MOTT MACDONALD

Project Trinity: Greater Changhua Northwest Offshore Wind Farm in Taiwan

Focused Social Impact Assessment

February 2024

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A	5 Jan 2024	H Chang K Chang C Tan S Toh	I Hay M Rowan	B Lim	Draft focused SIA
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Executive summary

The Greater Changhua Offshore Windfarm Northwest Ltd. (herein referred to as “Project Company”) is a special purpose vehicle established by Ørsted Wind Power TW Holdings A/S (Ørsted) to develop the proposed Project Trinity: Greater Changhua Northwest (NW) Offshore Wind Farm in Taiwan (herein referred to as the “Project”). The Project is located approximately 50km offshore from the coast of Changhua County, Taiwan.

As part of the requirements for obtaining project financing, the Project may be required to demonstrate adherence to the Equator Principles (EP). Therefore, Mott MacDonald has been commissioned by Ørsted to undertake a focused social impact assessment (FSIA) for Project Trinity. This report aims to provide an identification and assessment of potential social impacts associated with the Project and its activities.

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

- Employment, working conditions including for the supply chain
- Economic displacement and livelihoods
- Human rights
- Community health, safety and security issues, including workers’ influx effects, exposure to disease, and traffic

Baseline data and mitigation measures have been extracted from existing Project document suites. In particular, information from the Project’s human rights impact assessment (HRIA) and livelihood restoration plan (LRP) are referenced, both of which are still under development and pending updated baseline information from key informant interviews (KIIs) and focus group discussions (FGDs) conducted between December 2023 to January 2024. It should be noted that updated data/findings as well as commentary will be most up-to-date in the HRIA and LRP, forthcoming in Q1 2024.

1 Introduction

1.1 Overview

Mott MacDonald has been commissioned by Ørsted to undertake a focused social impact assessment (FSIA) for Project Trinity. This report aims to provide an identification and assessment of potential social impacts associated with the Project and its activities. Further details on the definition and scope of a FSIA and the coverage of this scoping report is presented in section 4.2.

1.2 Background

The Greater Changhua Offshore Windfarm Northwest Ltd. (herein referred to as "Project Company") is a special purpose vehicle established by Ørsted Wind Power TW Holdings A/S (Ørsted) to develop the proposed Project Trinity: Greater Changhua Northwest (NW) Offshore Wind Farm in Taiwan (herein referred to as the "Project"). The Project is located approximately 50km offshore from the coast of Changhua County, Taiwan.

The Project is planned in compliance with the "Offshore Wind Farm Site Application Regulation", stipulated by the Bureau of Energy, Ministry of Economic Affair on 2 July 2015. The regulation gives endorsement to offshore wind energy development for developers to promote a nuclear-free homeland by the year of 2025.

In 2022, the National Development Council (NDC) published Taiwan's Pathway to Net-Zero Emissions by 2050. The plan is to decarbonise the electrical sector and targeted 60% renewable energy come 2050[1]. As of 2021[2], the country's electricity generation comprised of 81.5% fossil fuels, 9.6% nuclear, 6% renewable energy and 2.9% of other types of energy. For 2025, Taiwan has set an ambitious commitment for its electricity sector to be 20% renewable energy, 30% coal, and 50% gas. The most targeted renewable energy is solar photovoltaic and wind power.

As part of the requirements for obtaining project financing, the Project is required to demonstrate adherence in its impact assessments and management documents to the Equator Principles (EP).

To supplement the Project's environmental impact assessment (EIA)[3] undertaken to national standards, the Project has also prepared the following documents:

- Biodiversity Action Plan (BAP)
- Cumulative Impact Assessment (CIA)
- Critical Habitat Assessment (CHA)
- Climate Change Risk Assessment (CCRA)
- Human Rights Impact Assessment (HRIA)

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1 Lau, Hon Chung and Tsai, Steve C. 2022. A decarbonisation Roadmap for Taiwan and Its Energy Policy Implications. MDPI

2 Retrieved from 110 年發電概況 - 能源統計 - 經濟部能源局(Bureau of Energy, Ministry of Economic Affairs, R.O.C.)全球資訊網 (moeaboe.gov.tw)

3 An EIA was conducted for/to national requirements, which was approved by the competent authority on .23 March 2018 [大彰化西北離岸風力發電計畫 環境影響說明書 (定稿本)]

- Livelihood Restoration Plan (LRP)

1.3 Document structure

This FSIA report is structed as follows:

- Section 1 (ie this section) outlines an overview of the FSIA and the Project.
- Section 2 presents the Project description, including the location, components, resources and alternatives.
- Section 3 summarises the legal framework, applicable international standards and the institutional arrangements.
- Section 4 describes the methodology for undertaking this FSIA, including the collection of baseline data, the scoping matrix, impact assessment method as well as uncertainties and limitations of this study.
- Section 5 presents a summary of the existing socioeconomic baseline available within the existing Project document suite as well as the Project's area of influence (AoI).
- Section 6 provides a high-level assessment of the likely project impacts on socioeconomic features.
- Section 7 presents the summary of social impacts.

2 Project Description

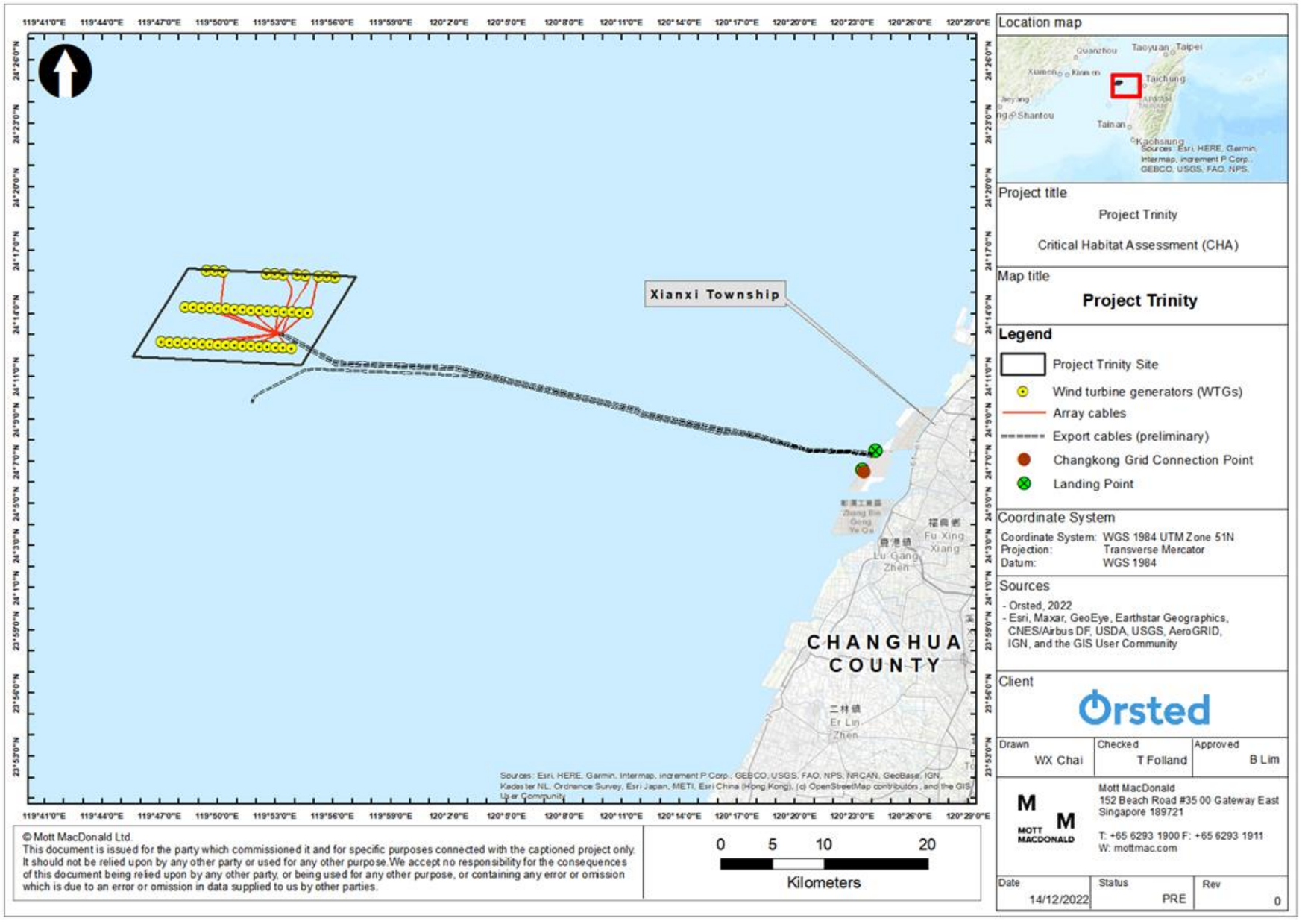
2.1 Project location

The Project is being developed in the 12th Zone of Potential in Changhua County (彰化縣) according to the Offshore Wind Farm Site Application Regulations announced by the Bureau of Energy, Ministry of Economic Affairs (MOEA) on 2 July 2015. The Project area will be approximately 117 km^2 in size and located approximately 50km offshore from Xianxi Township (線西鄉), Changhua County, on the western coast of Taiwan. Changhua County consists of 24 townships, with six of them located along the coast.

Changhua County has three main fishing ports: Wenzi Fishing Port (塭仔漁港), Lunweiwan Fishing Port (崙尾灣漁港), and Wanggong Fishing Port (王功漁港). These ports are located in Xianxi Township, Lukang Township, and Fangyuan Township, respectively. The Project's cable landing points are to be constructed within Changhua Coastal Industrial Park located in Xianxi Township. To facilitate the construction, loading, unloading, transportation, and docking activities of the Project's construction work as well as eventual operation and maintenance (O&M) work, the Project plans to utilise Taichung Port as the designated port for this work. This is because the closer ports are of smaller size and do not support the pre-assembly or logistical work that the Project will need to carry out. This decision was made considering its close proximity to the project site and its alignment with the domestic policy objectives outlined in the offshore windfarm (OSWF) power plan.

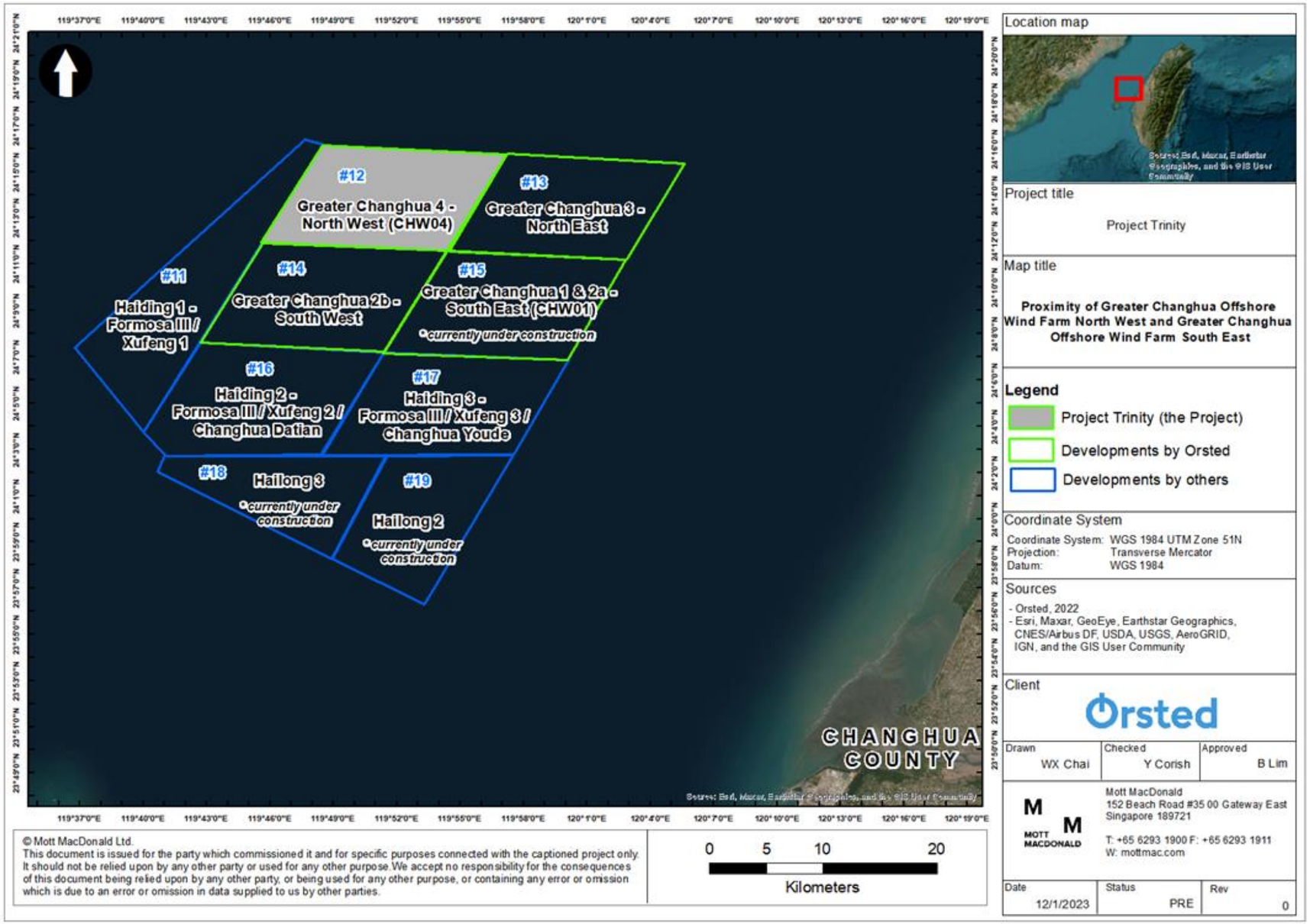
The Project location is depicted in Figure 2.1. The offshore WTG area of the Project (CHW04) is adjacent to the offshore WTG area of Greater Changhua Southeast windfarm (CHW01) which is also being developed by Ørsted. Figure 2.2 shows the locations of these two sites. CHW04 is serial number #12 on the figure, and #15 on the figure represents the CHW01 project.

Figure 2.1: Location of Project Trinity



Source: Mott MacDonald, 2024

Figure 2.2: Proximity of CHW04 and CHW01



Source: Mott MacDonald, 2024

2.2 Project components

The Project will comprise of wind turbine generators (WTGs) and on- and offshore electrical substations, amounting to a total capacity up to 598MW. The WTGs will be located in water depths between 30m and 45m below mean sea water level (MSWL). Other project components include inter-array and export transmission cabling to connect to Taiwan's electrical grid, as well as various operational support vessels and ancillary facilities. The offshore components consist of the following:

- 54 to 74 units of offshore WTGs, each with a capacity of 8 to 11MW (depending on the confirmed model), covering an offshore area of approximately 117 km^2
- 33kV or 66kV inter-array submarine cables to offshore substation (OSS) (total length approximately 75km)
- Interlink cables to ensure back-up power supply to the WTGs in case the grid connection is lost for an extended period
  - WTG to WTG interlink: voltage will be either 33kV or 66kV based on voltage transmitted between turbines
  - OSS to OSS interlink: voltage will be either 33kV, 66kV or 220kV
- 220kV offshore export submarine cables connecting the OSS to Changkong grid connection landing point
- OSS to collect individual array cable strings and transform them to higher voltage before exporting them to shore
- The WTGs will be connected to one offshore substation (OSS) via 33kV or 66kV inter-array cable strings and to the Changkong grid connection point owned by Taiwan Power Company (TPC) through two export cables.

