

# Non-Technical Summary

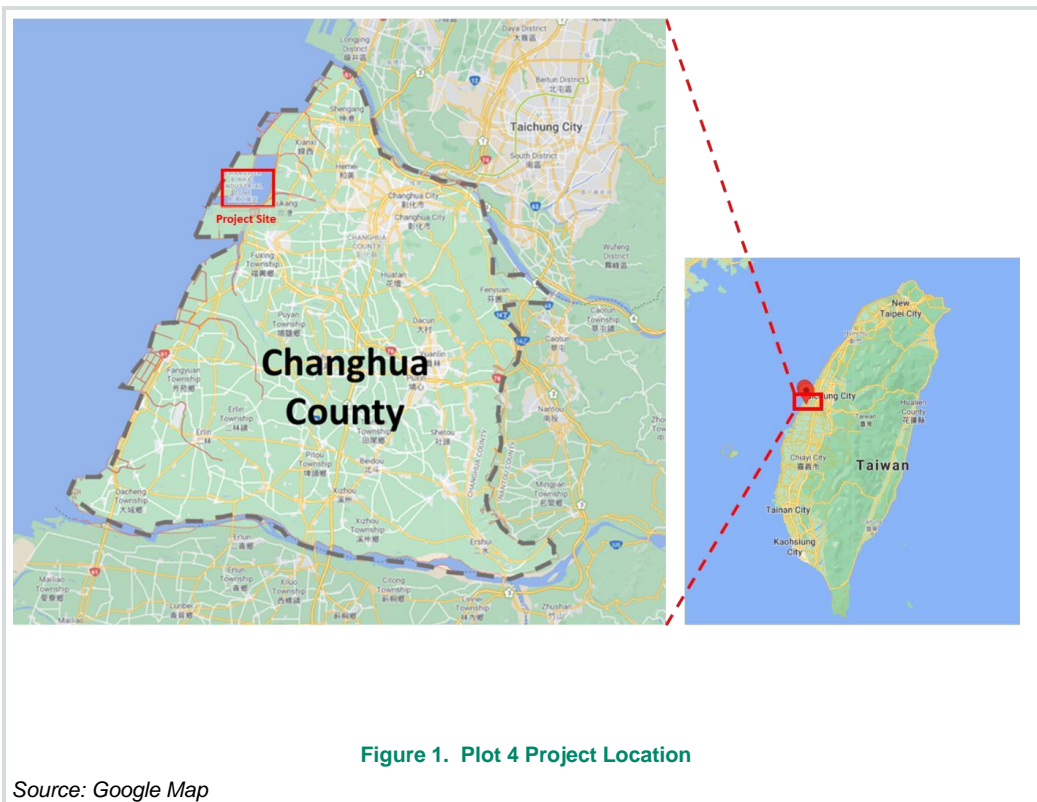
## UNITED RENEWABLE ENERGY ENGINEERING PLOT4 FLOATING SOLAR PV PROJECT PROJECT NON-TECHNICAL SUMMARY (PROJECT NTS)

### 1.1 Project Overview

UREE plans to develop a floating solar power plant consisting of a floating PV power system, mooring system, substation, equipment and maintenance platform (E&M platform), feeder, jetty, a wave breaker, and a storage area and site office located in the Lun-Wei East Zone of CCIP, Changhua County, Taiwan (**Figure 1**). The project can deliver a total electricity capacity of 98.3 MWp, with a total land area of approximately 89 ha.

### 1.2 Project Location

The Project is located between the seashore and an area of reclaimed land within CCIP, Changhua County, in central Taiwan (**Figure 1**). The Project site occupies Lot 51 (Plot 4) and Lot 10-61 (Substation) of Lunhai Section, Lukang Township, and the detailed information is shown in **Table 1**.



**Table 1. Detailed Information of Project Location**

Project Site	Coordinates	County	Township	Land Lot	Current Condition	Est. Area
Plot 4	24°10'N 120°41'E	Changhua	Lukang	Lot 51	Open seashore	888,146 m <sup>2</sup>
Substation	24°12'0N 120°41'6E	Changhua	Lukang	Lot 10-61	Vacant lot	1,700 m <sup>2</sup>

Source: HEXA/ UREE

Plot 4 is located between the seashore and an area of reclaimed land submerged in seawater at high tide. According to the Environmental Impact Assessment (EIA) statement of CCIP for Offshore Wind Farm Installation in 2017, the highest tide level in the history of this area is 3.58 m above mean sea level (amsl), which occurred on September 27, 1969. After storm tide calculation and analysis, the storm tide level with a return period of 200 years can reach 3.96 m-amsl. Based on the Evaluation of the Performance of Coastal Protection Structures along Changhua in 2015, the wave height in the inland sea, where the Project is located, should not exceed 1 m, so the tidal difference of Plot 4 is approximately 4~4.5 m.

