based on the wind farm layout configuration.

Aspect	Proposed mitigation measures
	● A "flight corridor" of at least 2 km wide within the Project's offshore WTG footprint and nearby offshore WTG footprint from other projects will be set aside for birds passing through. At the time of writing, there are currently no other windfarm projects in close proximity to the Project's offshore WTG location. ● WTG placement will be designed to ensure sufficient distance (ie 750m) between WTGs to allow for birds flying through the Project's offshore WTG footprint. The turbine layout is based on the parallel prevailing wind direction of at least 1,300 m and the vertical prevailing wind direction of at least 750 m. The tip-to-tip distance of the turbine blades are at least 400m. Bird monitoring plan: ● Monitoring equipment will be installed in phases according to the allocated capacity. At least two commercially available acoustic microphones (including standard and ultrasonic types) will be installed at appropriate locations within the wind farm. Upon full allocation of capacity, a total of three such devices will be deployed across the site. Two ultrasonic microphones will be positioned near the coastal edge of the wind farm and coordinated with monitoring equipment from the adjacent project to assess bat activity. ● A commercially available and technically feasible radar system, suitable for deployment in Taiwan, will be installed at an appropriate location within the windfarm to conduct 24-hour long-term bird monitoring. ● The Project will jointly establish a bird and bat monitoring plan with adjacent wind farms and share monitoring results. ● Equipment will be installed at locations offering optimal monitoring effectiveness and completed prior to commercial operation to enable subsequent monitoring activities. ● Within six months of obtaining the electricity business licence, an environmental impact assessment report—including a feasible curtailment (shutdown) mechanism—will be submitted for review.
Terrestrial ecology	● Habitat landscaping will be conducted around the Project's onshore facilities. The use of chemical fertilisers, pesticides, or herbicides will be avoided during the initial greening phase. ● Native plant species will be used for landscaping. ● If invasive plant species are discovered within the onshore facilities during the operational phase, assistance will be provided for their removal.
Air quality	● Employees will be encouraged to use public transport or replace two-stroke motorcycles. ● Priority will be given to the procurement of commercially available electric or hybrid vehicles for official use.

Source: EIS, 2022 and EDA, 2023 (https://eiadoc.moenv.gov.tw/eiaweb/)
Note: For detailed mitigation measures, please refer to the EIA report available online.

B. Monitoring measures

Table B.1, Table B.2 and Table B.3 is a summary of monitoring measures as per the approved local EIA reports (including an EIS and EDA) are available online on the Ministry of Environment (MoE) website [19][20].

Table B.1: Pre-construction phase environmental monitoring plan

Aspect	Monitored items	Location	Frequency
Water quality (Intertidal and Shallow Sea Zones)	Suspended solids	Cable landing area (three stations)	Once before construction
Marine sediment quality	Heavy Metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn), Particle Size, Total Organic Carbon	Wind farm and cable adjacent areas (at least seven stations)	Once before construction
Marine ecology	Intertidal zone ecology (Benthos)	Cable landing point and adjacent coastal areas (two stations)	A year before construction, once per season
	Subtidal zone ecology (chlorophyll-a, primary productivity, phytoplankton, zooplankton, benthic organisms (including crustaceans and molluscs), fish eggs, larvae)	Windfarm and surrounding marine areas (at least seven stations)	
	Fish species	Windfarm and surrounding marine areas (three survey lines)	
	Cetacean visual survey (including marine reptiles)	Wind farm and surrounding marine areas, and cable route through Indo-Pacific humpback dolphin habitat	● A year before construction, ● 20 times per year, at least two times per season
	Cetacean survey (including acoustic monitoring)	Wind farm and surrounding marine areas, and cable route through Indo-Pacific humpback dolphin habitat (at least three stations)	● A year before construction ● Once per season, at least 14 days of monitoring
	Underwater surveillance	Windfarm and surrounding marine areas (at least three stations)	A year before construction, once per season
Underwater noise	Underwater noise with frequency range 20Hz – 20kHz; spectrogram and 1-Hz band, 1/3 octave band	Windfarm and surrounding marine areas (at least three stations)	● A year before construction