Onshore components comprises of:

- Project-dedicated OnSS which steps down the voltage from 220kV to 161kV
- Onshore cables (total length of up to 8.05km) connecting the following locations:
  - 3.7km from transition joint bay (TJB) to the OnSS
  - 4.35km from OnSS to Changkong grid connection point owned by TPC
  - These onshore cables (ie landing cable points) are expected to be laid within roads of the Changhua Coastal Industrial Park, specifically Ji'an West Road and Lugong Road of the Lukang area and Anxi road in the Lunwei area.
- TJB to connect offshore and onshore export cables
- Existing access roads within Changhua Coastal Industrial Park

The construction period is anticipated to be one year long (Q1 to Q4 2025). The operation period is planned to be 20 to 25 years in line with permit conditions.

2.3 Project resources

The estimated maximum number of workers for the Project is approximately 1,060 during the one-year construction phase period (aimed to begin in 2025). Over 90% of the employees will be stationed offshore during peak activity, with a cap of 220 workers for onshore construction as based on the Project's EIA. Once the operation phase commences (aimed to begin in 2026), the substation will have a maximum of 100 onshore workers (also based on the Project's EIA), who are anticipated to be skilled laborers and/or office professionals.

For the Project, the Taichung Port to be utilised has water and electricity services. Vessels which support the installation of the wind farm will be self-sufficient, stocking up on sufficient drinking water, and having their own fuel sources for electricity. The vessels will also have communication services, which can be used for managing any emergencies. The port hosting the onshore equipment is highly accessible via an existing transportation network. The Port is gated and hence workers will need to pass through security checks to access the work sites. The Project's onshore work area with Taichung Port is not near the port boundary, hence the closest residential properties are about 4km from the Project activities, including vehicle movements. Security services will be employed and managed by Ørsted.

No worker camps are currently planned to be constructed. Workers on offshore sites will be able to sleep in accommodation provided on vessels.

2.4 Project alternatives

Alternatives for this Project were proposed and reviewed in the EIA. Alternatives included the termination of the Project, site alternatives and technology alternatives.

The Project is designed to align with Taiwan's energy policy and its goal to be nuclear-free by 2025. It accelerates Taiwan's growth of offshore wind farms, promoting diverse energy sources, self-sufficiency, and environmental conservation. The Project aims to bring global insights to Taiwan's wind power industry through comprehensive exchange and collaboration. The project also seeks to unite industry, government, and academia resources under a common goal. Once executed, it positions Taiwan to spearhead renewable energy development in the Asia-Pacific region. Thus, the termination of the Project is deemed to be disadvantageous. In conjunction, there are no site alternatives available for this Project.

In terms of technology alternatives, this Project allows for the installation of a wind turbine using either a single-pile or jacket structure, or a gravity seabed foundation. The latter is constructed from reinforced concrete or steel, to which the wind turbine's pillar is attached. It is further stabilised with ballast made of sand, iron ore, or rocks. This method is less disruptive to marine life as it does not require piling. However, it necessitates a solid geological seabed. The proposed wind farm site is in an area with sediment deposits from the Zhuoshui River in the Taiwan Strait. If gravity seabed foundations are used here, seismic activity could cause soil liquefaction, leading to a loss of ground shear stress and load-bearing capacity. Therefore, the Project is unable to adopt a gravity seabed foundation.

3 Legal and Institutional Framework

3.1 Overview

This section identifies the national and international legislation, standards and guidelines that are relevant to the ESIA. It concludes with a brief description of the envisaged institutional arrangements.

3.2 National regulatory framework

Taiwan's EIA Act (環境影響評估法), which was promulgated on 30 December 1994 and amended on 8 January 2009, governs the EIA process in Taiwan which requires a project proponent to undertake an EIA when it is likely to have the potential to cause potentially significant environmental and social impacts. The administration of the EIA approval and related matters are under the purview of the Environmental Protection Administration, Executive Yuan, R.O.C (Taiwan) (Taiwan EPA). Detailed EPA procedures and implementation guidelines include:

- Implementation Rules for the EIA Act (環境影響評估法施行細則) (amended on 11 April 2018)
- Environmental Impact Assessment Items and Screening Criteria for Development Activities (開發行為應實施環境影響評估細目及範圍認定標準) (amended on 18 August 2020)
- Guidelines for Conducting Environmental Impact Assessment for Development Activities (開發行為環境影響評估作業準則) (amended 2 February 2021)

Under the national screening criteria cited above, in terms of development type, offshore windfarm (風力發電離岸系統) is listed as an activity which requires the preparation and submission of an EIA. The Project will comply with the requirements of the laws and regulations of Taiwan and the requirements of the approved EIA. The ecological surveys and assessment within the EIA were conducted in accordance with the below listed specifications as published by the Taiwan EPA:

- Technical Specifications for Animal Ecology Assessment (動物生態評估技術規範)
- Technical Specifications for Plant Ecology Assessment (植物生態評估技術規範)
- Technical Specifications for Marine Ecology Assessment (海洋生態評估技術規範)

In addition to the overarching EIA Act, national legislation detailed in the EIA relevant to social aspects addressed in this FSIA include the following key laws and regulations:

- Cultural Heritage Preservation Act (文化資產保存法) (amended on 27 July 2016)
  - Classifies tangible and intangible cultural heritages which are of cultural value from the point of view of history, art or science covering monuments, historic buildings, commemorative buildings, groups of buildings, archaeological sites, historic sites, cultural landscapes, antiquities, natural landscapes and natural monuments, traditional performing arts, traditional craftsmanship, folklore, and traditional knowledge and practices
- Fisheries Act (漁業法) (amended on 26 December 2018)

  - Conserves and rationally utilise aquatic resources, to increase fisheries productivity, to promote sound fisheries development, to guide and assist the recreational fishery, to maintain the orderly operation of the fisheries, and to improve the livelihood of fisher folk.
- Renewable Energy Development Act (再生能源發展條例) (amended on 21 June 2023)
  - For purposes of encouraging renewable energy use, promoting energy diversification, improving energy structure, reducing emission of greenhouse gases, improving environmental quality, assisting relevant industries, and enhancing sustainable development of Taiwan.

In conjunction to national legislation detailed in the EIA, the following key Taiwanese legislation are important for Project compliance, to be reflected in the Labour Management Plan Framework, workers' contracts, and labour monitoring and reporting:

- Labour Standards Act (勞動基準法) (amended on 10 June 2020)
  - Enacted to provide minimum standards for working conditions, protect workers' rights and interests, strengthen employee-employer relationships and promote social and economic development.
- Employment Service Act (就業服務法) (amended on 10 May 2023)
  - Enacted to promote employment of nationals with a view to enhance social and economic development.
- Collective Agreement Act (團體協約法) (amended on 1 July 2015)
  - To regulate the bargaining procedures and effect of collective agreement, stabilise labour relations, promote labour-management harmony, and protect rights and interests for the labour and the management.
- The Gender Equality in the Employment Act (性別平等工作法) (amended 16 August 2023)
  - Prohibits gender discrimination or sexual orientation regarding recruitment and termination, and for providing training, welfare measures and wages.
- The Occupational Safety and Health Act (職業安全衛生法) (amended 15 May 2019)
  - Enacted to protect workers' safety and health and to prevent occupational accidents.

3.3 Applicable international standards

The Project intends to seek financing from various international finance institutes (IFIs) and commercial banks and is thus required to meet the requirements of both the Equator Principles 4 (EP4) and IFC Performance Standards (PS). The applicable framework is a suite of documents adopted by the IFC as part of the "positive development outcomes" outlined within its policy on Social and Environmental Sustainability. These form a comprehensive set of social and environmental standards for use in project assessment, review and investment decision making processes and include:

- Equator Principles IV, July 2020
- International Finance Corporation (IFC) Performance Standards (PSs), 2012
- World Bank Group (WBG) Environmental Health and Safety (EHS) Guidelines, such as:
  - WBG General EHS Guidelines, 2007
  - WBG EHS Guidelines for Ports, Harbours and Terminals, 2007.

3.4 Institutional arrangements

The Project will be developed by Ørsted with the involvement of Project appointed contractors, suppliers and government departments. Ørsted has developed the following core policy documents and systems for managing labour rights. These policies cover topics on reasonable working conditions, migrant workers and substantially equivalent terms, workers' organisations, non-discrimination and equal opportunity, child labour, forced labour, occupational health and safety, gender, monitoring, and labour management plans. These policy documents include:

- Ørsted Taiwan Staff Handbook ('Staff Handbook') dated January 2018
- Ørsted Taiwan Work Rules ('Work Rules') approved by the Ministry of Labour on May 2018
- Ørsted Code of Conduct (CoC) for Business Partner dated October 2022
- Ørsted Good Business Conduct Policy (2019)
- Ørsted Quality, Health, Safety and Environmental Policy (2022)
- Ørsted Human Rights Policy (2021)
- Ørsted Modern Slavery Act Statement (2021)
- Ørsted Stakeholder Engagement (2022)
- Ørsted Guidebook on Local Community Engagement (2014)
- Ørsted Global Diversity and Inclusion (2018)
- Ørsted Whistleblower Hotline (2018)
- Ørsted Bullying, Discrimination and Harassment Policy

In addition, the management and monitoring requirements set in the following documents are applicable to the construction and operation phase of the Project:

- Overarching Environmental and Social Management System (ESMS) – Project Trinity (30 May 2023)
- Labour Management Plan– Project Trinity (6 October 2023)
- Greater Changhua NW Offshore Windfarm EIA (Unitech, 2018)
- Greater Changhua NW Offshore Windfarm EIA addendum and its appendices (Unitech, 2022)
- Changhua and Yunlin Offshore Wind Farms Project Environmental Impact Survey (EIS) Report 2nd revised version (under review by the EPA) (Unitech, 2020)
- Coastal Zone Management Assessment (CZMA) (Greater Changhua Offshore Wind Farm NW Ltd, 2019)

Project appointed contractors will be responsible for the actual, physical construction and installation of all of the project components wind turbines. This includes installation of the WTGs, OSS, array cables, export cables, jacket foundations, onshore cable, onshore substation, as well as the electrical infrastructure and grid connection. Project appointed suppliers will provide the necessary materials and equipment for the project. This includes the wind turbines themselves, as well as other necessary components like towers, foundations, and electrical equipment.

Governmental bodies act as the Competent Authority, granting permissions and overseeing the EIA process. They are responsible for ensuring that environmental considerations are taken into account before Project approval. They also enforce compliance with EIA regulations and take necessary actions in case of violations. Governmental bodies are essential in safeguarding environmental interests while balancing the developmental needs of Taiwan.

4 Methodology

4.1 Overview

The purpose of this FSIA report is to present the main aspects of the social assessment process and define the key management, mitigation and enhancement measures for predicted impacts. The following are the steps undertaken for this FSIA:

- Referencing and presenting the currently available socio-economic baseline data and analysis as relevant to the Project. This includes establishing the Project and its associated activities to:
  - Define the Project's area of influence (AoI)
  - Identify people within the Project's AoI who may be impacted by the Project

  The approach for defining the Project's AoI and identifying receptors within the AoI is elaborated in section 4.3.1
- Screening and scoping and of relevant social impacts by identifying potential interactions between the Project and the affected parties within the AoI (see section 4.3 for details)
- Evaluating and rating the type of interaction for each impact for each social aspect
- Identifying the extent that already existing or relevant assessment and mitigation/management measures within the current documentation suite have addressed the scoped social impacts/aspects
- Recommending project-specific management plans, such as the environmental and social management system (ESMS) or other instruments to be updated (if required) to capture required management actions.

Elaboration of the abovementioned steps are further provided below.

4.2 Focused social impact assessment

As described by IFC PS Guidance Note (GN) 1, a focused social impact assessment (FSIA) is an assessment with a limited scope and magnitude and focused on particular social aspects or impacts identified as significant to the Project. A FSIA is considered appropriate for this Project the following reasons:

- Adverse social risks and/or impacts are limited and/or could potentially be assessed and managed through the Project's existing instruments including:
  - EIA[4] and EIA amendments[5]
  - ESMS[6]
  - IFC PS2 Gap Analysis[7]

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4 See footnote 3, page 2.

5 大彰化西北離岸風力發電計畫 環境影響差異分析報告 (定稿本), dated April 2022

6 Overarching Environmental and Social Management System (ESMS) - Project Trinity, dated 15 December 2022

7 The International Finance Corporation (IFC) Performance Standards (PS) 2 Gap Analysis - Project Trinity, dated 30 November 2022. The IFC PS2 Gap Analysis report has been developed by Ørsted to identify and address gaps in the Project's current procedures and plans against the requirements of local labour laws and IFC PS 2.

  - HRIA, forthcoming in Q1 2024[8]
  - LRP, forthcoming in Q1 2024[9]
- Baseline data for a very similar adjacent project (ie Project Mercury, another offshore windfarm developed by the Project Company) can complement/supplement and inform assessments.
- Project Trinity is a part of the wider development plans of a range of adjacent OSWFs in this region, and thus not 'greenfield' in the context of surrounding development.

Table 4.1 below further summarises the aspects of a FSIA based on IFC PS GN 1, which applies to this Project

Table 4.1: Aspects of a FSIA

Aspect	FSIA description	Stage for FSIA completion
Projects Suitable For	Specific activities with limited adverse social risks, such as modernisation, urban development, or social infrastructure projects.	Draft stage
Scope	A) Narrower in scope, focused on identified social risks, determined through initial screening. B) May include specific assessments like air quality or noise studies.	A) draft stage B) If necessary, to be completed at final FSIA stage
Process Elements	A) Defined through initial screening, with systematic review of potential risks. B) May involve modifying project plans or conducting further focused assessments based on identified risks.	A) FSIA draft stage B) If necessary, to be fully completed at final FSIA stage
Alternatives Analysis	May involve confirmation and documentation of application of applicable standards or construction criteria.	To be fully completed at final FSIA stage
Applicability to Greenfield Developments	IFC GN 1 does not specify applicability to greenfield developments.	Not applicable
Monitoring and Implementation	IFC GN1 does not specify monitoring and implementation.	Necessary for good international industry practice and to be fully completed at final FSIA stage
Baseline data, impact analysis and mitigation plan	Limited/focused	To be fully completed at final FSIA stage

Source: IFC PS GN 1, 2021

[8] Project Trinity Interim Human Rights Impact Assessment, dated 5 December 2023

[9] Project Trinity Interim Livelihood Restoration Plan, dated 20 November 2023

4.3 Social impact assessment process

4.3.1 Project's area of influence

A project's AoI is defined by IFC PS GN 1 (paragraph 8) as the area likely affected by:

- A project's activities and components for which:
  - the project and the client's activities and facilities are directly owned, operated or managed (including by contractors) and are a component of the project,
  - impacts from unplanned but predictable developments caused by the project may occur later or at a different location; or
  - indirect project impacts on biodiversity or on ecosystem services upon which affected communities' livelihoods are dependent.
- Associated facilities, which are facilities that are not funded as part of the project and that would not have been constructed or expanded if the project did not exist and without which the project would not be viable.
- Cumulative impacts that result from the incremental impact, on areas or resources used or directly impacted by the project, from other existing, planned or reasonably defined developments at the time the risks and impacts identification process is conducted.

For the Project, the area that is directly affected by the Project and its physical components include the wind farm site (zone #12 located in the Taiwan Strait, as defined by the Bureau of Energy), cable alignment, substation site and Taichung Port assembly site. No associated facilities under the IFC definition have been identified.

For affected communities, villages/townships where affected fishers, their workers and households live and work and use of specific fishing ports with associated fish sector value chain workers include:

- Changhua County
- Coastal townships within Changhua where most of affected local fishers, their workers and households are located (or active) in including:
  - Lukang Township (鹿港鎮) (with Lunweiwan fishing habour 崙尾灣漁港)
  - Xianxi Township (線西鄉) (with Wenzi fishing habour 塭子漁港)
  - Fangyuan Township (芳苑鄉) (with Wanggong fishing harbour 王功漁港)

It is assumed that Project workers are most likely to reside along the west coast of Taiwan. Supply chain and supplier companies may be both national and international. As supply chains for OSWFs in Taiwan are global, these are considered only with respect to specific social and human rights risks.