## 1.3 Project Components

The critical components of the Project include floating solar PV modules and foundation piles, a floating solar PV system, an equipment and maintenance platform (E&M platform), a substation and feeder, a material storage area, and a two-floor site office. The critical components of the Project are described as follows.

### **Floating Solar PV Platforms and Foundation Piles**

Foundation piles will be installed underwater, incorporating truss H beam structures to form an anchoring system. The floating solar PV modules and pontoons will be assembled and fixed on a floating platform. The floating platform and the assembled array of PV modules and pontoons will be moored to foundation piles.

The floating platform is estimated to be approximately 720,685 m<sup>2</sup>, which includes the solar PV module projection area of 470,953 m<sup>2</sup>. The total length of pontoons and PV modules is approximately 80 cm above the water surface.

### **Assembling and Installation of Floating Solar PV System**

To assemble the solar PV modules and pontoons, a temporary assembling platform will be erected on the shore of the installation area and then extended to the intertidal zone. The assembled array of solar PV modules to be installed on the water will be carried out per the tidal shift. A small tugboat or water jetski can drag the assembled array to the offshore predetermined placement position. Then the assembled array will be fixed on the floating platform that will be moored to foundation piles to restrain the sea current from shifting the array.

### **Equipment and Maintenance Platform**

The structures of the E&M platform of the Project will be in the form of a bridge built approximately 2 m amsl. It will be installed across the Project site from the west of Plot 3 to the east seashore with a total length of approximately 1700m. Inverters will be installed on the E&M platform with an elevated foundation for flooding prevention. Electrical cables of the solar PV facility will be stored in the cable trays connecting to inverters. For the accessibility of workers to access the floating solar facility, ladders will be installed for workers to cross on.

Safety designs and measures for works on the E&M platform include the preparation of life jackets, lighting systems, fire extinguishers, cable protection, access control, warning signs, and well-secured ladders. Ladders will be installed for the accessibility of maintenance personnel facilitating up and down to the floating solar PV platform.

### **Substation and Feeder Route**

Electricity generated from the floating solar PV modules will be transmitted into inverters on the E&M platform and transmitted via feeder along with the west coastal land of the Project into the substation set up for the Project.

A land (Lot 10-61) has been reserved for the substation and is adjacent to the west of the existing Lun-Wei Guang G/S Substation. The substation will transform 22.8 kV to 161 kV connecting to the grid at the Changbin E/S (Extra High Voltage Substation) of Taiwan Power Company (Taipower), approximately 3.35 km away from the Project site, and the existing underground transmission line will be adopted for this route. There will be only a partial feeder route to undertake road excavation, which is approximately 460 m.

## 1.4 Project Schedule

The Project obtained the Electricity Enterprise Establishment Permit (電業籌設許可) from the Bureau of Energy (BOE), Ministry of Economic Affairs by the end of March on 30 June 2022. The tentative construction (beginning with the temporary pier) is expected has initiated in April 2022, and the period is estimated at approximately 16 months. The commercial operation is scheduled to commence achieve approximately in July Q3 2023.

## 1.5 Land Tenure

UREE leased the Project site (Land Lot #51) from the Ministry of Economic Affairs, R.O.C. (MOEA) on 14 May 2021 through public tendering.

There is no land acquisition and involuntary resettlement involved in the Project development.

## 1.6 E&S Context

The Project site has been included in CCIP, the first and the most significant industrial zone with reclaimed land, for further development as an industrial zone since 1977. The Project site is situated in the open seashore and includes terrestrial, aquatic, and intertidal environments.

Given that the Project site is in CCIP, an industrial park since 1993, there is no land acquisition and involuntary resettlement due to the Project, nor are any indigenous people known to have been in the area or affected by the project.

## 1.7 Addressed Impacts and Mitigation

Based on the Project-specific condition, the key impacts that may be induced during the project construction and operation phases are delineated as follows. To mitigate the potential impacts, specific E&S management requirements will be provided to address the potential impacts.

### *Air Quality and Noise*

#### Construction Phase

The Project is located between the seashore and an area of reclaimed land within CCIP where no residential neighbourhoods are adjacent. As such, there are no affected communities that will be directly influenced by the Project-related activities. Since it is located within CCIP, other companies and their employees might be affected by the traffic, noise, and/or dust, etc., generated from construction activities.