[19] Formosa 4 Offshore Wind Farm Environmental Impact statement (EIS) https://eiadoc.moenv.gov.tw/eiaweb/11.aspx?hcode=1110101A&srctype=0

[20] Formosa 4 Offshore Wind Farm Environmental differential assessment (EDA) https://eiadoc.moenv.gov.tw/eiaweb/10.aspx?hcode=1120773A&srctype=0

Aspect	Monitored items	Location	Frequency
			● Once per season, at least 14 days of monitoring
Bird ecology	Offshore bird visual survey: species composition, abundance, habitat utilisation, behavioural patterns, and seasonal population dynamics	Windfarm and surrounding marine areas.	● A year before construction ● Three days per season during Spring, Summer and Autumn ● One day per season during Winter
	Onshore bird visual survey: species composition, abundance, habitat utilisation, behavioural patterns, and seasonal population dynamics (Including coastal terrestrial birds, waterbirds, and intertidal avian species)	The intertidal zone and adjacent coastal area at the submarine cable landing point (at least three stations)	
	24hr Bird radar survey including both horizontal and vertical radar observations (combined with visual survey in the daytime)	Windfarm and surrounding marine areas	
Sea turtle ecology	Compilation of past satellite tracking records and mapping data	Western coast of Taiwan	Once before construction
Offshore bats	Ultrasonic acoustic monitoring	Two suitable locations near the coastal edge of the wind farm	● A year before construction ● Once every two months from March to October ● Once from November to February
Terrestrial ecology	Bats	Transmission and distribution system (including substations, land cables, and surrounding areas	
	Leopard cat (Infrared automatic camera monitoring)		A year before construction, once per season
Soil	Topsoil and subsoil 1. Heavy Metals (Cu, Hg, Pb, Zn, As, Cd, Cr, Ni) 2. pH Value 3. Total Petroleum Hydrocarbons	Substation site (one station)	Once before construction

Source: EIS, 2022 and EDA, 2023 (https://eiadoc.moenv.gov.tw/eiaweb/)

Table B.2: Construction phase environmental monitoring plan

Aspect	Monitored items	Location	Frequency
Air quality	Wind direction and wind speeds Particulate matters (TSP, PM_{10}, $PM_{2.5}$), SO_2, NO_x, CO, O_3	Residential area near substation (one station) Residential area along land cable (one station)	Quarterly (24hrs continuous monitoring)

Aspect	Monitored items	Location	Frequency
Noise and vibration	Environmental background noise and vibration levels recorded across different time periods (daytime, evening, and night-time), including sound pressure levels and vibration amplitudes during both day and night.	Residential area near substation (one station) Sensitive receptors along land cable (two station)	Quarterly (24hrs continuous monitoring)
	Construction noise: Low frequency noise (20Hz ~ 200Hz) General frequency (20Hz ~ 20kHz)	1m perimeter of substation (one station)	Monthly (at least 2 minutes per measurement)
Soil	Topsoil and subsoil 1. Heavy Metals (Cu, Hg, Pb, Zn, As, Cd, Cr, Ni) 2. pH Value 3. Total Petroleum Hydrocarbons	Substation (one station)	Once upon completion of substation construction
Surface water quality	pH value, water temperature, dissolved oxygen, conductivity, biochemical oxygen demand, nitrate nitrogen, suspended solids, ammonia nitrogen, chemical oxygen demand, and total phosphorus.	Fangli river (one station)	Quarterly
Terrestrial ecology	Terrestrial plants, mammals, birds, amphibians, reptiles and butterflies	Onshore transmission/distribution system (Including voltage step-up substations, land cables, the surroundings.	Once per season
	Bats		• Once every two months from March to October • Once from November to February
	Leopard cat, with a minimum of five infrared automatic cameras installed and supplemented by manual patrols monitoring.		Once per season (at least 1,500 hrs each time)
Marine water quality (intertidal zones)	Suspended solids	Cable landing area (three stations)	Quarterly
Marine water quality	Water temperature, pH, salinity, transparency, biochemical oxygen demand (BOD), coliform bacteria, oil and grease, dissolved oxygen, chlorophyll-a, suspended solids, and inorganic nutrients (nitrate, nitrite, orthophosphate, and silicate).	Wind farm, submarine cable and surrounding sea areas (at least seven stations)	Quarterly
Marine sediment quality	Heavy Metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn), Particle Size, Total Organic Carbon		

