

Environmental Monitoring Report of Formosa II

Construction Phase (2022 January to March)

Monitoring & Improvement Summary

Monitoring Item		Monitoring Site	Monitoring Result Summary	Measures & Effects
Under construction-Bird Ecology	Offshore Bird	Wind farm and its periphery	<ol style="list-style-type: none"> 1. Species composition: 4 families, 4 species and 20 individuals were recorded in this quarter. 2. Protected species: 1 protected species was recorded, including Osprey (II). 3. Flying Altitude: 95.0% of recordings were below 25m; and 5.0 % of recordings were between 26-196m, accounted for by 1 recording of Osprey. 	—
	Coastal birds	<ol style="list-style-type: none"> 1. Xihu National Wetland 2. Periphery coast 	<ol style="list-style-type: none"> 1. 7 orders, 12 families, 30 species and 6,245 individuals were recorded. 2. Protected species: 4 protected species were recorded, including Black-winged kite (II), Crested goshawk (II), Taiwan hwamei (II) and Brown shrike (III). 	—
	Nighttime Radar	Wind farm located at Chunan (north coast of Chunggang estuary) and Houlong (Haowang Cape)	<ol style="list-style-type: none"> 1. Flying direction: The main flying direction is SW. 2. Activity mode: Activity frequency was relatively low this quarter. Only the 1700 time period had a frequency of 2. 25.0 % of the tracks passed the wind farm area. 	—

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Under construction-Fishery	3 survey lines in wind farm area	<ol style="list-style-type: none"> 1. Fish: 15 families, 18 species and 43 individuals. Common ponyfish takes the majority. 2. Fish egg: 4 families, 7 genera, and 2,734 eggs. Scomber of Scombridae family takes the majority. 3. Fish larva: 2 families and 2 genera, 18 individuals. Records include Eastern keelback mullet of Mugilidae family and Yellowfin seabream of Sparidae family. 	—
Under construction-Underwater Noise (including cetacean acoustic survey)	2 stations within wind farm area	<ol style="list-style-type: none"> 1. Whistles: Data in this quarter is under analysis, will be included in the following monitoring report. 2. Clicks: Data in this quarter is under analysis, will be included in the following monitoring report. 	—
Under construction-Marine Water Quality	10 stations within wind farm area	pH value is 8.2, water temperature is between 21.4-22.4°C, dissolved oxygen is between 6.2-6.3 mg/L, salinity is between 33.6-33.9 psu, transparency is between 30-40 cm, Coliform group is between <10-25 mg/L, Chlorophyll a is between 1.0-1.7 mg/L, BOD is between 0.7-0.9 mg/L, SS is between 2.6-10.4 mg/L, fat is between N.D.-1.1 mg/L.	
Under construction-Marine and intertidal ecology	10 stations within wind farm area	<ol style="list-style-type: none"> 1. Marine ecology: phytoplankton: 6 phylum, 65 genus, 136 species; Chlorophyll a is between 0.27-2.16 µg/L, zooplankton: 13 phylum, 31 genre; benthic organism: 11 orders, 15 families, 18 species. 2. Intertidal ecology: Benthic organism: 9 orders, 12 families and 14 species 	

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Under construction- Terrestrial Ecology	Terrestrial power transmission system (including step-down station, land cable and its periphery)	<ol style="list-style-type: none"> 1. Plantation: 97 families, 276 genera and 367 species were recorded. 5 rare species were recorded, including Taiwan incense cedar, Taiwan Agrimony, Water Willow, Flame Gold-rain Tree and Long-branch Bambusa all are cultivated. 2. Mammal: 3 orders, 4 families, 8 species and 13 individuals of mammals; 1 order, 3 family, 3 species of bats were recorded. No protected species were recorded. 3. Amphibian: 4 families, 4 species and 28 individuals were recorded. No protected species were recorded. 4. Reptile: 4 families, 7 species and 39 individuals were recorded. No protected species were recorded. 5. Butterfly: 5 families, 9 subfamilies, 28 species and 169 individuals were recorded. No protected species were recorded. 6. Bird: 27 families, 50 species, and 619 individuals were recorded. 1 protected species Brown shrike (III) was recorded. 	—
Under construction- Intertidal Ecology	Planned important wetland in Chunan	<ol style="list-style-type: none"> 1. Plantation: 8 families, 9 genera and 10 species were recorded. No rare species were recorded. 2. Fish: 5 families, 6 species and 79 individuals were recorded. No protected species were recorded. 3. Crabs and Shrimps: 4 families, 5 species and 103 individuals were recorded. No protected species were recorded. 4. Conch: 3 families, 3 species and 138 individuals were recorded. No protected species were recorded. 5. Aquatic insects (including Odonata): for Odonata, 5 families, 12 species and 31 individuals were recorded; for aquatic insects, 3 orders, 5 families, and 139 individuals/m² were recorded. No protected species were recorded. 	—

