2022

HD Renewable Energy Co., Ltd.

Sustainability Report

CONTENTS

03

Sustainable Innovation Green Intelligence

04

Sustainable Environment and Clean Energy

05

Sustainable Talent Happy Workplace

06

Sustainable Feedback and Mutual Prosperity

About This Report

As a company committed to providing sustainable solutions, HD Renewable Energy Co., Ltd. values and supports sustainable development by giving a lead. For two consecutive years, we have proactively published sustainability reports and actively communicated with stakeholders. Through the disclosure of information in our sustainability reports, we strive to deepen our internal sustainability management and move towards a sustainable future.

Principles in Preparation

This report discloses the management policy and execution performance of HD Renewable Energy Co., Ltd. (referred to as "HDRE") in the main aspects of governance, economy, society and environment, etc. This report was made in accordance with GRI Standards 2021, Task Force on Climate-Related Financial Disclosures (TCFD) and Sustainability Accounting Standards Board (SASB).

Period

This report covers the information and issues from 1st January, 2022 to 31st December 2022. The partial details and past performances are included.

Scope

The scope of this report encompasses all the offices of HDRE in Taiwan, including Taipei, Taichung, Tainan, Kaohsiung, and Penghu. The information is based on HDRE individually. However, in order to ensure business integrity, certain sections of the report disclose information regarding subsidiaries, which are clearly indicated within the document.

Management Method

STEP 01 Engagement

- Engaging with stakeholders on significant issues.
- Identifying the impact of significant issues.

STEP 02 Compilation

The Sustainability Development Office has compiled information and prepared the manuscript based on the eight principles of the GRI Standards 2021:

- Accuracy
- Balance
- Clarity
- Comparability
- Completeness
- Sustainability context
- Timeliness
- Verifiability

STEP 03 Internal Review

1. Each unit confirms the accuracy of the data.
2. Third-party assurance organizations conduct data verification.
3. The Sustainability Development Office reviews, finalizes, and approves the disclosure in collaboration with the Chairman.

Quality

• External Assurance

Ernst & Young (EY) Taiwan, an independent firm with creditability, is retained by HDRE to conduct Limited Assurance on this report and to ensure the reliability of the disclosed information in the 2022 Corporate Sustainability Report. It is in accordance with GRI Standards and the provision of "Assurance Case of Non-historical Financial Information Audited or Reviewed" of ISAE 3000 standard. Relevant results after the completion of assurance have been communicated with the governance unit. Please refer to the independent third party assurance statement at Appendix 5 of this report (P.135).

• Data Quality Management

All the information and details disclosed in this report have been verified by an independent third party. Financial data, quality, information security, occupational safety and health, environment and energy management, greenhouse gas emissions data are included.

Financial Data **KPMG**	Quality Management System ISO 9001 **BSI**
Occupational Safety and Health Management System ISO 45001 **BSI**	Greenhouse Gases ISO 14064-1 **BSI**
The third party certificate	

Edition Release History

The Chinese report and English summary report are released annually and are available through enquiring and downloading from the sustainable website of the Company. The release date is:

This edition **August 2023**	Next edition **August 2024**

For historical data and other sustainability information, please refer to the following sources:

HDRE Website	HDRE Instagram	HDRE YouTube

Contact Information

Shall you have any suggestions or feedback on this report, please contact us:

HD Renewable Energy Co., Ltd.

Unit	Sustainable Development Office
TEL	+886-2-2832-8057
Address	5F, No. 35, Dexing W. Rd., Shilin Dist., Taipei City
Company Website	https://www.hdrenewables.com/

Message from the Management

Message from the Chairman

In 2022, the environment was filled with various changes and challenges. Uncertainties such as the pandemic and the economic and trade situation have brought impacts on the environment, economy, and society. At the same time, it has challenged the adaptability and resilience of businesses. Furthermore, climate change has become increasingly severe in recent years, and countries have taken more active steps to consider solutions to coexisting with the environment.

HDRE starts with itself, upholding the core values of professionalism, innovation, passion, and integrity. We are committed to the development of green technologies in power station, EPC engineering, operation maintenance, R&D of smart monitoring systems, so that ecological damage can be reduced, and environmental safety and health can be implemented in the process of creating economic value. This hence exerts a positive effort in the sustainable development of the corporate, environment and society jointly.

At the end of 2022, HDRE also proposed a "Green Procurement Policy," prioritizing the purchase of products and services that meet green procurement standards. For example, the company purchases the "Tree Planting" eco-friendly recycled toilet paper, ReTissue, which does not involve tree cutting and even helps planting trees. The company also prioritizes the use of products with green environmental protection marks or energy efficiency level-one products for various equipment or electrical appliances. We eliminate excessively packaged product and promote the reuse of recycled resources and the recycling of reused products. In addition, HDRE continues to strengthen its partnership with local suppliers. Based on the principle of supply chain localization, the company reduces the transportation distance and carbon emissions of raw materials while increasing local employment opportunities to promote social and economic development.