Aspect	Monitored items	Location	Frequency
Bird ecology	Offshore bird visual survey: species composition, abundance, habitat utilisation, behavioural patterns, and seasonal population dynamics	Windfarm and surrounding marine areas.	• Three days per season during Spring, Summer and Autumn • One day per season during Winter • Monitoring shall be suspended if construction cannot be carried out during the winter season.
	Onshore bird visual survey: species composition, abundance, habitat utilisation, behavioural patterns, and seasonal population dynamics (Including observations of coastal terrestrial birds, waterbirds, intertidal avian species, and nesting activities of little terns and black-winged kites.)	The intertidal zone and adjacent coastal area at the submarine cable landing point (at least three stations)	• Three days per season during Spring, Summer and Autumn • One day per season during Winter
Sea turtle ecology	Compilation of past satellite tracking records and mapping data	Western coast of Taiwan	Once during construction phase
Marine ecology	Intertidal zone ecology (Benthos)	Cable landing point and adjacent coastal areas (two stations)	Once per season
	Subtidal zone ecology (chlorophyll-a, primary productivity, phytoplankton, zooplankton, benthic organisms (including crustaceans and molluscs), fish eggs, larvae)	The surroundings of windfarm and nearby locations (at least seven stations)	
	Fish species	Windfarm, submarine cable and surrounding marine areas (seven survey lines)	
	Cetacean visual survey (including marine reptiles)	Wind farm and surrounding marine areas, and cable route through Indo-Pacific humpback dolphin habitat	20 times per year, at least two times per season
	Cetacean survey (including acoustic monitoring)	Wind farm and surrounding marine areas, and cable route through Indo-Pacific humpback dolphin habitat (at least three stations)	Once per season, at least 14 days of monitoring
		Four sites located at 750 m radius around the pillars of wind turbines	The whole duration of pile-driving.
	Underwater surveillance	The surroundings of windfarm and nearby locations (at least three stations)	Once after completion of piling works
Offshore bats	Ultrasonic acoustic monitoring	Two stations on the Project's offshore area closest to the coast	• Once every two months from March to October

Aspect	Monitored items	Location	Frequency
			• Once from November to February
Underwater noise	Underwater noise with frequency range 20Hz – 20kHz; spectrogram and 1-Hz band, 1/3 octave band	Four stations located at 750 m perimeter off the pillars of wind turbines	During piling
Economy of Fisheries	Asses the annual reporting of fishery (environment, facility, production, population of fishers)	Data from Taiwan Fisheries Agency (Miaoli County)	Annually

Source: EIS, 2022 and EDA, 2023 (https://eiadoc.moenv.gov.tw/eiaweb/)

Table B.3: Operation phase environmental monitoring plan

Aspect	Monitored items	Location	Frequency
Noise and vibration	Environmental background noise and vibration levels recorded across different time periods (daytime, evening, and night-time), including sound pressure levels and vibration amplitudes during both day and night.	Substation surrounding residential areas (one station)	Quarterly (24hr continuous monitoring)
Electromagnetic fields	Non-ionising radiation	Substation (one station) Substation surrounding residential areas (one station)	Quarterly
Onshore flora ecology	Tree survival rate survey	-	Annually, for three years following replanting
Terrestrial bats	Ultrasonic acoustic monitoring	Onshore power transmission and distribution system, including substations, onshore cables and their surrounding areas.	• Once every two months from March to October • Once from November to February
Marine water quality	Water temperature, pH, salinity, transparency, biochemical oxygen demand (BOD), coliform bacteria, oil and grease, dissolved oxygen, chlorophyll-a, suspended solids, and inorganic nutrients (nitrate, nitrite, orthophosphate, and silicate).	Wind farm and cable adjacent areas (at least seven stations)	Quarterly
Marine sediment quality	Heavy Metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn), Particle Size, Total Organic Carbon		
Bird ecology	Offshore bird visual survey: species composition, abundance, habitat utilisation, behavioural patterns, and seasonal population dynamics	Windfarm and surrounding marine areas.	• Three days per season during Spring, Summer and Autumn • One day per season during Winter

