Environmental Monitoring Report of Formosa II Operation Phase (January to March 2025)

Monitoring Item		Monitoring Site	Monitoring Result Summary	Measures & Effects
Bird Ecology	Offshore Bird	Wind Farm and its Periphery	 Species Composition: 3 orders, 3 families, and 4 species. Protected Species: No endemic or protected species were recorded this season. Flying Altitude: All of the recordings were below 10 m. 	
	Coastal Birds	 Xihu National Wetland Periphery Coast 	 Species Composition: A total of 10 orders, 16 families, 41 species, and 5,802 individuals were recorded. Protected Species: 5 protected species were recorded, including Black- shouldered Kite (II), Crested Serpent Eagle (II), Greater Crested Tern (II), Common Kestrel (II), Peregrine Falcon (II), and Brown Shrike (III). 	
	Analysis of Tern Migration Routes	Weather Radar Observation Data Analysis	The migratory routes of terns from May to October are analyzed annually, and the results will be presented in the Q3 and Q4 monitoring reports.	
	Long-term Bird Monitoring System	Wind Farm Area	 1. Vertical Radar The F2 Wind Farm experiences peak bird migration during the spring and autumn seasons. In particular, bird traffic in April and September 2024 was significantly higher than in other months. During the spring migration, large numbers of birds were observed in the early evening hours (19:00–22:00), while in the autumn migration, peak activity occurred around midnight (23:00–02:00). The flight altitudes of birds were distributed as follows: 0.65% flew below 	

Monitoring & Improvement Summary

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		 the rotor-swept zone (below 30 meters), 20.70% within the rotor-swept zone (30–197 meters), and 78.65% above the rotor-swept zone (above 197 meters). The average flight altitude was 800.30 meters, indicating that most birds crossed the sea at heights above the wind turbine level. Horizontal Radar spring 2024, the primary flight directions were toward the north and northeast. During late summer, autumn, and winter, most flight directions were toward the south, southwest, and southeast. Surveillance Cameras n 2024, a total of 214 valid images were recorded, including: 68 dragonflies (31.78%), 55 non-biological objects (25.70%), 49 birds (22.90%), 18 insects (8.41%), 14 butterflies (6.54%), 9 unidentified (4.21%), and 1 bat (0.47%). Among the bird records were 14 herons (Ardeidae), 10 barn swallows, 9 terns (Sterninae), 8 rock doves, 3 grey-faced buzzards, 2 Apodidaes, and one each from the Sulidae, Sturnidae, and Charadriiformes families. Acoustic Microphone Analysis of 39 audio recordings collected in 2023 identified six bird species: Grey Wagtail, White Wagtail, Barn Swallow, Eastern Yellow Wagtail, Ashy minivet and Osprey (II). 	
Cetacean Sighting	Wind Farm and its Periphery	A total of 1 offshore survey was conducted this quarter (January-March 2025). One pod of bottlenose dolphins was spotted on March 13.	—

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Fishery Resource	3 Survey Lines in Wind Farm Area	 Fish: 9 families, 10 species, and 19 individuals, with <i>Arius maculatus</i> being the majority. Fish Egg: 7 families, 7 genera, and 769 eggs, with <i>Evynnis cardinalis</i> being the dominant species. Fish Larva: 1 families, 1 genera, and 1 individuals, identified as the Big scale liza. 	
Underwater Noise (including Cetacean Acoustic Survey)	5 stations within the wind farm area	 Whistles: The data for this quarter is still under analysis and will be included in the next quarter's report. Clicks: The data for this quarter is still under analysis and will be included in the next quarter's report. 	
Marine and Intertidal Ecology	10 stations within the wind farm area	 Marine Ecology: Phytoplankton: 5 phyla, 74 genera, 123 species, with <i>Trichodesmium thiebautii</i> being the dominant species; Zooplankton: 10 phyla, 27 genres, with Calanoida being the dominant species; Benthic Organism: 13 orders, 19 families, 24 species, with Gen. spp. being the dominant species. Intertidal Ecology: Benthic organism: 8 orders, 11 families, and 13 species, with Scopimera bitympana being the dominant species. 	
Underwater Photography	Same two wind turbine locations (D01 & D07) as in the pre-construction survey	A total of 2 order, 12 family, and 16 species were recorded at D01. A total of 1 order, 9 families, and 10 species were recorded at D07.	
Fishery Economy	Miaoli County	The Fisheries Agency of the Ministry of Agriculture plans to announce the annual fisheries statistics report for the previous year at the end of each year. The analysis	