Figure 4.1 below presents the Project's AoI. The AoI remains open to review if further receptors, including affected communities, stakeholders or disadvantaged/vulnerable groups are identified during the baseline data collection process. Further context and baseline snapshots of the AoI are presented in section 5.

Figure 4.1: Project Trinity's area of influence

Project title
Project Trinity
Focused Social Impact Assessment (FSIA)

Map title
Figure 4.1
Project Trinity Area of Influence

Legend
- Project Trinity Site
- Export cables (preliminary)
- Township boundaries
- Landing point
- Changkong Grid Connection Point
- Fishing habour

Coordinate System
Coordinate System: WGS 1984 UTM Zone 51N
Projection: Transverse Mercator
Datum: WGS 1984

Sources
- Orsted, 2022
- https://map.4coffshore.com/offshorewind/
- Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DF, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Client
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Date	Status	Rev
28/12/2023	PRE	0

0 5 10 20
Kilometers

Source: Mott MacDonald, 2024

4.3.2 Screening

A screening exercise is typically first conducted to determine what social aspects and issues are applicable to a project. The screening was conducted through the review of publicly accessible environmental and social (E&S) assessments pertaining to OSWF developments or conducted based in Taiwan. Social aspects were identified through Applicable Standards, including EP IV, 2020 and IFC PSs, 2012.

Screening through an environmental and social due diligence exercise by independent competent E&S professionals determined that this Project is a Category A project requiring additional E&S assessment and management documents for IFIs. IFC PS1 defines a Category A project as one for which the business activities have potential significant adverse environmental or social risks and/or impacts that are diverse, irreversible or unprecedented.

Furthermore, Taiwan legislation requires all OSWF developments to produce and undergo an EIA process as prescribed within the Environmental Impact Assessment Act (2023). The Project's EIA report covers baseline surveys for flora and fauna, a cultural heritage screening, meeting minutes of EIA's public consultations, environmental mitigation and monitoring plans and more. The Project received approval for its EIA on 23 March 2018. Further EIA amendment documents, including a bird survey report[10] and environmental deviation report[11] were later produced and approved on November 2020 and April 2022, respectively.

4.3.3 Scoping

The scoping process is typically used to identify the potentially significant risks and impacts that may arise from a project. Understanding the Project, including all project components and associated activities from all phases was the first step to establishing the overall footprint and range of impacts (see section 4.3.1 for the details on the Project's AoI).

Scoping reviewed the anticipated interactions between the Project's AoI with the identified impacted groups of people. The results which indicate whether a risk or impact is positive, unlikely or likely are presented in the scoping matrix, Table A.2 of Appendix A. Analysis or measures already in place for each aspect are also captured within the scoping matrix.

4.3.4 Baseline data

Baseline social data relevant to the social impacts and risks that were identified through screening and scoping is presented in section 5. The baseline describes the socio-economic context of the Project's defined AoI, including the existing social environment, conditions, and demographic trends. The Project's social baseline further captures information relating to community values and perceptions of the Project, particularly communities of the townships identified/defined for the Project's AoI (see section 4.3.1). The Project's baseline data is based on primary and secondary data captured for and reported in the Project's LRP and HRIA. Further details on the baseline data are also mentioned within section 4.4.

4.3.5 Impact identification and significance attribution

The social impacts scoped in within Table A.2 have been assessed in more detail (in section 6). This FSIA determines the significance of the impact, whether beneficial or adverse as well as direct, indirect and/or cumulative. The attribution of significance of each impact has been categorised by the degree of predicted change from a baseline condition (the magnitude of

[10] 大彰化西北離岸風力發電計畫 環境影響調查報告書 (鳥類調查報告), 定稿本, dated November 2020

[11] 大彰化西北離岸風力發電計畫 環境影響差異分析報告 (定稿本), dated April 2022

impact) and the sensitivity of the impacted group of people. The subsequent sections elaborate upon the abovementioned approach in detail.

Magnitude criteria

The magnitude of social impacts has been determined by consideration of the extent to which social receptors gain or lose access to/or control over socio-economic or cultural resources, resulting in a beneficial or adverse effect on their individual and collective wellbeing. Wellbeing is considered as the financial, physical, and emotional conditions and quality of life of people and communities.

For beneficial impacts, the extent to which local wellbeing is likely to be enhanced has been considered. This is in accordance with international trends in SIA practice towards an increased focus on enhancing long-term development benefits for a local community's sustainability, as opposed to only considering mitigation of adverse impacts. As such, the magnitude criteria include consideration of the extent to which benefits are shared with or realised by local people and communities.

The assessment of magnitude has been undertaken using professional judgment, taking into account of several factors, wherein:

- Temporal, as based on the duration (eg once-off, short-term, long-term, permanent) as well as frequency and potential of recurrence (ie rarely/hardly, occasional/sometimes, frequent/often, sustained/persistent) of the impact.
- Spatial, as based on the extent of impact, as based on geographical scale, or number of individual/household (eg individuals/households, village/communities/township, county, national or even international/transboundary)
- Degree of change as based on an estimation of the scale/magnitude of impact relative to the baseline/existing conditions (eg negligible, small/limited, medium, large) and/or compliance with legislation (eg whether exceeding, and/or the scale/magnitude of exceedance)
- Reversibility and/or resiliency/sensitivity of receptor, as based on the receiving social aspects ability to 'return to baseline' or assimilate the change (ie without adverse effects). This could range from 'no/limited impacts perceived' to 'requiring significant intervention to recover'.

Magnitude of impacts has been categorised as major, moderate, minor, or negligible, based on consideration of the above parameters.

Table 4.2 below presents the overview of the broad criteria (ie as based on factors above) that have been used to categorise the magnitude of social impact.

Table 4.2: Social impact magnitude criteria

Categorisation	Definition
Major	An impact that would have permanent implications for the long-term affecting the wellbeing of many people across a broad cross-section of the population and affecting various elements of the local communities' and/or workers' resilience.
Moderate	An impact that continues for the medium/non-permanent term throughout the project life and affects the wellbeing of specific groups of people and affecting specific elements of the local communities' and/or workers' resilience.
Minor	An impact that occurs periodically or over the short term throughout the life of the project affecting the wellbeing of a small number of people and with little effect on the local communities' and/or workers' resilience.

Categorisation	Definition
Negligible	A potential impact that is very short in duration so that the socio-economic baseline remains largely consistent and there is no detectable effect on the wellbeing of people or the local communities' and/or workers' resilience.

Source: Mott MacDonald, 2023

Sensitivity criteria

Sensitivity of social receptors – namely communities, workers and businesses – has been determined by consideration of their vulnerability to impacts. This is measured by their capacity to cope with impacts that affect their access to, or control over additional or alternative social resources of a similar nature to baseline conditions, ultimately affecting their wellbeing. Sensitive or vulnerable people are generally considered to have less means to absorb and deal with adverse changes than less sensitive or less vulnerable people. Similarly, they may not be able to maximise and build on beneficial changes to their resource bases.

When considering sensitivity to social impacts, the type of resources in question varies between different types of receptors. For example, a community's vulnerability has generally been measured in terms of its resilience to loss of community facilities, whereas an individual or household's vulnerability has been considered in relation to their resilience to deprivation and loss of livelihood assets or opportunities (such as jobs, productive land or natural resources). Impacts that increase impoverishment risks contribute to vulnerability. Impoverishment risks include landlessness, joblessness, homelessness, marginalisation, increased morbidity and mortality, food insecurity, loss of access to common property resources and social disarticulation. Other vulnerabilities have generally been measured in terms of community resilience to noise, air pollution, flood, and immigration impacts. Table 4.3 below presents the criteria that have been used to categorise the sensitivity of receptors.

Table 4.3: Receptor sensitivity criteria

Sensitivity	Definition
High	People who are already vulnerable with very little capacity and means to absorb proposed changes or with very little access to alternative similar resources, sites or services.
Medium	People who are already vulnerable with limited capacity and means to absorb proposed changes or with some access to alternative similar resources, sites or services.
Low	People who are not vulnerable with some capacity and means to absorb proposed changes and with some access to alternative similar resources, sites or services.
Negligible	People who are not vulnerable with plentiful capacity and means to absorb proposed changes and with good access to alternative similar resources, sites or services.

Source: Mott MacDonald, 2023

4.3.6 Attribution of significance to impacts

Each impact assessed has been classified as adverse or beneficial, and its impact magnitude and group sensitivity categorised. Significance attribution then combines magnitude and sensitivity criteria using the matrix presented in Table 4.4.

Table 4.4: **Impact determination of significance**

Sensitivity	Magnitude						
	Adverse				*Beneficial*		
	Major	Moderate	Minor	Negligible	Minor	Moderate	Major
High	Major	Major	Moderate	Negligible	Moderate	Major	Major
Medium	Major	Moderate	Minor	Negligible	Minor	Moderate	Major
Low	Moderate	Minor	Negligible	Negligible	Negligible	Minor	Moderate
Negligible	Minor	Negligible	Negligible	Negligible	Negligible	Negligible	Minor

Source: Mott MacDonald, 2023

4.3.7 Management measures identification and residual impact attribution

Adverse impacts that have been determined as being 'moderate' or 'major' from Table 4.4 above are significant. The expectation is that they will require more management resources or efforts and reduce their residual impact. Residual impacts are those that remain after mitigation and enhancement measures are applied. Impacts that are assessed as 'minor' or 'negligible' are considered 'not significant', however they may still require management measures to lessen their effect or increase their benefit. The analysis of impacts resulting from activities in the construction, operations and decommissioning phases in section 6 present the categories of magnitude criteria, sensitivity criteria and the resulting significance attribution.

4.3.8 Identification and mitigation of project social risks

Social risks including human rights or occupational and community health, safety and security risks are assessed as Project risks rather than impacts. Unlike other topics within the FSIA, the potential labour and social risks will not be assigned formal magnitude and sensitivity ratings and a significance of the impact will not be identified, due to the fact that these risks are always present in construction projects and they cannot be predicted. Health risks can be ranked in terms of their importance, considering the likely scale of the impact and the population groups which experience the impact.

For the purpose of this FSIA, risks associated with human rights, occupational or community health, safety and public/community perceptions require controls to be in place, irrespective of any assessment of their significance. On that basis, Section 6.1.3.2 (ie 'labour and working conditions') and Section 6.1.3.3 ('community health, safety and security risks') describe social risks associated with the Project but do not attempt to identify impacts or apply significance. Management and mitigation measures are also identified to prevent the risks from materialising.

4.4 Uncertainties and limitations

Conclusions and assumptions in this FSIA are based on evidence collected by this methodology. Hence, limitations may apply depending on the availability of primary and secondary data. Most secondary data is land-based however there is fishing data from other sources.

Primary data (where referenced), including stakeholder engagement activities or interviews and surveys of local communities, are samples of the wider population, and can at most represent inferences of the wider affected communities or areas. Most of the primary baseline data presented to date is referenced from the Project's LRP and HRIA. This set of primary baseline

data is extracted from a detailed socio-economic survey of the project-affected households (PAHs) carried out for CHW01 (September 2020 to February 2021). It includes data obtained through household questionnaire surveys, key informant interviews (KIIs) and focus group discussions (FGDs).

Primary data has been referenced from CHW01 because there is no change in the membership of Changhua Fishery Association from 2020 to 2023. The key PAHs surveyed for the CHW01's socioeconomic-baseline survey would be identical for this Project Importantly, with a large number of wind farms proceeding in the concession area off the coast of Changhua County, there is risk of lack of coordination in research and engagement, over-consultation, and consultation fatigue. This could add negative community perceptions and impacts of all OSWF developments in the area. As such, building on previous research, avoiding duplication, but responsively picking up key changes over time is the Project's current strategy. Hence, additional KIIs and FGDs have been carried out between December 2023 to January 2024 to further assess the current socio-economic conditions qualitatively and support the 2020 household baseline surveys of CHW01.

The impact assessment has, where possible, quantified impacts. Where accurate baseline data is not yet available, estimates on impact magnitude rely on professional judgement, from experience with similar projects. It should be noted that for the purpose of this FSIA report, operational risks, impacts and opportunities are only covered qualitatively at a high-level as the Project's final development and operational plans are not confirmed and subject to change.

5 Socioeconomic Baseline

5.1 Overview

This section presents the baseline social data for the Project's AoI. The Project's various document suite cover a variety of baseline information that pertain to the FSIA, and the proceeding sections present the relevant information for further clarity. As mentioned in Section 4.4, primary baseline data from CHW01 will be referenced and presented, since they key PAHs surveyed for the CHW01's socioeconomic-baseline survey would be identical for this Project.

5.1.1 Population and demographics

5.1.1.1 Population by gender and age

Changhua County is located in the central region of Taiwan. According to the Population and Housing Census (2020) from the National Statistics[12], Changhua County has a resident population of 1,186,795, with more males than females (605,657 males, 581,138 females). The population density across the County is 1,104.6 people per km². Xianxi Township and Lukang Township are the townships where the Project's offshore cable connects with onshore facilities and they are host ports for local fishing boats. The populations of Xianxi Township and Lukang Township are 16,158 and 90,069 respectively.

The average age of females in Taiwan is 42.4 years as compared to males at 40.5 years. In terms of the age structure, the population can be divided into three groups, namely the young population aged 0-14, also known as the 'dependency young children group'; the adult population aged 15 to 64, or the 'production population group'; and the elderly population aged 65 and older, or the 'dependency elderly group'. According to Changhua County government[13], as of December 2023, the percentage of young population aged 0-14 in Changhua County was 12%, while the adult population accounted for 69%, and the senior population accounted for 19%. The overall dependency ratio was 44.93, indicating that Changhua County is experiencing population aging. Over the past nine years, the aging index has increased from 98.28 in 2015 to 158.33 in 2023, showing a clear trend of aging in the population.

According to Changhua County government[14], in Xianxi Township, the percentage of young people aged 0-14 in 2022 was 11% (1,862), the adult population was 72% (11,741), and the elderly population was 17% (2,700). The overall regional dependency ratio was 38.84, and the aging index was 145.00, also indicating a trend of population aging. As of November 2023, the total population in Xianxi Township was 31,190, with 16,512 males and 14,678 females. In Lukang Township, the percentage of young people aged 0-14 in 2015 was 14% (12,123), the adult population accounted for 69% (59,298), and the elderly population accounted for 16% (13,949). The overall regional dependency ratio was 43.96, and the aging index was 115.06,

[12] Population and Housing Census (2020), National Statistics (most recent published, at time of report writing), 2020 Summary report (stat.gov.tw), retrieved on 26 October, 2023.

[13] Changhua County government, "Statistical Yearbook of Changhua County in December 2023".

[14] Changhua County government, "Important statistical indicators for each township and city in Changhua County in the year 2022.", dated November 2023.

also indicating a trend of population aging. As of December 2023, the total population in Lukang Township was 84,678, with 42,816 males and 41,862 females[15].

Table 5.1 presents the gender ratio and age groups of fisher folk household respondents surveyed in 2020 for CHW01. Three age groups are presented with reference to the legal working age (≥15 years old) and retirement age (≥60 years old) in Taiwan. With reference to 1, members of working age (15 to 60 years old) made up the majority of the respondents' households accounting for 71.4%. About 20% of the households' members were of retirement age (≥60 years old), while youths below the age of 15 made up 8.5% of respondents. The survey conducted received fewer male household members (254) than female household members (357), with a gender ratio of 71.1[16]. It is noted that the sampled population deviated significantly from the gender ratio of Changhua County, which is 102.1[17].