Aspect	Monitored items	Location	Frequency
			● During the winter season, surveys may be conducted offshore using vessels or indirectly through auxiliary equipment, such as video recording devices.
	Onshore bird visual survey: species composition, abundance, habitat utilisation, behavioural patterns, and seasonal population dynamics (Including observations of coastal terrestrial birds, waterbirds, intertidal avian species, and nesting activities of little terns and black-winged kites.)	The intertidal zone and adjacent coastal area at the submarine cable landing point (at least three stations)	● Three days per season during Spring, Summer and Autumn ● One day per season during Winter
Marine ecology	Intertidal zone ecology (Benthos)	Cable landing point and adjacent coastal areas (two stations)	Once per season
	Subtidal zone ecology (chlorophyll-a, primary productivity, phytoplankton, zooplankton, benthic organisms (including crustaceans and molluscs), fish eggs, larvae)	Wind farm and surrounding marine areas (at least seven stations)	
	Fish species	Windfarm, submarine cable and surrounding marine areas (seven survey lines)	
	Underwater surveillance	Windfarm and surrounding marine areas (at least three stations)	
	Cetacean visual survey (including marine reptiles)	Windfarm and surrounding marine areas, and cable route through Indo-Pacific humpback dolphin habitat	20 times per year, at least two times per season
	Cetacean survey (including acoustic monitoring)	Windfarm and surrounding marine areas, and cable route through Indo-Pacific humpback dolphin habitat (at least three stations)	Once per season
Underwater noise	Underwater noise with frequency range 20Hz – 20kHz; spectrogram and 1-Hz band, 1/3 octave band	Windfarm and surrounding marine areas (two stations)	Quarterly (for 14 days consecutively)
Economy of Fisheries	Asses the annual reporting of fishery (environment, facility, production, population of fishers)	Data from Taiwan Fisheries Agency (Miaoli County)	Annually
Offshore bats	Long-term bat monitoring system, incorporating both standard microphones and ultrasonic acoustic monitoring.	Two stations on the Project's offshore area closest to the coast	Continuous monitoring

Source: EIS, 2022 and EDA, 2023 (https://eiadoc.moenv.gov.tw/eiaweb/)

Table B.4 and Table B.5 below summarises monitoring requirements following the HRIA and LRP, respectively.

Table B.4: Human rights impact assessment monitoring

Aspect	Monitored items	Frequency
Progress tracking	Progress reports to identify efficiency, budget constraints, participation constraints of any other resource constraints	Monthly and quarterly
Stakeholder participation	Information dissemination and engagement with rights holders during human rights risks and impacts management process	Quarterly
Key performance indicator (KPI)	Monitoring of KPIs including: ● Selection of contractors ● Project Company HSE induction ● Local regulatory inspections where notice or fines have been issues ● Lost time injury rate, total recordable injury rate and absence of serious incidents/accidents ● (internal) leadership inspections, and ● Alcohol and drug testing	Monthly
Independent human rights monitoring	The human rights aspects associated with this Project will be monitored on a regular, on-going basis.	Quarterly during the construction phase of the Project, and semi-annually during the operational phase for the first three (3) years. It may be reduced from the fourth year of operation onward, up to every 5 years until the end of the Project's life.

Source: Project Company, Human Rights Impact Assessment Report

Table B.5: Livelihood restoration plan monitoring

Aspect	Monitored items	Frequency
Internal monitoring	A suite of monitoring indicators is proposed, and may include: <u>Input (process) indicators</u> • Identification of Project's affected household in categories eligible for various livelihood restoration programmes and measures • Utilisation and allocation of internal budget and human resources • Number of meetings or consultations with PAPs, and number of participants per consultation <u>Output (performance) indicators</u> • Progress of the overall implementation of the LRP	• Monitoring will be conducted on a quarterly basis. • Annual review of livelihood restoration programmes • Reporting will be submitted quarterly during the construction phase of the Project, and semi-annually during the operational phase.