The direct impact receptors include the employees of companies working in CCIP and site-surrounding road users. The potential impact of air quality and noise may be coming from construction, including:

- Temporary noise impacts from civil and construction work;
- Traffic noise during construction, as vehicles transport materials to the Project site; and
- Dust generation from the construction site and vehicular movements.

The issues may induce a temporary intermediate impact over the construction period. A construction notification board will be set up at the Project site prior to the commencement of construction. The contractor should be responsible for ensuring compliance with regulations for environmental emissions.

Periodic inspection for optimal performance of machines and certified heavy machinery operators will be implemented to minimize the emission of pollutants.

In addition, communications with relevant stakeholders will be conducted to ensure pre-construction notices regarding noisy or dusty operations is well-distributed. An avenue for complaints/feedback registration will also be established and maintained. A stakeholder engagement plan is developed to provide different engagement methods to communicate with other groups of stakeholders, and updated information on the Project will be provided as well as reporting channels for complaints.

## **Water Quality**

### Construction Phase

Potential erosion and sedimentation may be generated from earthwork and the construction of offshore structures such as the floating solar PV module supporting structures, anchoring systems, and foundations for the equipment and maintenance platform. As the Project is situated on an open seashore, any impact on surface runoff, like the construction of the HV/T-Line and substation, could potentially affect coastal water quality.

The sanitary wastewater from the construction site will be collected and disposed of by a qualified wastewater treatment operator. The clean water supply for the workers at the Project site should also be considered because the number of workers during the construction phases at the peak may reach approximately 200.

### Operation Phase

The operation of solar PV facilities does not require water use, except for periodic cleaning of PV modules. Water used for PV module cleaning in the Project will be sourced from industrial water. No chemicals will be used for PV module cleaning to limit the pollution of the water quality. Under ordinary circumstances, water and high-pressure water equipment will be transported by vessel for PV module cleaning. No groundwater will be utilized for the Project.

## **Waste Management**

### Construction, Operation, and Decommissioning Phases

Waste Management Plan will be developed by UREE and its main contractors and implemented accordingly to ensure compliance with relevant regulations. During the construction phase, waste engine oil is the primary concern of waste management. Besides, there will also be construction waste during the construction and domestic waste generated by workers that should be taken into account.

Waste generated by the Project is mainly waste solar PV modules during the operation and decommissioning phases. Public concerns about waste solar PV modules include toxic materials leaching out and water used to clean PV modules discharging to the seashore, which creates environmental hazards. To properly handle waste PV modules, the developer is required to pay the recycling fees by Article 17 of *Regulations for Installation of Renewable Energy Power Equipment* (再生能源發電設備設置管理辦法); the recycling and treatment of waste PV modules in this Project will follow and comply with BOE and EPA's recycling and treatment mechanism.

Except for waste solar PV modules, waste will also be generated during the decommissioning phase due to the demolition of the equipment maintenance platform, anchors, and piles of the Project. All the wastes will be recycled or disposed of in accordance with *Waste Disposal Act* (廢棄物清理法).

## **Soil and Groundwater Contamination**

### Construction and Operation Phases

As the Project is situated on an open seashore with a diverse ecosystem, the risk of polluting the soil and groundwater in the project area should be proactively prevented. Construction and operation activities should be controlled and managed to minimize the possibility of leakage or spillage. Emergency response procedures should be established so that appropriate protocols can be immediately executed in case of a leak or spill.

## **Biodiversity**

### Construction and Operation Phases

As the Project is situated on the open seashore, the project's aquatic and intertidal biodiversity environment composes of terrestrial, marine, and intertidal habitats. The biodiversity found at the Project were birds, fish, and benthos. The project site has not identified any species classified on the Red List of Endangered

Species. However, public concerns still exist due to the potential impact on biodiversity, such as construction during bird migration. Environmental monitoring includes monitoring of birds, fish, benthic species, etc., which will begin with the construction of the Project, which will be continued for a year, and monitoring reports will be provided quarterly. Long-term survey records can also serve as helpful information for the future development of similar projects. The monitoring will track any potential pollution released into the ecosystem.

## **Labor**

### Construction and Operation Phases

UREE will develop and submit the Employee Work Rules (員工工作規則) to the local labor competent authority for filing when the headcount of employees exceeds 30 persons as requested by Article 70 of Labor Standard Act and implement Employee Work Rules accordingly.