Table 5.1: Population of surveyed households by gender and age group

Age groups	Gender				Total	
	Male		Female		Number	%
	Number	%	Number	%		
Below 15	34	13.4%	18	5.0%	52	8.5%
From 15 to 60	198	78.0%	238	66.7%	436	71.4%
Above 60	22	8.7%	101	28.3%	123	20.1%
Total	**254**	**100.0%**	**357**	**100.0%**	**611**	**100.0%**

Source: Mott MacDonald, 2020

5.1.1.2 Education levels

Table 5.2 presents the education levels of household members surveyed in 2020 for CHW01. The highest proportion of respondents have attained an education level of college/university and above, accounting for 29.6% of all surveyed respondents. This is closely followed by respondents that have attained a senior high school education, accounting for 25.7% of all surveyed respondents. In terms of the gender ratio with regards to education levels, the number of female respondents who have attained a Senior High School and College/University qualification and above were slightly lower for than males, and significantly less females had attended Secondary School, as seen in Table 5.2. Much higher numbers of female respondents had completed schooling only up to Primary School qualifications – more than twice the male respondents.

Table 5.2: Education levels of surveyed population with age of six and above

Education levels	Male (N)	%	Female (N)	%	Total	%
College/University and above	78	30.7%	102	28.8%	180	29.6%
Senior High School	74	29.1%	82	23.2%	156	25.7%
Secondary School	55	21.7%	45	12.7%	100	16.4%

[15] Changhua County Public Health Bureau, 彰化縣衛生局公共衛生監測系統 (chphs.tw), retrieved on 29 January, 2024.

[16] Numbers of males to 100 females.

[17] General Statistical analysis report, National Statistics Republic of China (Taiwan), https://eng.stat.gov.tw/public/Data/7113143851PNHSNJPU.pdf accessed 10 March 2021.

Education levels	Male (N)	%	Female (N)	%	Total	%
Junior High School[18]	1	0.4%	1	0.3%	2	0.3%
Primary School	28	11.0%	87	24.6%	115	18.9%
Others	18	7.1%	37	10.5%	55	9.0%
Total	**254**	**100.0%**	**354**	**100.0%**	**608**[19]	**100.0%**

Source: Mott MacDonald, 2020

5.1.1.3 Disability

There are over one million (1,182,931) people in Taiwan with disabilities of various types, for instance limb disability, multi-disability, losing functions of primary organs were registered in the 2020 national census. Compared with 2010, the largest increase was observed in senile dementia and chronic psychosis.

5.1.2 Economy

The labour force refers to the civilian population who are over 15 years of age, have the ability and the willingness to work, and want to obtain paid work. At the end of 2021, Changhua County had a population of over 1,094 thousand people over the age of fifteen. Among which, 649 thousand people are the labour force, where the labour force participation rate was 59%.

The employed population refers to the labour force engaged in paid work or unpaid workers working for at least 15 hours during the standard week. By the end of 2021, the employment rate was 96.2%. In the past decade, except for the Financial Crisis period from 20012 to 2021, the unemployment rate has decreased from 4.2% to 3.8% year by year, and the unemployment problem has gradually slowed down.

In terms of employment sector, for Changhua County in 2021, the agriculture, forestry, animal husbandry and fisheries employment population number was 65,000 people, accounting for 10%, the industry employment population number was 285,000 people, accounting for 46%, while the service industry employment population was 275,000 people, accounting for 44%. The results show that the employed population of the county is mostly engaged in the industry sectors.

5.1.3 Fishing livelihoods

Fisherfolk (mostly men) in Changhua who have fishing vessels registered under Changhua Fishery Association (CFA) are granted access to the CF's exclusive fishing zone. Overall, there are approximately under 1,000 fishing vessel owners who are registered members of CFA. According to the current Environmental Impact Assessment (EIA), the Project's cable route is situated within the Fishing Rights Zone of the Fishermen's Association under the Fisheries Act 2018. Figure 5.1 provides an illustration of the project location and the Fishing Rights Zone of the Fishermen's Association.

Based on a socio-economic survey undertaken in 2022 by the Changhua County government[20], 19.64% of Changhua fisher folk engage in aquaculture activities in the context of marine

[18] Please note that the education level for "Junior High School" is equivalent to "Secondary School". It is noted that "Junior High School" is the former education level classification from the previous education system in Taiwan.

[19] It is noted that some respondents did not provide detailed information on education levels of their household members

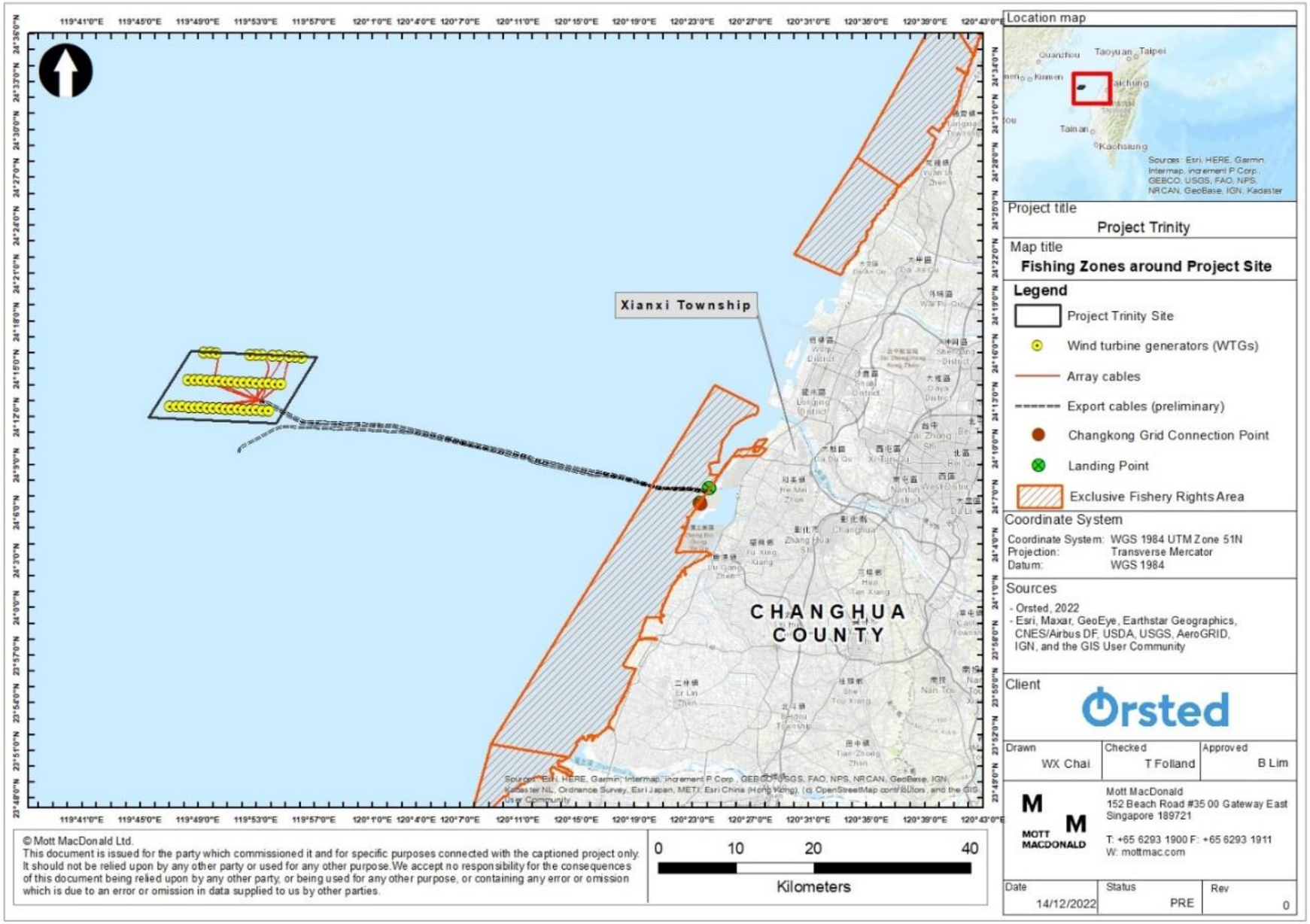
[20] 111 年漁業從業人數

aquaculture farms. Aquaculture activities are related to the cultivation of aquatic organisms, while fishing vessel activities mainly involve capturing wild marine life. Ørsted has addressed concerns raised by the aquaculture farmers (ie oyster farmers) about the underwater cable of OSWFs passing through the intertidal zone during Project pre-construction stakeholder engagement activities. Ørsted had clarified that the Project's cable laying area differs from the oyster farm area. The Project plans to use the northern export cable corridor, while the oyster farms in Changhua County are situated in the southern export cable corridor.

In addition to vessel owners, there are other people who are engaged in fishing and in the fishing value chain or supply chain who may be negatively impacted, such as migrant or local deck-hands or employees on boats, non-registered fishers, land-based employees, fishmongers, or women (or other family members) in fishing families providing support or ancillary work which is unpaid and/or otherwise unrecognised within the household.

Table 5.3 below provides more details on the different types of fishing activities based on the Fisheries Agency’s public data.

Figure 5.1: Location of Project Trinity and CFA fishing rights zone



Source: Mott MacDonald, 2024

Table 5.3: Number of people involved in different types of fisheries in Changhua County

Year	Total people	Far sea fishing	Offshore fishing	Coastal fishing	Marine aquaculture	Inland fishing	Inland aquaculture
2013	12,133	-	-	3,596	3,246	331	4,960
2014	10,002	-	-	2,397	2,326	308	4,971
2015	13,488	-	-	3,199	3,173	384	6,533
2016	12,893	-	-	3,238	3,038	-	6,617
2017	12,714	-	60	2,949	3,155	117	6,434
2018	13,202	-	60	3,466	2,957	135	6,584
2019	13,139	-	60	3,472	2,847	137	6,623
2020	12,321	-	60	2,741	2,860	126	6,534
2021	14,527	-	20	5,259	2,856	120	6,272
2022	14,518	-	127	5,255	2,851	160	6,125

Source: Fisheries Agency (2023)[21]

5.1.4 Ethnicity

Han Chinese (comprising diverse subgroups with different languages and customs) make up more than 95% of the population of Taiwan whilst indigenous Malayo-Polynesian peoples comprise approximately 2.5%. The remaining 2.5% (over 570,000) of the population are new immigrants into the country especially in recent years[22].

Taiwan has 16 officially recognized Indigenous Peoples (IP) groups, as well as other unrecognized groups. However, the affected CFA fishing grounds have not been acknowledged or identified as part of their traditional territories.[23]

Traditionally, most of Taiwan's IP originally lived in the central mountains as well as on the east coast and in the south of the country. More recently however, up to half of the IP population reside in the urban areas of the country. Key challenges for IP in Taiwan include rapidly disappearing cultures and languages, encroachment on traditional domains, and protection of indigenous rights[24]. As of December 2021, within Changhua County, there are 6,145 people with indigenous ethnicity (0.49% of the county population) with 479 (0.038% of Lukang township population) residing in Lukang Township and 54 (0.004% of the township population) in Xianxi Township [25, 26]. No groups who meet the criteria/definition of IPs in PS7 have been identified as being impacted by the Project.

5.1.5 Religion

Before the 17th century, Taiwan was inhabited by indigenous populations, who practiced animist and natured based religious beliefs. Post arrival, European settlers introduced Christianity (ie Protestant and Roman Catholic) through evangelical missionaries. The large influx of Han Chinese in the second half of the 17th century brought Buddhist, Taoist and Confucian belief systems. During the Qing Dynasty in mainland China, the latter three religions became popular, leading to a visible increase of religious temples, monuments, and facilities built in Taiwan. As of 2023, the main religions in Taiwan are Taoism and Buddhism which makes up 35% and 33% of the population, accordingly[27]. No religious sites are in the direct area of influence.

5.1.6 Cultural heritage

Section 6.7 of the Project's EIA presents survey findings of tangible and intangible cultural heritage. A survey of cultural heritage sites along the route of the overland cable in the Lunwei

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[22] PEOPLE - Taiwan.gov.tw - Government Portal of the Republic of China (Taiwan), retrieved 2 November 2023

[23] There are 16 officially recognised indigenous people groups which make up 2.48% of the population: Amis, Atayal, Bunun, Hla'alua, Kanakaravu, Kavalan, Paiwan, Puyuma, Rukai, Saisiyat, Sakizaya, Seediq, Thao, Truku, Tsou, and Yami; Amis, Paiwan. Amis are currently the largest and account for roughly 37.3% of the indigenous population. In addition, there are at least 10 Pingpu indigenous people (IP) groups who are denied official recognition (Babuza, Basay, Hoanya, Ketagalan, Luilang, Pazeh/Kaxabu, Papora, Qauqaut, Taokas, Trobiawan) and further groups which are recognised locally (Makatao group (in Pingtung City and Fuli township), Siraya group (in Tainan City and Fuli township), Taivoan group (in Fuli township)).

[24] The Indigenous World 2023: Taiwan - IWGIA - International Work Group for Indigenous Affairs, retrieved 2 November 2023

[25] Civil Department of Changhua County Government: https://civil.chcg.gov.tw/07other/other01_con.asp?topsn=2318&data_id=22197

[26] Taiwan Council of Indigenous Peoples: https://www.cip.gov.tw/portal/docDetail.html?CID=940F9579765AC6A0&DID=2D9680BFECBE80B6F1D682BA1ED86E61

[27] Taiwan - The World Factbook (cia.gov), retrieved 2 November 2023

Area found 27 tangible recorded cultural heritage sites within the area of Xianxi Township and Lukang Township. Among which, one is located at Xianxi Township and 26 are located within Lukang Township. In addition, 23 sites with archaeological relics were also identified, with six sites located in Xianxi Township and 17 sites located in Lukang Township. For intangible cultural heritage, one registered intangible cultural heritage (ie the traditional arts of drum making) is recorded within Xianxi Township. The remaining 21 intangible cultural heritage, which include traditional arts (eg gold carving and tin craft), preservation techniques (ie wood carving), folkway and traditional performing arts (eg Nanguan music) are recorded within Lukang Township. All of the cultural heritage sites and archaeological/historical relics are located at least 2km away from onshore cable which indicates that any terrestrial works is unlikely to impact them.

According to the Project's EIA (ie 6.7 of the EIA), there are four locations of ship wreaks or sunken boats that are registered as underwater cultural heritage sites, including wooden boats from the Qing Dynasty at Kungke Island, the British vessel S.S. Bokhara, the Kohei vessel and the SantengMaru vessel. The four boats are all located in the water territory of Penghu, which does not overlap with the Project offshore areas (ie submarine cable or WTG area). The EIA further notes several vessels sank in the vicinity of the Project site. Among which, "C'heng T'a" and "MV He Xin No.1" are located in the vicinity of CHW01 Wind Farm. The remaining shipwrecks are located more than 1km from the Project's offshore area or landing point of submarine cable.

5.1.7 Infrastructure – water, sanitation, and health

Ninety-four percent of Taiwan's population has access to safe drinking water via the public supply system. Restrictions to access is generally in rural areas where people may use private wells and incentive to connect to the paid-for public water supply system is low.

Traditionally, water has been cheap for consumers in Taiwan and as a result, consumption has been high. In an attempt to stem demand in the face of water scarcity which can impact businesses, prices have recently been increased by the State water utility, but usage remains high. Although the country experienced its worst drought in 56 years, water consumption continued to rise in 2021. The upward trend in water consumption may be attributed to the increased hand washing and sanitisation practices during the COVID-19 pandemic.