Aspect	Monitored items	Frequency
	• Number of grievances received, opened or closed within a monitoring period as well as trends over time • Number of people engaged within the LRP programmes, and their progress through the various programmes • Percentage of the different fees under the FCCA utilised for the community and for what programmes/activities <u>Outcome (impact) evaluation indicators</u> • Percentage of cash compensation received by PAPs • Establishment and implementation of grievance mechanism • Resolution to grievances satisfactory to complainant • Number of participants in the different programmes • Completion rate for participants in different programmes • Hiring rate for participants who complete programmes • Number of vessels procured through TFA	
External monitoring	• External monitoring draws conclusions on processes and outcomes based on analysis from third party, external organisations. • A completion audit assesses whether a resettlement or livelihood restoration programme is complete, its objectives met, commitments delivered, and/or if any correct actions are still needed to achieve targeted outcomes. • Outcome evaluation indicators may include compensation payment completion, restoration of incomes of PAPs, LRP progress and more, subjected to Lenders and LESA requirements.	Quarterly during the Project's construction phase and semi-annually for the operation phase.

Source: Project Company, Livelihood Restoration Plan Report

C. Previous stakeholder engagement activities

Table C.1 summarises the stakeholder engagement activities undertaken as part of the local EIS and EDA.

Table C.1: Information disclosure and stakeholder engagement activities

Details / Date	Stakeholders engaged	Issues captured
Public opinion survey, dated Mar 2022	Zhunan Township, Toufen City, Houlong Township, Tongxiao Township, and Yuanli Township Local community Fisherman Opinion leaders	● General knowledge about power generation in Taiwan ● Understanding and attitudes toward the Project ● Concerns and expectations regarding the Project ● Personal background information
Public opinion survey, dated Sep 2023	Yuanli Township Local community Fisherman Opinion leaders	● General knowledge about power generation in Taiwan ● Understanding and attitudes toward the Project ● Concerns and expectations regarding the Project ● Personal background information
Public disclosure meeting held on 6 Nov 2020	Non-government organization (NGOs): ● Matsu's Fish Conservation Union ● Wild at Heart Legal Defense Association, Taiwan ● Miaoli Nature Ecology Society ● Political representatives: ● People's Congress Local community groups: ● Village heads within Miaoli County head ● Nanlong Fisheries Association ● Tongyuan Fisheries Association ● local community Authorities: ● Yuanli Town Office ● Miaoli County government	Project information disseminated to the stakeholders: ● Aims and objectives ● The need for the project ● The project location ● The project scale ● The infrastructure involved ● The construction duration ● The environmental impact results ● The environmental management plan ● Environmental impact mitigation and improvement mechanisms ● Stakeholder compensation ● Gathered feedback and sentiments from various stakeholders ● Grievance Channel Information
Public disclosure meeting held on 26 Apr 2022	Local community groups: ● Tongyuan Fishermen's Association Authorities: ● Miaoli County government	Project information disseminated to the stakeholders: ● Aims and objectives ● The need for the project ● The project location ● The project scale ● The infrastructure involved