All workers and their living conditions for the Project shall comply with local Taiwanese regulatory requirements, including standards prescribed by the OH&S Administration of Taiwan. The grievance mechanism of the Project is required to apply to all stakeholders, including all workers of the Project, as well as essential contact information and channels for the grievance reporting.

All workers should be able to drink clean water and use Contractor installed or public toilets during their working period on the Project site.

## **Traffic Management**

### Construction Phase

The internal roads within the CCIP may require special attention to traffic during the construction phase, especially for the underground feeder installation, because the road of the installation is relatively narrow for the two-way driveway. The local traffic will likely be congested or busy during the construction phase. It should be cautious to prevent accidents due to the equipment mobilization and workforce inflow at the peak (approximately 380 workers).

### Operation Phase

Operational activities for maintenance work should keep traffic impact minimal.

## **Occupational Health and Safety (OH&S)**

### Construction and Operation Phases

Limited diesel sources will be used for construction vehicles and machinery during construction, and no chemicals will be used for PV module cleaning during operation. However, since the Project site is adjacent to coastal water bodies and intertidal zones, it is particularly susceptible to hazards and emergency incidents. The risks are identified but not limited to the following:

- Electrocutation during installation of electrical equipment near or within the water body;
- Drowning during construction or maintenance works near or within the water body;
- Laydown, stockpile, and hazardous substances storage areas established on sites;
- Typhoon (flooding);
- Working at height;
- Working in confined space;
- Use of heavy machinery; and
- Other risks, including falling objects and fires.

Salt corrosion would be a concern and should be considered when designing and selecting materials for supporting steel structures. Salt-resistant and corrosion-resistant materials shall be adopted. All workers have access to and use appropriate PPE. All workers are required to undergo proper OH&S training.

## ***Community Health and Safety***

### **Construction and Operation Phases**

Although the Project site surrounds no residential community, community health and safety concerns associated with the Project still exist as follows.

#### ***Safety and Security***

Diversion evacuation to cope with the temporary influx and outflux of construction workers  
Security Restriction of public access to foreshore areas during construction activities or for trespassing on the site of the floating solar PV platform during operations.

#### **Working area securely fenced during construction**

Material and equipment (e.g. construction site, laydown area) associated with the Project within a secured location and with restricted public access during operation;

Security Management, where surveillance cameras will be installed and regular inspection will be conducted during construction and operation; and

For the operation phase, UAV (unmanned aerial vehicle) equipped with thermal imaging cameras will be used in routine patrols of solar farms.

#### ***Public Health and Safety***

Use non-leaching toxic materials such as cleaning agents and solar PV modules.

Hexa's COVID-19 prevention and prevention measures regarding infectious disease transmission, following the Taiwan Center for Disease Control's (CDC) instruction.

#### ***Community Relations***

##### **Construction and Operation Phases**

Maintaining a good relationship with local communities and stakeholders is essential after the mobilization of the Project and prior to the commencement of civil construction. Establishing stakeholder engagement and a grievance mechanism is an avenue to benefit community relations. Pre-construction mitigation measures regarding community relations are as listed below:

2. Identification of key user groups for the Project site;
3. Consultation with user groups for the advice on planned disruptions to access
4. Inform the local community regarding construction activities, work schedules, and the potential risks from construction sites or maintenance work
5. Explain the mitigation measures to be taken regarding the identified risks and impacts
6. Introduce the grievance mechanism to stakeholders regarding the information on complaints registration and how complaints will be addressed; and
7. Provide progress or performance of the Project via public hearing meetings or the press meeting as needed; and
8. Host consultation meetings with local villagers through local organizations, such as Changhua District Fishermen Associations, etc., to minimize the possibility of vandalism and eliminate any health and safety-related concerns.

## **8.1 Consultations**

Hexa will actively engage in stakeholder consultations and constantly redress the grievance mechanism during performance monitoring and periodical reporting to achieve an acceptable outcome.

## Stakeholder Engagement

Hexa is committed to including critical stakeholders in the Project development process. To this end, two stakeholder engagement meetings have been conducted to date. Hexa will continue to engage the local stakeholders during the construction and operational phases, such as a construction briefing to local stakeholders and an official website to disclose updated project information to the public.

The External Communication and Media Policy includes public engagements and disclosure of information regarding financial, products, company, rumors, communication channels, websites, and unintentional selective disclosure provided by Hexa will be implemented and followed.