The healthcare system in Taiwan is based on a compulsory social insurance plan and a centralised system disburses healthcare funds. It is designed to provide equal access to healthcare for all citizens and lead to fewer health disparities. In general, there is good accessibility, comprehensive population coverage as well as short waiting times and low costs, however quality of care can be variable. Lukang Township (where most onshore work will occur) has two major hospitals (ie Chang Bing Show Chwan Memorial Hospital and Lukang Christian Hospital) and various smaller clinics.

Taiwan Ministry of Health published an annual national medical practitioner status for year 2021 and revealed that there were 7.5 physicians and 73.0 hospital beds per 10,000 population. Life expectancy at birth in Taiwan is 80.86 years, with females generally having a higher life expectancy than their male counterparts (females 84.25; males 77.67). The crude birth rate is very low at 6.55%, with a similar rate to Japan (7%) and slightly higher than Republic of Korea (5%). Taiwan's crude death rate stood at 8%, which is similar to other developed nations such as Canada, Australia, New Zealand and Republic of Korea. Like other developed countries, key health issues include heart disease, cancers and diabetes.

The education system in Taiwan mandated compulsory education for nine years, however in 2014, a further three years was added to the compulsory curriculum. Public primary education lasts for six years, junior high for three years and senior secondary education lasts for three years. Access to the public education system is free of charge. Almost all (99%) of the population over the age of 15 can read and write, with a slightly lower percentage of females (98.51%) than males (99.86%).

The project description in section 2.2 describes infrastructure services that the Project will use.

5.1.8 Land use

Changhua County spans an area of 1,074.40 square kilometres and encompasses 26 townships. Er Lin Township is the largest, covering 92.85 square kilometres, followed by Fang Yuan Township at 91.38 square kilometres. The smallest, Xian Xi Township, comprises a mere 18.09 square kilometres. The registered land area at the close of 2021 stood at 104,756.22 hectares, with public land making up 24,062.58 hectares (22.97%), private land accounting for 80,111.48 hectares (76.47%), and land jointly owned by the public and private sectors comprising 582.15 hectares (0.56%).

As outlined in Section 4.3.1, the AoI for the project is situated in Changhua's coastal area, with onshore components located within the Changhua Binhai Industrial Zone. This reclaimed land, earmarked for industrial growth, is managed and owned by the government. The onshore Project Site will be secured, prohibiting entry to individuals without the necessary permissions.

5.1.9 Human rights

As Taiwan is not a member state of the UN, it does not feature in indices such as the gender inequality index (GII), which is presented annually by the UN. The GII measures gender inequalities in three important aspects of human development - reproductive health; empowerment; and economic status[28]. In 2018, Taiwan measured itself using the same criteria and found that it would be ranked ninth in the world for GII rankings if it were included.

The unemployment rate in Taiwan is reported as approximately 3.48% as of September 2023[29]. The percentage of the total population living in the low-income households (ie population living below the poverty line) in year 2022 is low, at 1.25% (n. 288,703)[30]. According to the law established by Workforce Development Agency, Ministry of Labour, at least three percent and one percent of the workforce in the public and private sectors, respectively, are estimated to be persons with disabilities[31].

Vulnerability for children in the Project's area of influence manifests through their rights not to be subjected to slavery, servitude or forced labour, rights to adequate standard of living (eg poor healthcare and poverty) and rights to education.

The legal minimum age for employment in Taiwan is 15. An exception is made to allow children younger than 15 to work, if they have completed junior high school and appropriate authorities

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[28] Reproductive health is measured by maternal mortality ratio and adolescent birth rates; empowerment is measured by proportion of parliamentary seats occupied by females and proportion of adult females and males aged 25 years and older with at least some secondary education; and economic status is measured by labour force participation rate of female and male populations aged 15 years and older. The higher the GII value (up to 1), the more disparities between females and males and the more loss to human development.

[29] National Statistics, Republic of China (Taiwan)-Unemployment Rate

[30] https://ws.dgbas.gov.tw/001/Upload/464/relfile/10924/232178/y033.pdf, retrieved 1 November 2023

[31] Workforce Development Agency-Fix quota for People with Disabilities (wda.gov.tw), retrieved 1 November 2023

have determined the work will not harm the child's mental and physical health. Taiwanese law prohibits children younger than 18 from carrying out heavy or hazardous work and the maximum working hours for children is eight hours per day.

The U.S. State Department, in its 2022 Trafficking in Person Report, acknowledged Taiwan's dedication to fighting trafficking, ranking it in "Tier 1" for the 13th consecutive year. This tier indicates that Taiwan has fully met the minimum standards outlined in the U.S. Trafficking Victims Protection Act of 2000. Taiwan's persistent efforts, such as improved inspections and the referral of suspected forced labour incidents on fishing vessels for investigation, have contributed to this recognition.

In July 2023, the government has approved an Action Plan for Fisheries and Human Rights which set out measures to improve the working and living conditions of foreign crew working on Taiwan-registered fishing vessels. The plan also included measures aimed at developing coordinated government responses to preventing human trafficking.

5.1.10 Supply chain

The sourcing of raw materials in mineral supply chains can potentially have negative impacts. The supply chain for OSWFs, which primarily consists of raw materials and minerals, may lead to risk of forced labour, child labour, and occupational health and safety issues.

Forced labour may involve using local people, unskilled workers, or trafficked migrant workers to extract the raw materials for OSWF components. In locations with high poverty levels, child labour may also be used for this purpose. Additionally, mining activities, including small-scale mines, can directly impact occupational health and safety. The use of hazardous chemicals, heavy equipment, and poorly designed tunnels can potentially violate the rights of workers. Furthermore, the extraction of raw materials can lead to the contamination of water sources with salt and toxic chemicals, reducing the availability of fresh water.

Although the WTGs supplier for the Project has not been appointed at this stage, Ørsted has a Code of Conduct for business partner in place. This code outlines that the Project's suppliers will adhere to OECD's due diligence requirements[32] with respect to the sourcing, extraction, and handling of minerals and metals used in the supply chain. Ørsted collaborates with significant suppliers and follows the OECD due diligence guidance on responsible mining. This collaboration aims to comprehend whether and how the suppliers develop robust management systems, evaluate supply chain risks, and devise strategies for response. Also, the suppliers are required to establish grievance mechanisms accessible to all workers, right holders, and stakeholders that may report any alleged breaches.

[32] OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas

6 Impact identification, significance attribution, and management measures

The scoping matrix in Table A.2 of Appendix A identified aspects affecting receptors that would lead to the impacts identified below. The sections below present the impact, indicate its significance using the methodology described in section 4.3.5, and then identifies management measures. Management measures include mitigation and enhance measures. The mitigation hierarchy has been used to:

- Avoid and reduce impacts through design (embedded mitigation)
- Abate impacts at source or at receptors
- Repair, restore or reinstate to address temporary construction impacts
- Compensation for loss or damage

Consideration has also been given to the identification of enhancement measures. Enhancement measures are actions and processes that go beyond the mitigation hierarchy and beyond compliance requirements to:

- Create new positive impacts or benefits
- Increase the reach or amount of positive impacts or benefits
- Distribute positive impacts or benefits more equitably

The Project's identified social impacts and risks are discussed further below.

6.1.1 Employment generation

Building an OSWF farm requires a substantial workforce. These projects have the potential to create numerous jobs and stimulate economic growth. By involving local communities in the planning and development process, employment opportunities can be provided, and local businesses can thrive. Moreover, OSWF projects may generate jobs not only during construction but also throughout their operational lifetime.

Impact analysis

Local employment opportunities in the AoI will be generated by the Project during both construction and operations phases. During the construction phase of the Project, which includes Greater Changhua Southwest[33] being built simultaneously, it is estimated that there will be a peak labour workforce of approximately 1,060 workers during the one-year construction period.

During the peak period, more than 90% of the workforce will be working offshore, while the maximum number of onshore construction workers will be 220 individuals. In the operation phase (from 2026 onwards), the maximum number of onshore workers at the substation will be 100, and they are expected to be skilled labour and/or white-collar workers.

It is expected that some workers will be employed from the AoI during the peak construction period. During the onshore construction phase, which includes cable laying and the onshore substation, local contractors will be utilised. A local-based contractor is appointed to source around 80% of local employees for the construction of the onshore substation. This presents

[33] This project is also developed by Ørsted, and it is adjacent the Project's (CHW04) offshore WTG area.

potential employment opportunities for both skilled and unskilled labour from the local area. In the offshore construction phase, most of the jobs will require specialised skills. However, there will also be opportunities for guard vessels and marine mammal observers (MMOs), for which the Project continues to appoint local fishery community members. Based on the Project's EIA, it is expected that at least 24 MMOs will be required for every piling session. Furthermore, there is a possibility for preferential employment of PAPs, provided that the guard vessels meet the necessary vessel specifications and certifications. During the operation and maintenance (O&M) phase, there will be job opportunities available typically requiring specialised skills.

Impact significance

The magnitude of the positive impact of employment generation is considered **'minor'** during the construction phase and operation phase, due to:

- Temporal: Construction employment is short-term (one year), operational employment will be long term.
- Spatial: Spatial scope of impact will mostly be limited to the townships at Changhua coastal area.
- Degree of change: Many construction jobs will be created, and fewer operational jobs will be created, with some available to local people. Operational staff with specialised skills can be expected to move and reside in the area, contributing to local skilled workforce. The employment opportunities for local workers will positively impact their families' well-being and improve their quality of life. Additionally, the earnings of local workers being spent on local products and services will generate further socioeconomic advantages. Migrant workers often send money back to their families, which in turn benefits other regions.
- Reversibility of impact: Most of the construction jobs will end within a year so the employment benefits will soon end, however there will be operational employment which will continue and contribute to the local economy.

The sensitivity of local people who are employed is considered **'high'** given that most residents may lack skills and experience to capture skilled and higher paid employment opportunities. The sensitivity of the operational workers is '**low**' because they have the required skills and a regular income.

Combining moderate magnitude with moderate sensitivity leads to a positive impact of **'minor'** significance during construction phase and operation phase.

Management measures

As mentioned above, Ørsted aims to hire locally where possible, including hiring local-based contractors to source local employees for onshore work. Although construction job opportunities will be only available during the construction phase, Ørsted's LRP covers training and job opportunities that transfer beyond the lifecycle of the Project. These include guard vessel roles and training to become MMO observers (ie which develop skills that could be deploy in other offshore windfarm projects, other than just the Project).

Ørsted is also committed to developing a decommissioning plan no later than five years prior to the end of the operation phase, whereby the plan may revisit the impacts and mitigation measures of employment and labour, if required. Furthermore, as elaborated in the Project's LRP, a Fishery Industry Transformation and Development Fund will be allocated by the Project Company to CFA, whereby the funds will support and assist fisher folk in career changes from the fishery industry as well as local community sustainable development matters.

Appropriate safeguards need to be in place for the impact of employment generation to generate as much benefit as possible. Ørsted has in place a Labour Management Plan which sets out responsibilities and management practices associated with the management of labour during the Project's lifecycle. An Employee Handbook and Code of Conduct (CoC) for Business Partners are also in place with associated procedures and requirements in line with Taiwanese labour laws to ensure human rights, non-discrimination, retrenchment and protection of child or forced labour safeguards are adhered to for employees, contractors and suppliers. Managing and maintaining workers' rights is essential during Project construction and operation. Further management measures relating to OHS are elaborated in Section 6.1.3.2 below.

Residual impact significance

In addition to the details above, more details and updates on employment mitigation measures can be found in Section 8 of the HRIA. Livelihood incomes and employment are also addressed in various sections of the LRP. Therefore, with the mitigation and enhancement measures in place, the vulnerability of the workforce decreases, correct treatment creates more resiliency, and the positive impact and benefits increase such that the residual impact significance is considered **'moderate'**.

6.1.2 Economic displacement and livelihoods

During the development of OSWFs, it is important to consider the potential impact on existing users, such as fisher folks and oyster farmers, and the potential implications for the livelihoods of people working in the fisheries industry.

Fishers in Changhua with registered fishing vessels under CFA have access to the CFA's exclusive fishing rights zone. Overall, there are approximately under 1,000 fishing vessel owners who are the registered members of CFA. The Project's cable route is located within the Fishing Rights Zone of the Fishermen's Association under the Fisheries Act 2018. Less than a fourth of CFA's members are involved in marine aquaculture farms. Concerns have been raised about the submarine cable of OSWFs passing through the intertidal zone where oyster farms are located.

Impact analysis

The onshore infrastructure is located in an existing industrial zone, and no economic displacement is expected for onshore works. In terms of the Project's offshore area, the Project notes that aquacultural or oyster farms are not in proximity by the offshore portion of the Project. This is whereby the Project plans to utilise the northern export cable corridor for cable laying, whereas the oyster farms in Changhua are solely situated in the southern export cable corridor. Furthermore, the cable routes of the Project do not intersect with any marine aquaculture areas. Therefore, it can be concluded that the construction and operation of the Project will not pose any direct impacts to oyster farms or aquaculture farms.

However, during the pre-construction and construction phases of the Project, there is a possibility that the fisher folks in Changhua access to basic needs may be temporarily affected as the Project's cable laying work will run through the exclusive fishing rights (EFR) zone. The installation of the submarine cable will result in coastal fishery activities located within the submarine cable corridor to be temporarily restricted. It is expected that these limitations will mainly impact the coastal fisher folk (i.e. fishing within the three nautical miles zone from the coast) who are the majority of CFA, and the majority of actual loss of access to fishing areas would be limited to the overlapping area between offshore submarine cable area and the EFR of CFA. However, this is a relatively small area when compared to the entire area of CFA EFR

zone. The Project's seabed footprint (ie only consisting of the submarine cable) within the exclusive fishing zone is 4.1km^2, which is 1.2% out of the whole CFA's exclusive fishing zone.

It should be noted that CFA's EFR zone has expired since 2019, and the EFR zone's management now falls under Changhua County government. Hence, the EFR zone is still in place and accessible for fishing only by licensed fishing vessel owners.

Due to the implementation of these restrictions, approximately under 1,000 fishing vessel owners (i.e. as recently updated by the Project Company in consultation with CFA) will lose access to a small area of the marine resources which provides a source of income. It should be noted that all fishing vessels are coastal and offshore fisher folk, so they will only be temporarily affected by the project's cable laying works. The restrictions will primarily impact fisher folk using bottom trawling and bottom gill net fishing methods as required within the Fisheries Compensation Agreement (FCA)[34] signed 7 September 2020.

The offshore marine construction is expected to last two years (targeted to commence in 2024) when certain restriction is required such as prohibition of non-Project vessels from entering the fishing ground and prohibition of bottom trawling and bottom gill net fishing within the entire cable route during construction and operation phase. Once construction is completed, crossing and fishing activities are permitted during the non-maintenance and non-emergency periods with a suggested safety distance of 50m from the cable route.

Other than the access restriction at the cable route area, the WTG construction and operation will also require restriction of marine traffic in an offshore area and fishery activities will likely be affected. It should be noted that the WTG are located outside of the EFR zone, as the WTG are located approximately 50km off the coast of Changhua. This is far beyond (and away from) the boundary of CFA's EFR zone, which only extends between 10 to 20km from the coastline.

During construction, there will be a need to maintain a no-access area for the Project's working activities around each WTG installation location. During operations, an exclusion zone of 50m radius around each WTG will be established and might limit fishery activities.

Due to the distance of the WTG from the coast, any exclusion zone associated with the WTG would only potentially cause limited impact to the far sea fisher folk (i.e. operating over 12 nautical miles or 22.23km). This is because only far sea fishers are expected to have boats that can reach the offshore WTG area (50km offshore). It is understood that there are only a limited number of sea vessels within the CFA, which are the only vessels likely expected to be able to operate at this range in the far sea area. Most of them conduct either gill-net or trawling fishing techniques, which is not allowed within the anticipated WTG area. Within Table 5.3, however, it is also shown that there were no far sea fisher folk operating in the area. Even in the event that the fishing vessels would utilise the WTG area, it should be considered that the spatial operating range (ie up to 40km radius from coast) of such vessels would be relatively large when compared to the exclusion zone area from the WTG. Hence, the impact of far sea construction and operation of the Project to identified PAPs (e.g., fishers fishing in the far sea area) is expected to be very limited.