Details / Date	Stakeholders engaged	Issues captured
		● The construction duration ● The environmental impact mitigation and improvement mechanisms ● Stakeholder compensation ● Gathered feedback and sentiments from various stakeholders ● Grievance Channel Information
Online public disclosure Document dated 12 Sep 2020, 12 May 2023	Disclosure of the Project details to the Public through online platforms hosted at a Taiwanese Ministry level (Ministry of Environment)	● Disclosed basic project information on public websites. ● Enabled public access to the Project EIA report online for feedback and participation in the EIA review of significant development projects.
First Public Hearing for Local Government Consent Letter of Establishment Permit (24 Apr 2024)	Authorities: ● Miaoli County Government ● Yuanli Town Office ● Yuanli Township Citizens' Representative Council Local community groups: ● Tongyuan Fishermen's Association ● Village heads of Fangli, Village, Yuanli Township, Miaoli County Political representatives: ● Miaoli County Council Member	● Evaluated the potential visual landscape impacts of offshore wind turbines. ● Assessed noise interference from offshore wind turbines. ● Discussed the establishment of a compensation fund for Fangli Village, Yuanli Township. ● Discussed fishery compensation negotiations with the fishery association before construction commencement.
Second Public Hearing for Local Government Consent Letter of Establishment Permit (14 Jun 2024)	Authorities: ● Miaoli County Government ● Yuanli Town Office ● Yuanli Township Citizens' Representative Council Local community groups: ● Tongyuan Fishermen's Association ● Village heads of Fangli Village Yuanli Township, Miaoli County Political representatives: Miaoli County Council Member	● Evaluated the impact of the onshore substation establishment on surrounding land prices. ● Ensured fishermen are informed of the offshore operation schedule and affected areas before construction to facilitate safe navigation and avoidance.
First Communication Meeting for Submarine Cable Survey Permit (15 Jun 2023)	Local community groups: ● Tongyuan Fishermen's Association	● Discussed F4's accountability for fishery-related damages. ● Reviewed guard vessel arrangements for nighttime operations. ● Agreed on the need to inform the fishery association of survey locations in advance.
Second Communication Meeting for Submarine Cable Survey Permit (26 Jul 2024)	Local community groups: ● Tongyuan Fishermen's Association	● Discussed the safety distance requirements during the survey period. ● Coordinated guard vessel requirements and safety arrangements with the Fishery Association. ● Disclosed the project grievance mechanism to relevant stakeholders to ensure timely reporting of concerns.

Details / Date	Stakeholders engaged	Issues captured
Landfall location public hearing (25 Aug 2023)	Authorities: ● Energy Administration ● Taiwan Power Company (TPC) Local community groups: ● Village heads Political representatives: ● Miaoli County Council Member	● Convened nearby residents to discuss the potential impacts of landfall planning. ● Collected and addressed opinions and concerns from the local community. ● Committed to implementing electromagnetic wave monitoring.
Offshore windfarm pipeline crossing principles Meeting (5 DEC 2022)	Authorities: ● Taiwan Chinese Petroleum Corporation (CPC) ● All Taiwan windfarm developers	● Confirmed the CPC existing and future pilei line route and location. ● Notification to Developers: Publication of the Crossing Principle between Submarine Pipelines and Offshore Wind Power Cables in Taiwan ● All subsequent crossing parties and crossed parties shall comply with this Principle. ● The crossing and crossed parties shall enter into an agreement with CPC. ● Note that following this meeting, CPC and the Project confirmed the initiation of the crossing agreement negotiation process, which will be conducted through technical and commercial mechanisms. Therefore, CPC will not be included in Section 5.3.

Source: Formosa 4 Stakeholder Engagement Plan, 2025

D. Summary of climate change risk register

Table D.1 presents a summary of the Project's climate change risk register, including key details of the climate hazards, impact type, consequence and proposed adaption measures.

Table D.1: Summary of climate change risk register

Hazard - Climatology	Impact type	Consequence / impact	Potential proposed adaptation actions
Temperature - Increase in extreme temperatures	Damage to Infrastructure	Fatigue and degradation of turbines as a result of extreme heat leading to increased maintenance requirements	Review assumed allowances within the design and take these into account if not already implemented. Turbines are understood to operate effectively under local temperature conditions including fluctuations from 'normal' range. Sustained heatwave conditions may require regular checking of equipment performance and regular maintenance.
Temperature - Increase in extreme temperatures	Power Generation	Lower energy yield as a result of increased air temperatures. The air temperature has an indirect impact on wind turbine loads. Increasing air temperatures (T) lead to decreasing air densities (ρ). Rotor thrust (FT) is not only proportional to the square of the wind speed (v) but also to the air density: FT ~ ρv2	Ensure that the estimated yield used have taken uncertainty into account.
Temperature - Increase in extreme temperatures	Power Transmission	Increased temperatures may result in de-rated component capacity at substations and transformers. This results in a lower capacity of the system to transmit energy.	Ensure that systems are rated appropriately for future increases in temperature and that appropriate ventilation and/or A/C equipment is included to maintain temperatures within operating ranges.
Temperature - Increase in extreme temperatures	Damage to Infrastructure	Increased temperatures may result in exceedance of design conditions for electrical equipment resulting in failure of equipment, requiring maintenance and replacement.	Ensure that systems are rated appropriately for future increases in temperature and that appropriate ventilation and/or A/C equipment is included to maintain temperatures within operating ranges.
Temperature - Increase in extreme temperatures	Working Conditions	Changes to ground moisture and ground temperature influence efficiency of substation earthing & lightening protection which could pose a safety risk on-site.	Ensure that earthing and lightning protection equipment takes into account and is designed to operate for a range of plausible temperatures and ground moisture conditions.