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Under construction-Cultural Heritage (Archeology monitoring during onshore construction)		Excavation area	Archeology monitoring for this project has been completed as of December 11 th , 2020. In the future, archeology monitoring will be conducted during excavation when conducted.	—
Under construction-Air Quality		1 station in residency around booster station	Day average value for TSP is 52 µg/m ³ , Day average value for PM ₁₀ is 28 µg/m ³ , Day average value for PM _{2.5} is 15 µg/m ³ , Hourly max average value for SO ₂ is 2 ppb, and day average value is 1 ppb. Hourly max average value for NO is 31 ppb, and day average value is 9 ppb. Hourly max average value for NO ₂ is 29 ppb, and day average value is 17 ppb. Hourly max average value for CO is 0.4 ppm, and average value in 8 hours is 0.3 ppm. Hourly max average value for O ₃ is 35 ppb, and average value in 8 hours is 24 ppb. Major wind direction is NE, day average wind speed is 1.2 m/s. This quarter, all monitoring items comply with air quality standards. No abnormal issue is observed.	—
Under construction-Noise Vibration	Noise Vibration	<ol style="list-style-type: none"> 1 station in residency around booster station 1 station in residency along land cable Zhonggang Cihyu Temple 	<ol style="list-style-type: none"> Noise: In all stations (residency around booster station, residency along land cable and Zhonggang Cihyu Temple), L_{day}, L_{night} and L_{midnight} are between 54.7-68.3 dB(A), 49.9-68.6 dB(A) and 48.9-68.5 dB(A), respectively. Value of each station/time section comply with ambient noise standards of the corresponding area. Vibration: In all stations (residency around booster station, residency along land cable and Zhonggang Cihyu Temple), L_{v10} day and L_{v10} night are between 30.0-41.7 dB dB and 30.0-33.0 dB, respectively. Value of each station/time section comply with vibration standard according to Japanese Control Standards. 	—

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Construction Noise	1 station in booster station periphery (1m)	<p>The booster station for this project acquired an use permit in March 26th, 2021 (府商建字 No. 110046365). As there is no longer any construction activity for the booster station, personnel were sent to confirm that data for construction noise (in booster station periphery (1m), including normal and low frequency) cannot be recorded in this quarter. The project will continue to send personnel to confirm the conditions.</p>	—
Under construction-Groundwater Quality	<p>1. Water output location 2. Planned important wetland in Chunan</p>	<p>1. Water output location: The booster station for this project acquired an use permit in March 26th, 2021 (府商建字 No. 110046365). As there is no longer any construction activity for the booster station there is also no longer any wastewater discharge. Personnel was sent to confirm that data for groundwater (water output location) cannot be recorded. The project will continue to send personnel to confirm the conditions.</p> <p>2. Planned important wetland in Chunan: pH value is between 7.8-8.4; BOD is between 16.0-55.2 mg/L; COD is between 58.6-157.0 mg/L, SS is between 4.2-12.1 mg/L, Ammonia nitrogen is between 0.00-0.13 mg/L, ADMI is between 40-69 g/L, fat is between 1.2-3.0 mg/L, water temperature is between 16.8-22.1°C, NO3-N is between 0.02-0.04, TP is between 0.058-0.116 mg/L, Dissolved oxygen is between 5.7-6.7 mg/L. This quarter, BOD has exceeded class IV water body quality standards. All other monitoring items comply to class IV water body quality standard.</p>	<p>BOD measured in EIA and DA phases is also higher than class IV water body quality standard (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 cultural, household and industry discharged into the wetland, which belongs to background value and is not caused by the construction of the Project.</p> <p>Monitoring will be continued to clarify the changes.</p>