The socio-economic baseline survey undertaken in 2020 to 2021 on 200 fisher households indicates that the majority of the household members are of working age (15 to 60 years old) and the majority of household members are females (58.5%).

Besides the fisher folks identified through CFA, there are a variety of vulnerable groups that could be impacted by economic displacement. This includes:

[34] Specific fishery access restrictions can refer to section 7.2.2 of the Project's LRP.

- Boat workers with income highly dependent upon the long-term success of the fishing sector such as deckhands and supporting labours, particularly foreign/migrant workers
- Boat workers who work in supply and processing chain that might be impacted by fish catch reduction
- Fisher folk who are not registered members of CFA but who do fish within the exclusive fishing zone
- Vulnerable fisher folk's households
- Women (or other family members) in fishing families providing unpaid support or ancillary work which is reliant on fish supply.

Impact significance

The magnitude of the negative impact associated with economic displacement and livelihoods for coastal and offshore fisherfolk during the construction phase is considered **'minor'**, due to:

- Temporal: Restriction to the CFA fishing rights zone is short-term while cable is being laid.
- Spatial: The cabling laying works will affect the coastal and offshore fisher folks due to the distance from shore (i.e. up to 12 nautical miles) that they typically operate in. The primary impact is expected to be on the coastal fisher folk, who make up the majority of the CFA. During construction, a small portion (ie less than 2%) of CFA's EFR zone will overlap with the cable laying area. This area is currently not used for aquaculture.
- Degree of change: There would be an expected change of the livelihood for the fisher folks from not accessing areas during the construction of cable trenches and laying of submarine cables, and also by fish receding from the area during construction activities
- Reversibility of impact: The fishery resources might get affected during the construction, but the impact would be temporary. Once construction phase is complete, impacts from restrictions and Project activities would be negligible in operation phase and decommissioning phase.

The magnitude of the negative impact associated with economic displacement and livelihoods for coastal and offshore fisher folk during the operation phase is considered **'negligible'**, due to:

- Temporal: Once-off maintenance of cables within the EFR zone is expected during the operation phase.
- Spatial: 500m radius exclusion zones will be set up during maintenance of offshore components, however these are once-off and temporary.
- Degree of change: Limited to no change is likely to happen upon the fisher folk who fish within the EFR zones or where the Project's cables are laid
- Reversibility of impact: The EFR will have already returned to baseline conditions during operation phase.

The magnitude of the negative impact associated with economic displacement and livelihoods for far sea fisherfolk during the construction and operation phase is considered **'negligible'**, due to**:**

- Temporal: Restriction to far sea fishing zones where the WTGs are to be erected during the WTGs construction and operation.
- Spatial: Limited spatial impact on far sea fisher folk as far sea fishing vessels have wide spatial operating range and are not limited to only fishing in the areas where WTGs will be constructed. For construction and operation phase, any access restriction to the WTG area will only be the immediate area around the WTGs (eg construction – safety working distance; operation – 50m radius around the WTG as fishing exclusion zones).

- Degree of change: Limited to negligible change on livelihood as far sea fisher folk's access to their typical fishing areas is limited due to:
  - Table 5.3 shows that there were no Changhua far sea fisher folk operating in the area**.**
  - Even in the event that the fishing vessels would utilise the WTG area, far sea fishing vessels' spatial operating range (ie up to 40km radius from coast) are relatively large compared to the area excluded by the WTG
- Reversibility of impact: Parts of their fishing areas/fishery resources will be impacted long-term when WTGs are in operation. Impact is negligible in the decommissioning phase.

The sensitivity of the coastal and offshore fisher folk are considered **'medium'** given they will have limited alternative options to access other fishing sites. However, sensitivity of far sea fisher folk is considered **'low'** since their vessels allow them to access other far sea sites.

Hence, for the construction phase, combining magnitude with sensitivity leads to economic displacement being a negative impact of '**minor'** significance for coastal and offshore fisher folks, and of '**negligible'** significance for far sea fisher folks. For the operation phase, combining magnitude with sensitivity leads to economic displacement being a negative impact of '**negligible'** significance for coastal and offshore fisher folk and of '**negligible'** significance for far sea fisher folk.

Management measures

The FCA was signed in 2020 after agreements between the Project Company and CFA. The eligible fisher folks have been compensated through the scheme. Compensation amounts took into account the Offshore Wind Power Fishery Industry Compensation Guidelines[35] . The Guidelines do not provide the prescriptive amount to be used for compensation, rather, in practice, they provide a calculated amount which is used as a 'minimum base amount' or starting point of reference for negotiations between the wind farm developer and the fishing association. The final agreed compensation amount documented in the FCA was subjected to willing negotiations (i.e. subsequent to the calculations via the guidelines) and was expected to be higher than the calculated amount. The monetary compensation from the Project Company is then disbursed by/through CFA to the registered fishing vessel owners.

In addition to the monetary compensation, an LRP is being developed for the Project[36], which identifies the Project Affected Persons (PAP) who will be economically displaced. The social baseline from CHW01 has been adopted to inform the development of the LRP. A range of livelihood restoration programmes is being proposed to support the restoration of fisher folk's livelihood[37]. Programmes include but are not limited to vocational training, guard vessel or MMO job opportunities and more.

The Project's Stakeholder Engagement Plan (SEP) report, which also includes a GM[38], has been developed and is currently being implemented. The SEP outlines the ongoing engagement that will be carried out for the Project to help PAPs understand the impacts.

Residual impact significance

With the mitigation measures in place, the sensitivity and vulnerability of the fisher folk who are economically displaced will lessen such that the sensitivity is 'low' for all fisher folk groups. The

35 https://law.coa.gov.tw/GLRSnewsout/LawContentSource.aspx?id=GL000773

36 The interim LRP has been developed at the time of preparing this document. The full LRP is expected to be completed in the first half of 2024.

37 Specific proposed livelihood restoration programmes can referenced in section 6 of the Project's LRP

38 The Project's GM can refer to section 8 of the Project's SEP

residual impact significance during the construction phase will thus become **'negligible',** similar to the operation phase for all fisher folk.

6.1.3 Social risks

In addition to the impacts, there are also human right as well as health and safety risks for community members. For the latter, because there are many well-being determinants that affect health conditions, these issues are presented as risks instead of impacts. No significance is attributed but management measures are identified to prevent the risks from materialising.

6.1.3.1 Human rights

With the growth of wind energy projects within Taiwan and reduce carbon emissions, there is also a growing potential for human rights infringements upon the Project's workforce, supply chain workforce and local community and workforce. Poor working conditions, failure to consider and respect rights of affected stakeholders are all causes that may lead to human rights impacts or infringement.

The Project workforce is deemed to be those engaged directly by the Project Company, the EPC contractor (which is also the Project Company) and its sub-contracted workers working at the Taichung Port and onshore substation sites. It also includes those working at the offshore WTG and cabling sites. Supply chain workforce include those engaged by primary suppliers which, on an ongoing basis, provide goods or materials essential for core business processes of the Project.

The local community include fishers, in particular registered vessel owners who have access to CFA's EFR zone. The fishers' employees and family members, oyster farmers, non-registered fishers, and those engaged in the fishing supply chain such as migrant or local deck-hands are also considered as local community. These definitions are applicable for the remaining sections.

The Project is currently developing a HRIA. The HRIA identifies and assesses the Project's potential human rights impacts and assists in improving the Project's social management and mitigation measures. Measures safeguard and facilitate meaningful engagement with affected communities and workers. The current HRIA extracts information from secondary data as well as baseline survey data from CHW01 (this is explained in section 4.4). Further KIIs and FGDs are being conducted between December 2023 to January 2024 to update the analysis and measures within the HRIA. Hence, the most up-to-date analysis on human rights impacts will be found and presented in the Project's HRIA.

Within the HRIA, potential human right impacts assessed and given a severity score of 1 to 5, 1 being the least severe. 5 is of high severity, and impacts scoring 4 or 5 take precedent in addressing and mitigating. The following human rights impacts are expected to have severity of 4 to 5 for the construction phase (presented in priority of severity, with score of 5 listed first):

- Impact to rights to health or life: work-related accidents due to poor design, equipment failure or others may lead to loss of life for Project workers or community members in the worst-case scenario.
- Livelihood: right to an adequate standard of living not met due to failure to compensate or providing restoration programmes to those applicable. The overall impact severity was moderate.
- Impacts to access to remedy: failure to provide access to remedy (eg GM) for project impacts affecting human rights.

- Human rights within supply chain: it is widely acknowledged that human rights impacts exist within supply chain of wind turbines.

For the operation phase, human rights impact to health or life (as elaborated above) is also applicable and will likely be the only impact identified with high severity within the HRIA.

Management measures

Table 8.1 of the Project's HRIA summarises the existing and proposed mitigation measures for all identified impacts. Below is the summary of the measures for each high severity impact:

- Impact to rights to health or life
  - Existing labour and management documentations in place, including quality health, safety and environmental (QHSE) policy, ESMS, healthy, safety and environment (HSE) management plans onshore and offshore and more
  - Supplier QHSE assessment is undertaken by the Project Company's supplier QHSE assessment team to ensure health and safety aspects are in place prior to construction phase.
- Livelihood:
  - The Project is currently developing an LRP in accordance with IFC PS 5. The LRP covers compensation to identified vessel owners as well as other restoration programmes for non-vessel owners or vulnerable groups.
  - Other mitigations are presented in the section 6.1.2 'economic displacement and livelihoods'
- Impacts to access to remedy:
  - The Project has a GM within its SEP, as well as a whistle-blower hotline for Project workers. The hotline is disclosed to contractors and suppliers
  - Project's Code of Conduct for business partners requires contractors and suppliers to also have a GM
  - Community liaison officer of Project to develop relationship with local community and one or more human rights NGOs
- Human rights within supply chain:
  - Project company has a responsible partners programme, Initiative for Responsible Mining Assurance (IRMA)
  - Their contractor has range of measures including a supply chain due diligence
  - Supply chain mapping to improve transparency and conducting human rights risk identification at the mining level to ensure responsible sourcing of minerals and metals

For the operation phase's impact to rights to health or life, the documentations identified within the construction phase are to be updated for the operation phase as well.

With the mitigation measures in place, the residual impact significance is considered **'minor'**. Please refer to the HRIA for the details and updates of mitigation measures for the assessed impacts of human rights.

6.1.3.2 Labour and working conditions

Without appropriate safeguards in place, it is possible that workers' rights may be impacted during Project construction and operation. This impact extends to employees directly engaged by the Project, contractors and subcontractors, and workers located within the Project's supply chain. Migrant workers, in particular, become vulnerable to impacts due to language barriers or

lack of understanding of judicial processes in country that is not their own. As outlined in Section 4.3.6, because risks associated with OHS require controls to be in place, irrespective of any assessment of their significance, hence labour and working condition issues are presented as risks instead of impacts. Management measures are also identified to show how the Project aims to prevent the risks.

As mentioned in Section 6.1.1 above, an estimated 1,060 workers will be utilised at peak labour during the one-year construction period. More than 90% of the workforce will be working offshore, while the maximum number of onshore construction workers will be 220 individuals. In the operations phase (from 2026 onwards), the maximum number of onshore workers at the substation will be 100, and they are expected to be skilled labour and/or white-collar workers.

Potential impacts that may arise due to lack of safeguards include terms and conditions of employment, discrimination and unequal opportunity, incorrect or withheld salary payments, occupational health and safety, child or forced labour, prevention of participation in workers associations, and/or lack of access to a GM.

Migrant or foreign workers are especially vulnerable to impacts related to labour and working conditions when they do not speak the language, do not understand their rights or terms of employment or slip through the gaps. Furthermore, migrant or foreign workers may not be entitled to the same labour rights, insurance or pensions as those recruited locally, and also require housing or have accommodation needs that a local workforce may not have to consider.

Within the Project's HRIA, the main human rights issues relating to labour identified for migrant workers are the sub-standard living conditions, lack of safety and sanitation provisions and mistreatment by employers and managers.

Appropriate safeguards need to be in place to reduce labour and working condition impacts whilst allowing for the impact of employment generation to generate as much benefit as possible. Managing and maintaining workers' rights is essential during Project construction and operation.

According to the Taiwanese Labour Standards Act 2020, all fixed[39] term and non-fixed[40] term labour contracts are required to adhere to regulations set out in this national legislation. This includes individuals in the main project and upstream and downstream supply chain. Working conditions mandated under this law include rules on wages, working hours, retirement, compensation, work rules, working females, supervision and inspection, penal and supplementary provisions, as well as rules against child labour. This is largely aligned with the International Labour Organisation's (ILO) conventions and recommendations[41].

Ørsted has developed the following core policy documents and systems for managing labour rights. These policies cover topics on reasonable working conditions, migrant workers and substantially equivalent terms, workers' organisations, non-discrimination and equal opportunity, child labour, forced labour, occupational health and safety, gender, monitoring, and labour management plans. These policy documents include:

- Ørsted Taiwan Employee Handbook dated January 2021
- Ørsted Taiwan Work Rules ('Work Rules') approved by the Ministry of Labour on May 2018
- Ørsted Code of Conduct (CoC) for Business Partner dated October 2022

[39] A contract in nature for temporary, short-term, seasonal or specific work may be made as a fixed term contract.

[40] A contract for continuous work, should be a non-fixed term contract.

[41] List of instruments by subject and status (ilo.org)

- Ørsted Good Business Conduct Policy
- Ørsted Human Rights Policy
- Ørsted Bullying, Discrimination and Harassment Policy
- Ørsted QHSE Plan dated May 2022

The abovementioned policies are captured and organised within the Project's overarching labour management plan, which set out responsibilities and management practices associated with management of labour during the Project lifecycle.

In addition to these policy documents, there are other mitigation measures covering general health and safety, livelihood restoration, grievance mechanisms and access to remedy, communication and engagement, management of CSR funds, security, data security, as well as capacity and resourcing. Based on the number of workers, a Health and Safety officer and a human resource officer will be on site.

The QHSE Plan, which is guided by Ørsted's QHSE Policy, further outlines Ørsted's responsibility to ensure a safe workplace through reporting and management review, training development programs and effective communication protocols. Contractors and suppliers of Ørsted are also expected to develop and implement Ørsted's QHSE Plan during the construction and operation phase relevant to their scope of work. Ørsted's supplier QHSE Assessment Team will further assess, audit and evaluate suppliers and contractors prior and during contracting. The Project has an Onshore Substation Health Safety & Environment Plan (dated February 2023) as well. The Plan outlines how Ørsted and its contractors are to appropriately manage all health, safety and environmental safeguards/concerns, like preventing occurrences of unforeseen incidents and raising awareness of any known hazards. All these plans are written to comply with Taiwan's Occupational Health and Safety Administration (OSHA) Guidelines for Safe Working at Sea for Offshore Windfarms (dated January 2018) and the Occupational Safety and Health Act Enforcement Rules. The plans do not replace or remove any responsibility to that or other Taiwanese legislation. Ørsted will develop an O&M QHSE Plan prior to the commencement of operation phase.

Monitoring of labour rights will be ongoing, checking that, among others, contracts are in place, working hours are not excessive, workers are paid correctly and timely for hours worked, rest and fatigue management measures are in place, training is provided, labour grievances are investigated and resolved, worker representatives are engaged, and accommodation and welfare facilities are inspected. Monthly reporting will provide a variety of information including but not limited to workforce data (number, gender, origin, and skill level of workers), working hours, worker grievances (number, types, contractor, resolution timeframes, worker manifestations), accommodation use, occupational health and safety incidents (number of unsafe acts/incidents, near misses, first aid injuries, work-related illness, lost time incidents, fatalities), training activities, toolbox talks and risk assessments.