Hazard - Climatology	Impact type	Consequence / impact	Potential proposed adaptation actions
Temperature - Increase in extreme temperatures	Working Conditions	Extreme heat impacts on workers leading to heat exhaustion, or reductions in outside work time for repair and maintenance activities.	Recommended mitigation measures to minimise heat exposure and reduce the risk of potential heat stress, include: – Implementing portable air conditioning to provide localised cooling for technicians – Installing centrifugal fans in the nacelle to improve air flow and exchange hot air with cooler air from outside – Adequate work and rest patterns – Employing light workwear and PPE suitable for work in tropical climates – Adapting shifts to work at cooler times of day (for example, night work) – First aid kits are extended with tools in case of heat stroke incidents – Special care is taken to ensure that technicians are hydrated
Temperature - Increase in extreme temperatures	Damage to Infrastructure	Extreme high temperatures can cause loss of information through communication networks or reduced quality of service, leading to sub-optimal operation or in the worst case damage to WTGs	Ensure that hardened back-up communication and data systems exist to maintain control of critical functions even in extreme circumstances
Precipitation - Increase in extreme precipitation events	Damage to Infrastructure	Extreme precipitation could cause enhanced erosion of leading edges. Additionally there is a risk of water ingress into the nacelle, causing damage to electrical boards and wiring and corrosion of key components.	It is recommended for the project to conduct regular monitoring to check for anomalies in electrical components and operations. Leading edge protection should be checked/monitored at least on an annual basis.
Precipitation - Increase in extreme precipitation events	Working Conditions	Extreme precipitation may result in elevated risks to the health and safety of workers on site resulting from poor visibility, wet clothing, slip hazards and erosion to access roads etc.	It is recommended for the project to incorporate H&S procedures for extreme weather events, including cessation of work where necessary and select locations for evacuation/shelter of workers. It is recommended that the weather forecast be checked regularly throughout the project lifecycle, to proactively plan work around extreme weather events to avoid any accidents and casualties.
Wind - Wind speed variability	Power Generation	Changes in wind patterns impact on power output within operating range.	

Hazard - Climatology	Impact type	Consequence / impact	Potential proposed adaptation actions
Typhoon - Increased proportion of super typhoons	Damage to Infrastructure	Studies show that there is possibility that although the number of typhoon is projected to stay the same, the proportion of typhoons with a typhoon category of 4 and above is likely to increase. Typhoons with a category of 4 and above are always accompanied by strong winds that can cause damage to turbine blades or to the tower. If a significant typhoon event damages the WTG, this may affect generation operations and an increased budget for replacement of components and maintenance.	Recommend the WTG to conduct a typhoon resistance structural analysis based on the finite element method (FEM). Recommend additional monitoring of WTGs during and after extreme wind events.
Typhoon - Increased proportion of super typhoons	Working Conditions	Studies show that there is possibility that although the number of typhoon is projected to stay the same, the proportion of typhoons with a typhoon category of 4 and above is likely to increase. Typhoons with a category of 4 and above are always accompanied by strong winds that can impact access to sites leading to delays in maintenance. Strong winds can accompany flying debris, which would be a health & safety risk for operations & maintenance workers Strong winds can also create high waves that are not safe for working conditions in offshore areas. Delays in maintenance activities due to reduced access to sites.	Ensure that the project incorporate H&S procedures for extreme weather events, including cessation of work where necessary and select locations for evacuation/shelter of workers. It is recommended that the weather forecast be checked regularly throughout the project lifecycle, to proactively plan work around extreme weather events to avoid any accidents and casualties.

