

Environmental Monitoring Report of Formosa II

Construction Phase (2022 April to June)

Monitoring & Improvement Summary

| Monitoring Item | | Monitoring Site | Monitoring Result Summary | Measures & Effects |
|---------------------------------|-----------------|---|--|--------------------|
| Under construction-Bird Ecology | Offshore Bird | Wind farm and its periphery | <p>1. Species composition: 4 families, 5 species and 6 individuals were recorded in this quarter.</p> <p>2. Protected species: 1 protected species was recorded, including Greater crested tern.</p> <p>3. Flying Altitude: 100% of recordings were below 25m.</p> | — |
| | Coastal birds | <p>1. Xihu National Wetland</p> <p>2. Periphery coast</p> | <p>1. 7 orders, 16 families, 41 species and 3,965 individuals were recorded.</p> <p>2. Protected species: 7 protected species were recorded, including Greater painted-snipe, Little tern, Chinese egret, Black-winged kite, Taiwan hwamei, Brown shrike and Chestnut munia.</p> | — |
| | Nighttime Radar | Wind farm located at Chunan (north coast of Chunggang estuary) and Houlong (Haowang Cape) | <p>1. Flying direction: The main flying direction is NE.</p> <p>2. Activity mode: During monitoring in this quarter, the main flying direction is NE (54.7%), followed by North (39.2%)</p> | — |

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| Under construction-Fishery | 3 survey lines in wind farm area | <ol style="list-style-type: none"> 1. Fish: 15 families, 21 species and 274 individuals. Sea barbel takes the majority. 2. Fish egg: 9 families, 7 genera, and 500 eggs. Tonguefish of Cynoglossidae family takes the majority. 3. Fish larva: 6 families and 6 genera, 15 individuals. Records include Mauritian sardinella of Clupeidae family and Saddleback silver-biddy of Gerreidae family. | — |

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| <p>Under construction- Underwater Noise (including cetacean acoustic survey)</p> | <p>2 stations within wind farm area</p> | <p>1. Whistles: Last quarter: 1342 whistles were recorded.</p> <p>A. Time distribution: In summary of the 5 spots, the majority of detections occurred between 2:00 to 5:00am and 6:00 to 10:00 am.</p> <p>B. Tidal distribution: Tidal variation each day within a 2-week span is not periodical. The results only indicate whistles occurred most often during midnight at full tide. More detailed tidal impact analysis will require long-term continuous monitoring.</p> <p>This quarter: Only 15 whistles were recorded at HM-4.</p> <p>2. Clicks: Last quarter: 3720 clicks were recorded.</p> <p>A. Time distribution: In summary of the 5 spots, the majority of detections occurred between 6:00 to 9:00 am.</p> <p>B. Tidal distribution: Tidal variation each day within a 2-week span is not periodical. The results only indicate whistles occurred most often during the morning at low tide.</p> <p>This quarter: Only 879 clicks were recorded at HM-4.</p> | <p>—</p> |

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| Under construction- Marine Water Quality | 10 stations within wind farm area | pH value is 8.2, water temperature is between 25-25.4°C, dissolved oxygen is between 6.2-6.3 mg/L, salinity is between 33.7-34.0 psu, transparency is between 38-43 cm, Coliform group is between <10-95 mg/L, Chlorophyll a is between 0.48-3.96 mg/L, BOD is between 0.7-0.9 mg/L, SS is between 1.3-5.2 mg/L, fat is between N.D.-1.2 mg/L. | |
| Under construction- Underwater Photography | D01&D07 WTG | 1. Only 1 species was recorded at D01, including the Silverflash spinecheek from the Perciformes order | |
| Under construction- Marine and intertidal ecology | 10 stations within wind farm area | 1. Marine ecology: phytoplankton: 5 phylum, 59 genus, 132 species; Chlorophyll a is between 0.65-6.56 µg/L, zooplankton: 13 phylum, 34 genre; benthic organism: 10 orders, 11 families, 13 species. 2. Intertidal ecology: Benthic organism: 5 orders, 7 families and 9 species | |
| Under construction- Terrestrial Ecology | Terrestrial power transmission system (including step-down station, land cable and its periphery) | 1. Plantation: 97 families, 276 genera and 369 species were recorded. 5 endemic 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, 5 families, 12 species and 126 individuals of mammals were recorded. No protected species were recorded. 3. Amphibian: 5 families, 5 species and 68 individuals were recorded. No protected species were recorded. 4. Reptile: 5 families, 9 species and 61 individuals were recorded. No protected species were recorded. 5. Butterfly: 5 families, 9 subfamilies, 68 species and 299 individuals were recorded. No protected species were recorded. 6. Bird: 25 families, 43 species, and 870 individuals were recorded. 2 protected species Brown shrike (III) and Black-winged kite were recorded. | — |

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| Under construction- Intertidal Ecology | Planned important wetland in Chunan | <p>1. Plantation: 8 families, 10 genera and 11 species were recorded. No rare species were recorded.</p> <p>2. Fish: 6 families, 7 species and 115 individuals were recorded. No protected species were recorded.</p> <p>3. Crabs and Shrimps: 6 families, 9 species and 143 individuals were recorded. No protected species were recorded.</p> <p>4. Conch: 4 families, 4 species and 161 individuals were recorded. No protected species were recorded.</p> <p>5. Aquatic insects (including Odonata): for Odonata, 3 families, 10 species and 60 individuals were recorded; for aquatic insects, 3 orders, 6 families, and 226 individuals/m² were recorded. No protected species were recorded.</p> | — |
| 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 49 µg/m ³ , Day average value for PM ₁₀ is 23 µg/m ³ , Day average value for PM _{2.5} is 12 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 5 ppb, and day average value is 2 ppb. Hourly max average value for NO ₂ is 11 ppb, and day average value is 5 ppb. Hourly max average value for CO is 0.4 ppm, and average value in 8 hours is 0.2 ppm. Hourly max average value for O ₃ is 47 ppb, and average value in 8 hours is 40 ppb. Major wind direction is SWW, day average wind speed is 4.3 m/s. This quarter, all monitoring items comply with air quality standards. No abnormal issue is observed. | — |

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| Under construction-Noise Vibration | Noise Vibration | <ol style="list-style-type: none"> 1. 1 station in residency around booster station 2. 1 station in residency along land cable 3. Zhonggang Cihyu Temple | <ol style="list-style-type: none"> 1. 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 52.6-63.1 dB(A), 51.0-60.7 dB(A) and 48.9-62.4 dB(A), respectively. Value of each station/time section comply with ambient noise standards of the corresponding area. 2. 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 30.0-34.9 dB dB and 30.0-31.4 dB, respectively. Value of each station/time section comply with vibration standard according to Japanese Control Standards. | — |
| | Construction Noise | 1 station in booster station periphery (1m) | The booster station for this project acquired an use permit in March 26 th , 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. | — |

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| Under construction-Groundwater Quality | <ol style="list-style-type: none"> 1. Water output location 2. Planned important wetland in Chunan | <ol style="list-style-type: none"> 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. 2. Planned important wetland in Chunan: pH value is between 8.1-8.7; BOD is between 11.5-13.1 mg/L; COD is between 41.7-52.2 mg/L, SS is between 15.5-25.3 mg/L, Ammonia nitrogen is between 0.04-0.07 mg/L, ADMI is between 42-43 g/L, fat is between N.D.-2.8 mg/L, water temperature is between 23.1-31.9°C, NO3-N is between 0.03-1.24, TP is between 0.079-0.144 mg/L, Dissolved oxygen is between 5.3-6 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>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> |