To promote fair treatment of workers in the supply chain, Ørsted's CoC has included requirements for Ørsted's business partners to apply appropriate measures for preventing direct and/or indirect involvement in human trafficking and prohibit all forms of forced, bonded or indentured labour, and involuntary prison labour. This applies to all workers, whether hired directly, by a contractor or recruited through a labour broker. The CoC also states that employees will enjoy the freedom of movement during their employment. Employees will be permitted to terminate employment after reasonable notice and business partners will not retain original identification documents, deposits or financial guarantees or withhold wages outside of a legal contractual agreement.

Ørsted's modern slavery and human trafficking statement (2018) states that their approach to business integrity is guided by the United Nations Global Compact, of which they have been a signatory for 13 years. The statement indicates that Ørsted has established systematic due diligence and screening procedures of their operations and supply chains. Nonetheless the main contractor will be contractually required to undertake a supply chain analysis specific to the Project within the first three months to identify any risks related to use of child or forced labour and unacceptable OHS conditions. This is needed to adhere to IFC PS requirements.

With the mitigation and enhancement measures in place, the labour and working conditions are safeguarded and the vulnerability of the workforce (from Project workforce to supply chain workforce) decreases. Hence, the negative impact decreases such that the residual impact significance is considered **'minor'** for the construction phase and **'negligible'** for the operation phase.

6.1.3.3 Community health, safety and security risks

Although impacts are not predicted, there are some risks to community health, safety and security that need mitigating, both onshore and offshore. It cannot be ruled out that offshore construction workers will not visit nearby towns to purchase things that cannot be obtained onboard such as snacks, alcohol or sex or to engage in sporting and recreational activities.

Exposure to communicable diseases

The temporary influx of offshore workers may expose onshore communities to communicable diseases.

As part of the goals of the Taiwanese National Development Plan (2017 to 2020) through the cooperation from people of all walks of life, the relationship between Taiwan and other countries will be improved by actively engaging in humanitarian work, medical assistance, disease prevention, anti-terrorist and combating crime etc.

Considering the potential risks, the following mitigation measures will be implemented at site:

- Regular worker health check-ups provided by the Project company, Contractor and sub-contractors/suppliers to all workers who will be working on site not only prior to commencing the work, but also at least annually during the construction phase.
- To prevent occurrence of disease and accidents, contractors and their workers will undergo a briefing on safety, sanitation measures, and emergency rescue procedures, and receive regular training and toolbox talks related to task completion.
- The OHS management plan will include the awareness building and guidelines for health, wellness, disease prevention, and impact of anti-social behaviour
- COVID-19 prevention and control measures will be implemented in line with prevailing national requirements and international guidance.
- The main contractors will adopt the Project's QHSE plan and labour management plan, ensuring these documents or other OHS-relevant documentations cover the following information:
  - occupational health and safety plan based on a risk assessment
  - an emergency preparedness and response plan in coordination with local emergency services
  - a construction environmental and social management plan with procedures for managing waste, dust, emission, water protection, noise, and other environmental effects as well as

controls for vehicle and boat use and maintenance, security of people and Project property, and chance finds.

- The abovementioned plans will be monitored and audited periodically, and be updated as needed during construction and operation phase.
- Workers of contractors, sub-contractors and service providers working on core business processes[42] will sign the workers' code of conduct.

Worker's influx – infrastructure and services

The temporary influx of offshore workers may also add pressure to the community's accommodation, infrastructure and services.

As of December 2023, the total population of Lukang Township (ie where the Project's onshore components are located) is 84,678 people[15]. Thus, if the maximum expected workers for the Project are all from outside the local area (which is not to be expected), the influx represents 0.26% of the total population of the township for the construction phase and 0.11% for operation phase. Overall, influx of onshore workers for the construction and operation phase are unlikely to overwhelm the infrastructure and services of Lukang Township. The Project also has in place a QHSE Plan and emergency preparedness documentation for construction work to reduce the stress or impacts on the local emergency response infrastructure and services.

Increased onshore and offshore traffic

The main direct impact on health and safety for local community is likely to be the increase of traffic, both onshore and offshore. Transportation for materials and personnel for the Project's onshore and offshore components means the Project will increase traffic both on land as well as at sea, especially during the construction phase. Onshore transportation work includes transporting turbine materials to the Taichung Port for staging and assembly. Other materials to transport are for the onshore substation and cable laying work. Offshore transportation and traffic include transportation of personnel through CTV, guard boats, marine mammal observer (MMO) boats as well as construction vessels to undertake various Project work including piling or assembly work.

Transportation and traffic during the operation phase will mainly be from maintenance work, including the maintenance of onshore components (ie substation and cables) and offshore components, which are mainly the WTGs.

For onshore construction work, there will be an increase in transportation of project materials, which may lead to an increase in the risk of collision or other traffic-related incidents. The Project's EIA simulated and concluded that even with the increase in vehicles caused by the Project (ie 265 passenger car units), the roads were still able to maintain a relatively free flow of traffic and not impact the baseline traffic significantly. Abnormal load transportation (eg WTG components) will mostly be limited to Taichung Port, an access-controlled area for the Project's staging/assembly area.

For offshore construction, marine traffic may increase and create the risk of collisions with other fishing vessels. It is understood from the Project's EIA that marine density around the Project area is low (ie one to 25 vessels), whereas the nearshore area has a high marine vessel density (ie 25 to 75 vessels). The nearshore area is where most fishers conduct fishing activities, and hence are already exposed to higher levels of marine traffic. It is expected that fisher folks will likely avoid heavy traffic areas to minimise collision. The Project's EIA further stated that 31

[42] IFC PS2 defines core business processes as those which constitute production or service processes essential to business activity without which the business activity could not continue.

vessels are expected to be utilised during the construction phase. Although other OSWF projects are likely to increase marine traffic, it should be noted that the working vessels (with exception of cable laying works) of the Project (and other windfarm developments) are mainly only transiting through the coastal area en-route to their OSWF area. Furthermore, most of the Project's neighbouring windfarms are likely to have staggered offshore construction periods with the Project's offshore construction phase. This is due to Taiwan's Bureau of Energy's (BOE) tiered approach of awarding licensed areas for OSWF development. Hence, marine traffic is likely to increase temporarily for certain overlapped construction periods and potentially at nearshore area (ie since the offshore WTG areas of the windfarm are relatively far apart).

Even though no projected number of vessels are provided for the operation phase, it is expected that vessel amount will be drastically less than the construction phase and only deployed occasionally.

Management, mitigation and monitoring measures to support a target of zero incidents have been set in place within the Project's EIA regarding the increased onshore and offshore/marine traffic. For onshore, terrestrial traffic, traffic and transportation measures include:

- Coordinating with local traffic and road authorities for having traffic signals, signs, marking removal and setting and signal time systems adjustments in place
- Setting up appropriate signage, including warning of lane narrowing and prohibition of lane changing or speed reduction near work areas
- Restricting Project or personnel's personal vehicles to be parked on Xianbei 4th road and the corner of Xiangong road for both operation and construction phase.
- Obtaining construction permits or approvals for any road excavation or road use as applicable.
- Use of qualified and trained vehicle drivers

Offshore, marine traffic management measures include:

- Deploying guard boats during construction phase
- Use of qualified and trained boat drivers
- Establishing exclusion zones (ie area where non-Project vessels, including fishing vessels, are not allowed to access) around the WTGs during construction and operation phase. For the operation phase, there will be a 50m radius from the WTG foundation during non-maintenance and non-emergency periods. The zone will extend to 500m in all directions from the exterior boundaries of the turbine, foundation, and/or offshore substation when under maintenance.
- Designating marine transportation routes
- Establishing a Vessel Traffic Management System (VTMS) to control ship traffic within the windfarm. The VTMS will use radar, automatic identification system (AIS) of vessels and closed-circuit television (CCTV) to track ship movement.
- Setting up a Marine and Helicopter Coordination Centre (MHCC) to be used collaboratively with neighbouring sites to utilise the VTMS and coordinate any rescues or emergencies.
- Organising an operational management unit to establish rapid mechanisms with coast guard, port authorities and other disaster prevention units.

When the windfarm is complete, information will be reported to competent units for publication of locations, sea cable paths, emergency response measures and maintenance work for large vessels etc.

Other non-traffic specific measures to support community health and safety include the Project's SEP, which outlines the Project's ongoing efforts to provide Project's construction, operation and eventual decommissioning information to relevant /stakeholders. A GM is also in place to allow people and organisations to raise concerns or issues of the Project, including in relation to health or safety. The GM may be used to raise concerns relating to environmental health impacts as well as concerns of interactions with project workforce or security personnel, if applicable. A Project stakeholder manager and marine affairs officer are in place to manage these concerns and the Project has a local office within Changhua County as well.

7 Conclusion

This FSIA has assessed the social impacts associated with the Project. The main impacts will occur during the construction phase and then dissipate during operations. Implementation of adaptive management and recommended mitigation measures will help to minimise the extent and significance of identified impacts. Table 7.1 below provides an overall summary of the impact assessments for the social impacts identified in section 6.

Table 7.1: Summary of social impacts and risks

Social impacts and risks	Description	Impact significance	Mitigation measures	Residual impact significance
Impacts				
Employment generation	Local employment opportunities in the AoI will be generated by the Project during both construction and operation phases.	Minor	• Labour management plan, • CoC for business Partners • SEP and GM • Measures presented within HRIA and LRP	Moderate
Labour and working conditions	Without appropriate safeguards in place, workers' rights may be impacted during Project construction and operation. This impact extends to employees directly engaged by the Project, contractors and subcontractors, and workers located within the Project's supply chain.	N/A	• Labour management plan, covering Project Company's staff handbook, work rules, CoC for business Partners, good business conduct policy, human rights policy, training and labour rights monitoring, and more • QHSE Plan • Emergency preparedness plan • SEP and GM	N/A
Economic displacement and livelihoods	Economic livelihood for offshore and coastal fisher folk will be mainly affected by the installation of the submarine cable, restricting coastal fishery activities within the cable corridor. The main impact will be on coastal fisher folk who fish within three nautical miles from the coast. Economic livelihood for far sea fisher folk will mainly be influenced by the installation and operation of WTGs.	Construction phase for coastal and offshore fisher folk: minor	• LRP and compensation scheme • SEP and GM	Construction phase for all fisher folk: negligible
		Construction phase for far sea fisher folk: negligible		
		Operation phase for all fisher folk: negligible		Operation phase for all fisher folk: negligible
Social Risks				
Human rights	Human right risks of high severity include livelihood, impacts to access to remedy and human rights within supply chain for the construction phase. Impact to rights to health or life are applicable to both construction and operation phase. The full impact assessment upon human rights may be found in the Project's HRIA.	Moderate	• QHSE plan • Labour management plan • ESMS • HSE management plan • Supplier QHSE assessment • LRP • SEP and GM • Supply chain mapping	Minor
Community health and safety	Although impacts are not predicted, there are some risks to community health, safety and security. These include exposure to communicable diseases and impacts to infrastructure and services due to temporary worker's influx.	N/A	• ESMS • QHSE plan, workers' rules, code of conduct • Labour management plan • Periodic health check-ups • COVID-19 prevention measures • ESMS • SEP and GM	N/A
Increased onshore and offshore traffic	The project will create increased traffic both onshore and offshore, which may lead to collisions or other traffic-related incidents.	N/A	• ESMS • QHES plan • EIA mitigation measures including: appropriate signage and communication with authorities, guard boats, VTMS, MHCC • Use of qualified and trained boat and vehicle drivers • SEP and GM	N/A

A. Social scoping matrix

The scoping matrix assesses the potential interactions between the various activities and components of the Project and the social receptors identified within the AoI at the different project phases (ie construction, operation and decommissioning phase). For the classification of potential adverse impacts, each interaction has been defined as either “Unlikely” or “Likely”. Table A.1 provides further definitions of these categories.

Table A.1: Definition of interactions

Interaction type	Description
Unlikely	● An interaction is not reasonably expected based upon the nature of the Project and identified receptors. ● In some cases, the impact (if any) could potentially also be considered negligible. ● Where classified as unlikely, they have been eliminated from further discussion within the SIA process.
Likely	● An interaction can reasonably be anticipated;. ● May lead to impacts that could range from minor and major impacts ● Requires more analysis in the SIA process

Source: Mott MacDonald, 2024

The interactions between the Project and its activities and receptors within the AoI are presented in Table A.2.

Table A.2: Social scoping matrix

Social aspects	Receptors	Phase [1] (C/O/D)	Description of impact interaction	Interaction type	Existing assessment and existing or planned mitigation measures/plans	Scope in/out (for the SIA)
Human rights						
Human rights	• Project workforce • Fishers and oyster farmers as well as their employees and families • Local communities • Supply chain workers	C/O/D	There may be potential for specific human rights risks for various groups associated with and affected by the Project. These could/would include groups such as the Project workforce, fishers and oyster farmers as well as their employees and families, and local communities. Impacted rights risks may include inter alia rights to participation, freedom of thought/opinion/expression, health and safety and respectful security or access to remedy, rights to non-discrimination and equal opportunities, particularly for vulnerable groups. Human rights particular to workers/working conditions are elaborated below. Potential risks may arise from employment, and also Project activities particularly for community members outside of Project's direct control. Hence, interaction of this impact to receptors is considered 'Likely'.	Likely	Detailed assessment of human rights impacts will be covered within the Project's HRIA, which assess human rights impacts as relating to affected people, communities and the Project's workforce. The Project has in place a human rights policy, a Code of Conduct (CoC) for business partners and other relevant labour standard human resource documentations to ensure human rights of receptors are respected. The Project also has a grievance mechanism (GM) for workers to raise issues/concerns and a community GM.	In
Labour and working conditions						
Employment generation	• Project workforce • Supply chain workers	C, O	Employment opportunities will be generated through the Project for the construction and operation phase, particularly for the local workforce. Onshore construction work includes cable laying and substation, which can offer more local skilled and unskilled labour opportunities. Offshore work will be more specialised and mostly skilled work for assembling WTGs, however, certain guard boat or marine mammal observation roles may be offered. Operation phase will also offer job opportunities for mostly skilled/specialised roles like maintenance of WTGs. The Project will create employment opportunities, so this impact is 'Likely'.	Likely	Detailed assessment of the employment opportunities is included in this FSIA and the related human rights impacts of employment will be covered within the Project's HRIA.	In
Working conditions for Project workers and supply chain workers	• Project workforce • Supply chain workers	C, O	Rights of workers, both Project workers and those within the Project's supply chain, may be impacted without proper safeguards in place. Labour and working condition risks relate to terms and conditions of employment, discrimination and unequal opportunity, occupational health and safety, child or forced labour, prevention of participation in workers associations, and lack of access to a GM. Potential risks may arise from employment. Hence, interaction of this impact to receptors is considered 'Likely'.	Likely	The Project Company has in place human resource employment documentation in line with Taiwan Labour laws (which covers all substantive aspects of IFC PS 2). Documents include a CoC for Business Partners, Human Rights Policy, Good Business Conduct Policy and localised human resources policies and procedures detailed in an Employee Handbook and Work Rules. This suite of documents aims to support the Project Company and its business partners (eg suppliers) to abide properly with local employment regulations, respect labour related human rights and provide a healthy and safe workplace as per local and	In