Hazard - Climatology	Impact type	Consequence / impact	Potential proposed adaptation actions
Typhoon - Increased proportion of super typhoons	Damage to Infrastructure	Studies show that there is possibility that although the number of typhoon is projected to stay the same, the proportion of typhoons with a typhoon category of 4 and above is likely to increase. Typhoons with a category of 4 and above are always accompanied by strong winds that can cause damage to buildings and infrastructure. If a significant typhoon event damages the substations, this may affect power transmission operations and an increased budget for maintenance of the housing.	Review assumed allowances within the design and take extreme winds into account if not already implemented. Maintenance guide should specify regular monitoring of potential wind-related damage, wear and tear.
Typhoon - Increased proportion of super typhoons	Damage to Infrastructure	Studies show that there is possibility that although the number of typhoon is projected to stay the same, the proportion of typhoons with a typhoon category of 4 and above is likely to increase. Typhoons with a category of 4 and above are always accompanied by strong winds that can cause damage to transmission lines and poles. If a significant typhoon event damages the wider electrical grid and causes a power outage, this may effect ability to restart WTGs or function of safety feature of the WTG.	Review assumed allowances within the design and take extreme winds into account if not already implemented. Maintenance guide should specify regular monitoring of potential wind-related damage, wear and tear.
Flooding - Flooding as a result of variable precipitation and extreme precipitation events)	Damage to Infrastructure	The onshore substation is located directly adjacent to Fangli River, and therefore susceptible to flooding during events that combine extreme precipitation and riverine flooding (ie overflow).	It is recommended that appropriate designs to mitigate flooding around the substation to be further considered and / or incorporated, such as but not limited to; sufficient drainage around the substation, portable temporary flood barriers at the entrance of the substation building, etc.
Flooding - Rise in sea level and increase precipitation	Damage to Infrastructure	Damage to underground cables - water intrusion into cable ducts	It is recommended for cable junctions to be well sealed and protected to prevent water ingress and for underground cable routes to avoid flow paths and low lying areas where water may pool.

Hazard - Climatology	Impact type	Consequence / impact	Potential proposed adaptation actions
Flooding - Rise in sea level and increase precipitation	Reduced Access	Flooding in the harbour and coastal areas might restrict access to the site for O&M activities.	It is recommended for the access routes to be reviewed as to whether further mitigation is required to prevent the roads from flooding in order to improve resilience against flooding removing access to the project site.
Flooding - Flooding as a result of variable precipitation and extreme precipitation events)	Reduced Access	River surge flooding along the Fangli River could cause access roads to the onshore substation to be flooded, restricting access to onshore components.	It is recommended to assess the conditions of access roads and consider improving resilience against flooding for vital locations.
Flooding - Rise in sea level and increase precipitation	Damage to Infrastructure	The Transition Joint Bay (TJB) is located directly adjacent to the coast (ie less than 50ms away), and therefore susceptible to flooding during events that combine sea level rise, storm surge and extreme precipitation.	It is recommended that necessary designs to mitigate flooding around the TJB to be incorporated, such as but not limited to; constructing a flood wall around the TJB, elevating the ground levels of the foundation of the TJB, sufficient drainage around the TJB, etc.
Lightning - Increase in frequency of lightning strikes as a result of increased temperature	Damage to Infrastructure	Greater lightning activity could result in more frequent lightning strikes to WTGs resulting in fire and /or damage to electrical components. However, historical lightning frequency data shows that the Taiwan straight typically has a lightning flash density of between 2-6 flashes per km2 per year, which is not high by global comparison.	Review assumed allowances within the design and take these into account if not already implemented. Given there are likely to be protections in place, the risk to infrastructure is low. Maintenance guide must account for possibility of damage caused by increased lightning strikes.

Source: Mott MacDonald