General information about the Project will be communicated to relevant stakeholders via:

- Bulletin Board at Huahsuan Site Office
- CCIP's website and public information board
- Hexa's website
- Fishermen's association

Detailed information, such as the NTS of the Project, will be available for review on Hexa's website.

## Grievance Redress Mechanism

The Grievance Redressal Mechanism (GRM) is an official process for receiving, evaluating, and resolving stakeholders' complaints regarding the project's activities. The mechanism applies to internal and external stakeholders during the project construction and operation phases. The GRM is shown in the **Figure 2** below.

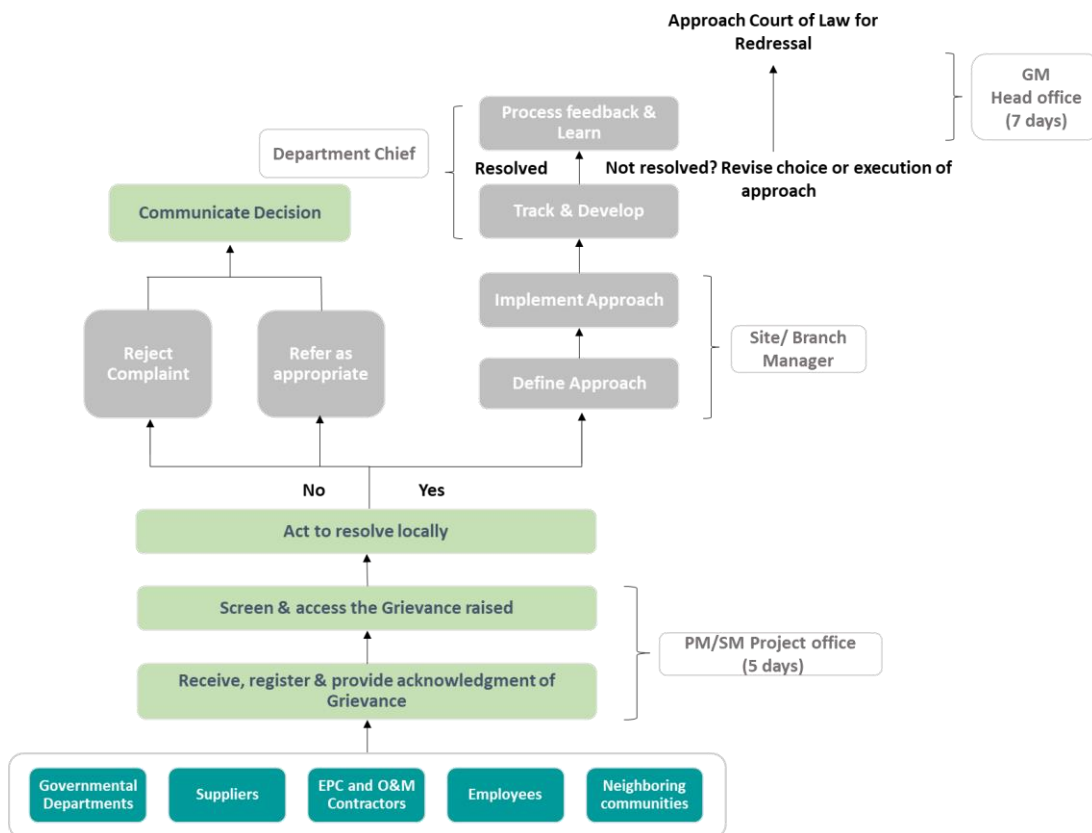


Figure 2 Grievance Redressal Mechanism

Source: HEXA

Affected stakeholders may provide feedback or file complaints via HEXA's website or the CCIP administration office. Phone and e-mail contact will be provided on the website for grievance registration. Grievance registration will be screened and assessed to determine its resolution, then will track and document the responses, if any.

#### Grievance Procedure

1. Grievance shall submit via HEXA's website, phone contact, or e-mail. The PM/SM (Site Manager) will be responsible for registering, screening, and accessing the grievance raised.
2. The PM/SM will take steps to evaluate and investigate, which will take approximately five days from receiving the complaint. Then they will determine whether to resolve it locally.
3. If the grievance is acknowledged, the site/branch manager will discuss the case, and a resolution will be developed. If the grievance is considered false, it will be rejected.
4. Findings and recommendations will be provided for the grievance that is acknowledged by the site/branch manager and the department chief will document and track the process.
5. If the grievance remains unresolved after going through all levels of GRC, including the review of GM head office (head office (7 days), the complainant may seek redress in court.