					global applicable standards and regulations. The Project also has a GM for workers to raise issues/concerns.	
Construction nuisance						
Air quality – dust emissions	• Local communities • Project workforce	C	Onshore construction works of the Project includes earthworks and construction activities as well as associated transportation/mobilisation for the onshore cable and substation. Earthworks and construction activities are expected to generate dust, while the vehicles may create dust suspension when travelling. Fugitive dust may lead to health impacts including respiratory issues, discomfort to the eyes and nose. The air quality impacts from the Project's onshore activities had been assessed within the Project EIA. According to the air quality assessment within the EIA, these were in were in compliance with relevant national and international air quality standards. The EIA states that no significant residual impacts are expected during both construction and operation phases if the EIA prescribed mitigations are accordingly implemented. The construction activities will take place in a port location where such works are allowed. Residential structures are not nearby and community members do not typically traverse the onshore site. The Project is required to implement the prescribed mitigation measures as outlined within its EIA, in order to achieve compliance and impact mitigation with regards to people's exposure. The highly localised potential of community members to any generated dust means this impact is considered 'unlikely'.	Unlikely	Prescribed mitigation measures as relating to air quality are as prescribed within the EIA. These measures had been correspondingly included within the Project's ESMS (Section 5: Management Programmes) and associated E&S management plans. The Project does have in place a stakeholder engagement plan (SEP) and commitments to communicate construction work to local communities prior to commencement. A GM is also in place for workers and communities to raise issues/concerns. Lastly, a quality, health, safety and environment (QHSE) plan and supplier QHSE assessment are in place for Project workers/contractors.	Out
Airborne noise	• Local communities • Project workforce	C/D	Similar to the project onshore activities as described above under 'air quality', these activities (ie construction and transportation) may generate elevated noise levels. Within the Project's EIA, onshore construction noise was expected to be in compliance with national[43] and international[44] noise standards. The Project is required to implement the prescribed mitigation measures as outlined within its EIA, in order to achieve compliance and impact mitigation. Offshore fishing vessels produce their own noise, which will be heard by fish life and by fishing crews of other vessels when within proximity. Construction work is expected to meet local regulatory noise standards. The Project has mitigation	Unlikely	The Project's EIA confirmed the Project's onshore noise and vibration are mostly in compliance with relevant noise standards. Prescribed mitigation measures are presented in the EIA. These measures had been correspondingly included within the Project's ESMS (Section 5: Management Programmes) and associated E&S management plans. The Project does have in place a SEP and commitments to communicate construction work to local communities prior to commencement. A GM is also in place for workers and communities to raise issues/concerns. Lastly, a QHSE plan and supplier	Out

[43] Taiwan Environmental Noise Standard

[44] IFC WBG Environmental, Health, and Safety (EHS) guidelines: Noise management

			measures in place as outlined within its EIA, as well as health and safety measures for the Project workforce. The highly localised potential of community members to any generated noise means the impact is considered 'Unlikely'.		QHSE assessment are in place for Project workers/contractors.	
Surface water and sea water quality	• Local communities • Project workforce	C/O/D	Onshore construction works of the Project may lead to surface runoff or additional sewage and wastewater. Polluted waters could impact water sources for local communities and workforce. The Project's EIA stated that the Project is not expected to have significant residual impacts upon surface water, groundwater and domestic wastewater for both the construction and operation phases. The EIA prescribes measures requiring the Project to treat all discharged surface waters are treated and not pollute nearby water bodies. For offshore works, the cable laying works and foundation works would cause sediment suspension. Within the EIA, sediment dispersion modelling was conducted for the possible scenarios. No significant residual impacts are expected during both construction and operation phases if the EIA prescribed mitigations are accordingly implemented. Given the above, community members and workers and not anticipated to be directly impacted and hence this impact is considered 'Unlikely'.	Unlikely	The Project's EIA found the Project to not have any impacts upon surface water, groundwater and domestic wastewater for both the construction and operation phase. Prescribed mitigation measures are presented in the EIA. These measures had been correspondingly included within the Project's ESMS (Section 5: Management Programmes) and associated E&S management plans. If any accidents/pollution to sea occur, Project is to follow the protocols of the Marine Pollution Act. The Project does have in place a SEP and commitments to communicate construction work to local communities prior to commencement. A GM is also in place for workers and communities to raise issues/concerns. Lastly, a QHSE plan and supplier QHSE assessment are in place for Project workers/contractors.	Out
Shadow flicker and operational noise	Local community	O	The operational WTGs will be approximately 48.5km away from the coastline. At such distances, shadow flicker and operational noise effects are 'Unlikely' to impact the (onshore) local communities during the operational phase.	Unlikely	The Project does have in place a SEP and commitments to communicate project information to local communities. A GM is also in place for communities to raise issues/concerns.	Out
Visual impacts	Direct and indirect impact on local communities	C/O	During the construction phrase, visual impacts (ie as visible to onshore receptors) are largely limited to construction works for the cable laying and onshore substation construction. These are localised and temporary, while noting that these are taking place within Changhua Coastal Industrial Park (ie no or limited visual amenity/sensitivity). No impact is expected. During the operational phrase, the Project's large installation of WTGs may impact the visual landscape of communities. The lighting sources on the WTGs could also cause light spills that influence nearby communities. However, since the windfarm is located 48.5km offshore, the impacts are expected to be minor to negligible. People on fishing vessels in the area have been exposed to other OSWFs and are not anticipated to have any major concerns about the visual changes. The Project's EIA had analysed the visual impacts of the turbines to neighbouring coastal landscapes during and after construction. The EIA had concluded that the background	Unlikely	The Project does have in place a SEP and commitments to communicate project information to local communities. A GM is also in place for communities to raise issues/concerns.	Out

			experiences the greatest degree of change at each observation point, ranging from 0.012% to 0.018% change after construction of the WTGs. Therefore, all landscape points assessed yielded slight to no effect on overall landscape aesthetics. Given the above, the interaction of this impact to receptors is considered 'Unlikely'.			
Community health and safety						
Exposure to communicable diseases	• Local community	C/O	Communicable diseases may increase with the influx of workers into the area, particularly those not from the local area. Communicable diseases can cause temporary to long-term impacts on health and well-being. However for this Project most of the workers will be on offshore sites, being accommodated within the vessel's onboard accommodations which will minimise interactions with community members. No accommodation facilities onshore are planned, meaning local workers will stay residing with their families/own accommodations which should help minimise project-related exposure to communicable diseases. For any construction activities creating habitats for disease vectors (such as pooling of water), there will be management measures in place. Hence, the interaction with this impact is considered 'Unlikely'.	Unlikely	The Project has in a place quality, health, safety and environment (QHSE) plan which includes the Project's Emergency Response Plan for Taiwan. The Project also has an onshore substation health, safety and environment plan. A labour management plan (LMP) is also in place to set out responsibilities and management practices associated with management of labour during the Project lifecycle. Lastly, a Supplier QHSE assessment is undertaken by the Project Company's supplier QHSE assessment team to ensure health and safety aspects are in place prior to construction phase. The Project does have in place a SEP and commitments to communicate construction work to local communities prior to commencement. A grievance mechanism is also in place for workers and communities to raise issues/concerns.	In
Worker's influx - Infrastructure and services	Direct and indirect impact on local communities	C/O/D	The Project aims to hire a mostly local workforce, the majority of workers will also be conducting offshore work, and offshore accommodations will be aboard vessels. With majority of workforce being offshore, and majority of onshore workforce being local, it is expected that impact on accommodations, infrastructure, and services will be low. As of December 2023, the total population of Lukang Township (ie where the Project's onshore components are located) is 84,678 people[15]. Thus, if the maximum expected workers for the Project are all from outside the local area (which is not to be expected), the influx represents 0.26% of the total population of the township for the construction phase and 0.11% for operation phase. Overall, influx of onshore workers for the construction and operation phase are also unlikely to pose as an impact, especially for the operation phase. The port areas (ie Changhua Coastal Industrial Park where substation is located and Taichung Port where the Project's assembly site is) are well-serviced (eg health facilities). There are other OSWFs that have been built nearby and the communities and emergency services are familiar with them.	Unlikely	The Project has in a place a QHSE plan which includes the Project's Emergency Response Plan for Taiwan. The Project also has an onshore substation health, safety and environment plan. A LMP is also in place to set out responsibilities and management practices associated with management of labour during the Project lifecycle. The Project is also expected to finalise a decommissioning plan at least five years prior to the decommissioning phase. The Project does have in place a SEP and commitments to communicate construction work to local communities prior to commencement. A GM is also in place for workers and communities to raise issues/concerns.	In

			The Project will have in place proper health and safety and emergency preparedness documentations upon construction work. Hence, interaction of this impact is considered 'Unlikely'.			
Increased onshore and offshore traffic	• Local community and workforce	C/O/D	Direct impacts to surrounding communities and workforce include t increased vehicular traffic both onshore and boat traffic offshore, which may lead to collisions or other traffic-related incidents resulting in minor to severe injuries. These impacts may further become cumulative when multiple windfarms overlap in their construction work phases. Impacts are not expected for operation phase as vehicles or vessels use during this phase is likely to be much less than the construction phase. For onshore traffic, the Project's EIA outlines that construction signage and communications with authorities will be conducted to reduce impact of traffic risks onto communities. For offshore traffic, the Project and other neighbouring windfarm projects are known to set up an exclusion zone during construction as well as operation phase to reduce potential collisions or other risks for offshore vessels. Furthermore, designated marine transportation routes are in place to ensure no collision occur. Although some management measures for preventing and responding to onshore and offshore related traffic accidents are presented in the Project's EIA, possible incidents still may occur and hence the impact is listed as 'Likely'.	Likely	The Project's EIA presents mitigation measures for onshore traffic and transportation as well as offshore, marine traffic. These measures had been correspondingly included within the Project's ESMS (Section 5: Management Programmes) and associated E&S management plans The ESMS states that a navigation safety plan will be formulated and incorporated into the Project's QHSE plan. The Project is to adhere to the local traffic and navigation and marine regulations. The Project also has in place a SEP and commitments to communicate construction work to local communities prior to commencement. A grievance mechanism is also in place for workers and communities to raise issues/concerns.	In
Cultural heritage						
Cultural heritage	Direct impact on local community	C	Cultural heritage items (eg archaeological site or relics), may be destroyed, unearthed or interfered with during construction work. Onshore works include cable laying and substation development, while offshore construction include submarine cable laying and WTG foundation work. Within the EIA, it is concluded that no tangible cultural heritage or relics were found onshore within the Project area, taking into account that the onshore activities are within a port area designated for industrial projects like this one. Registered intangible cultural heritage including traditional arts (eg drum making, gold carving) or performing arts were also not found to be impacted by the Project. For underwater cultural heritage, the Project EIA conducted a literature review, and identified potential relic/cultural heritage sites in proximity to the Project area. However, no sites were directly within the Project area. Within the EIA, it is stated that a sonar scan detected one object on the seabed and five buried magnetic anomalies. However, marine archaeology experts concluded these objects were most likely to be modern relics rather than of historical value.	Unlikely	The Project's EIA proposes to commission certified archaeologists or experts to conduct cultural heritage analysis prior to construction. The experts will be asked to interpret borehole results. For onshore cultural heritage impact measures, the same process will be conducted as above, but with geological drilling photos. An expert will also be hired to monitor the excavation construction process. The Project is to adhere to Cultural Heritage Preservation Act and its chance find regulations. The Project has also conducted interviews and surveys with local communities regarding the Project's impact on any cultural heritage sites or intangible cultural heritage. This is reflected within the Project's HRIA. Further baseline information conducted in December 2023 to January 2024 will confirm this scoping result. Finally, a GM is in place for communities to raise issues/concerns as relating to cultural heritage impacts or findings.	Out

			This impact on people's cultural priorities is considered 'unlikely'.			
Land acquisition, displacement and livelihoods						
Economic displacement and livelihoods	Direct impact on local community and workforce	C/O	The Project's offshore construction work and eventual permanent WTG infrastructure may displace fishers from their fishing grounds, causing economic displacement. Although, as based on the LRP's baseline information, most CFA fishers do not fish far sea in the area where the Project's WTGs are located. The Project's cable laying work will pass through the Changhua Fishermen's Association's exclusive fishing rights zone, which will temporarily displace fishers from their fishing grounds. This may also have cumulative impact if various windfarms conduct cable laying work around the same time. Aquaculture farmers (ie oyster farmers) have raised concerns about the cable laying work impacting their farms in the intertidal zones. To which, Ørsted has addressed these concerns during Project pre-construction stakeholder engagement activities by clarifying the Project plans to use the northern export cable corridor, while the oyster farms in Changhua County are situated in the southern export cable corridor. Due to this understanding, impact to the aquaculture/oyster farmers is unlikely to occur and hence scoped out. During the operation phase, exclusion zones around WTGs will be set up to prevent collision. Hence, these areas may also become permanently lost as fishing grounds for fishers. But as mentioned above, most fishers in the area do not conduct far sea fishing, and those who do should have vessel capacity to reach other fishing grounds. Although the Project's CIA does identify that the foundations of WTGs can serve as artificial reefs, creating a beneficial impact on fisheries resources during the operational phase, impacts on livelihoods for those within the local fishing industry is expected. The Project thus has a compensation mechanism in place to directly compensate vessel owners who are members of the CFA. The assessment of impact on specific vulnerable vessel owners or vulnerable vessel workers will be further confirmed upon the results of the KII and FGDs conducted in December 2023 to January 2024 for the LRP. The impact is considered 'Likely'.	Likely	A detailed livelihood impact assessment with livelihood restoration measures are covered within the Project's LRP. Livelihood restoration activities and programmes include employment opportunities, cash compensation and more. Training programmes can provide people with new skillsets to partake in Project jobs. These skillsets may allow them to find employment beyond the project's lifecycle. The LRP is currently being developed, pending additional baseline data results of KIIs and FGDs conducted in December 2023 to January 2024. A GM is also in place for any affected fishers to raise issues/concerns.	In
Land acquisition and physical displacement	Direct impact on local community	C/O	The Project is planned in compliance with the "Offshore Wind Farm Site Application Regulation", stipulated by the Bureau of Energy, Ministry of Economic Affair in July 2015. Onshore project components requiring land acquisition are limited to	Unlikely	To date, no known physical displacement impacts have been identified nor is any future physical displacement anticipated. The Project has already obtained certain land use permits (eg windfarm site,	Out

			onshore substations and onshore cables. The onshore land use permits are to be obtained by the Project Company (including land use permits, construction permits etc) prior to commencement of construction. There is no physical displacement expected, as the land for onshore activities is situated in the Changhua Coastal Industrial Park, which is a government-identified industrial zone specific for project work and development. The Park area is access-controlled and few residential housings are in the area to be affected by the Project's onshore footprint. Other onshore activities (pre-assembly work and logistics support base for offshore construction) are within Taichung Port, a commercial port operated by Taiwan International Port Corporation (TIPC, state-owned port management company). Wharf leases have been obtained by the Project Company for both the construction and operation phase, whereby for the operation phase they will set up an operation and maintenance (O&M) base at the port. Lastly, the onshore cables (ie landing cable points) are expected to be laid within roads of the Changhua Coastal Industrial Park, specifically Ji'an West Road and Lugong Road of the Lukang area and Anxi road in the Lunwei area. The road reserve would be around two meters. As all the cable routes will be within the industrial development zone, onshore cable laying is unlikely to cause displacement. All cable laying permits have also been obtained by the Project Company. Hence, physical displacement is 'Unlikely' to occur.		submarine cable sites, Cable Laying Permits, wharf leases and preliminary land use permit). The Project is to follow local regulations relating to land acquisition and development of renewable facilities and obtain all other relevant land acquisition documentations/permits, which include their offshore and onshore facilities areas, construction permits and horizontal directional drilling (HDD) permit	

Note: [1] Phase where the associated impact have potential to occur and/or materialise. C = Construction; O = Operations; D = Decommissioning