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		results will be presented in the fourth-	
Terrestrial Ecology	Planned important wetland in Zhunan	 Plantation: 84 families, 243 genera, and 306 species were recorded. 6 rare species were recorded, including Podocarpus Costalis (CR), Fukugi Tree (EN), Taiwan Incense Cedar (VU), Seremban (VU), Ivorywood (VU) and Small-leaved Barringtonia (VU). All are artificially cultivated. Mammal: 2 families, 2 species, and 3 individuals of mammals were recorded. 2 families, and 4 species of bats were recorded. No protected species were recorded. Amphibian: 1 families, 1 species, and 2 individuals were recorded. No protected species were recorded. Reptiles: 3 families, 3 species, and 14 individuals were recorded. No protected species were recorded. Butterfly: 4 families, 7 subfamilies, 10 species, and 36 individuals were recorded. Butterfly: 4 families, 34 species were recorded. Bird: 22 families, 34 species, and 284 individuals were recorded. 4 protected species, including Painted Snipe (II), Osprey (II), Black Kite (II) and Brown Shrike (II), were recorded. 	
Aquatic Ecology	Planned important wetland in Zhunan	 Plantation: 10 families, 15 genera, and 17 species were recorded. No rare species were recorded. Fish: 8 families, 15 species, and 401 individuals were recorded. No protected species were recorded. Crabs and Shrimps: 5 families, 11 species, and 181 individuals were recorded. No protected species were recorded. Craps: 5 families, 5 species, and 201 	

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		 individuals were recorded. No protected species were recorded. 5. Aquatic Insects: No aquatic insects besides Odonata were recorded for this quarter's survey. 6. Odonata: 1 families, 2 species, 5 individuals were recorded. No protected species were recorded. 	
Groundwater Quality	 Substation 2. Planned Important Wetland in Zhunan 	 Substation: pH value is 7.9; BOD is 1.8 mg/L; COD is 7.4 mg/L, SS is 5.4 mg/L, ammonia nitrogen is N.D. mg/L, ADMI is N.D, fat is 4.2 mg/L, water temperature is 20.6 °C, NO3-N is 0.96 mg/L, TP is 0.092 mg/L, Dissolved Oxygen is 4.88 mg/L. Planned Important Wetland in Zhunan: pH value is 8.5; BOD is 41.1 mg/L; COD is 158 mg/L, SS is 98 mg/L, ammonia nitrogen is 0.03 mg/L, ADMI is 31, fat is 0.9 mg/L, water temperature is 18.7 °C, NO3-N is 0.27 mg/L, TP is 0.231 mg/L, Dissolved Oxygen is 8.1 mg/L. Except for BOD exceeding the class IV water body quality standard and the water quality standards for irrigation, all other monitoring items meet the class IV water body quality standard. 	BOD values measured in EIA and DA phases are also higher than class IV water body quality standards (referring to Protection Project of National Important Wetlands: https://wetland- tw.tcd.gov.tw/). It is inferred that the value is affected by organic pollutants in water from agriculture, water culture, household, and industry discharged into the wetland, which belongs to background value and is not caused by the construction of the Project. Monitoring will be continued to clarify the changes.
Electromagnetic Field	 Substation Residential Area near Kaiyuan Road 	 Substation: Magnetic Field: 14.08 (mG) Electric Field: 1.388 (V/m) Residential Area near Kaiyuan Road: Magnetic Field: 11.76 (mG) Electric Field: 8.200 (V/m) 	