Continuing the three major goals set in 2021, the content includes:

1. Sound Governance: We are dedicated to implementing integrity and transparency and to establish a flat working environment with diverse channels for communication.
2. Environmentally-friendly: We embrace innovation and actively provide energy sources which are both low-carbon and clean.
3. Social co-prosperity: In addition to improving people-centric management and establishing a friendly working environment, we further demonstrate care and implement education to bring about sustainable co-prosperity.

HDRE has been committed to social responsibility and been demonstrated the sustainable impact of the company. Starting from 2022, the company has cooperated with Formosa 3D Association to develop mobile 3D movie vehicle and transform it into a green-energy popular science education model. It is installed with solar panels on the roof to provide electricity for the tour through sunlight storage. In addition to allowing children to see the beauty of the vast land and expanding their limitless imagination of land and dreams, the 3D movie vehicle also introduces the origin and application of green energy and raises awareness of the impact of climate change on life to practice green energy education.

Chairman

謝源一

Message from the President

HDRE aims to become a private smart power company. We focus on the golden triangle of power generation, energy storage, and electricity sales in conjunction with the smart green energy system TITAN to achieve a comprehensive green power demand supply. The company promotes the popularization of "Smarter Energy and Accessible Green " and contributes to Taiwan's goal of achieving net-zero emissions by 2050.

Starting from 2022, HDRE conducted independent audits of greenhouse gas emissions, which were verified by third parties. Compared to the baseline year (2021), carbon emissions were reduced by 17.7% in 2022. Each ton of carbon emissions generated revenue of 23.8 million, and carbon productivity increased by 130%, making it more competitive than in 2021. In terms of green energy usage, since August 2022, Taipei headquarters and Taichung office have achieved 100% green energy usage. The company aims to achieve net-zero carbon emissions at the Taipei office by 2025 and plans to achieve the net-zero target for all office locations nationwide by 2030. In the future, the company also looks forward to helping more businesses use green energy through our subsidiary Star Exchange Co., Ltd.

Furthermore, HDRE will continue to develop photovoltaic projects with a focus on the coexistence of fisheries and solar power. It emphasizes "sustainable aquaculture" and respects the economic viability of local water quality, climate, ecology, and species. We take the practical needs of aquaculture production and sales into consideration, as well as photovoltaic operation. The company designs and plans projects according to local conditions. Additionally, it introduces funds and technology to promote the upgrading of the aquaculture industry, strengthens cooperation with existing fish farmers and sales channels, and establishes a sustainable fisheries and solar power economic ecosystem. In addition to promoting the goal of achieving net-zero emissions, the company also assists Taiwan's aquaculture industry in addressing challenges such as an aging workforce, gaps in knowledge transfer, and inadequate infrastructure investment to achieve sustainable development objectives.

President

周仕昌

01

Sustainable Communication Listening and Engagement

Core Vision and Commitment

Since 2016, HDRE has started to provide integrated solar photovoltaic services, covering the fields of power generation, electricity sales, and energy storage. With the vision of "Utilizing green electricity in our daily living - accelerating the arrival of a future of net zero carbon emissions", we have become suppliers of solutions for net-zero carbon emissions and provide one-stop services ranging from the development of green energy sites, operation, and maintenance management, to green electricity sales, in conjunction with optimizing intelligent management systems which coordinate green power supply and demand, thus lowering the threshold of utilization of green electricity. To satisfy increasing green power demand in the market, we expand our electricity sales business and charging points operation service. HDRE will expand the possibly of various types of power applications to promote the popularization of green electricity under the objective of "Smarter Energy, Accessible Green", in order to achieve the goal of becoming a world-class "Smart Green Power Company".

· Overview of Sustainability Performance in 2022

1. By introducing GRI Standards 2021, the impacts on significant topics are analyzed by Double Materiality in accordance with the standards.
2. By adopting TCFD (Task Force on Climate-related Financial Disclosures) to disclose climate governance.
3. By adopting SASB (Sustainability Accounting Standards Board) to enhance information transparency and comparability across industries.

1.1 About HD Renewable Energy (HDRE)

Development History

To cope with the climate change in recent years, greater number of international giant leading brands have announced to enroll in RE100 and are committed to achieving carbon neutrality by 2030. In addition, since Taiwan is the main high-tech manufacturing industry center in the world, many enterprises are key suppliers for the global market. The use of green power has become one of the methods to achieve net zero carbon emissions. In the future, HDRE will continue to enhance "TITAN Smart Green Power System" where through centralized management and active prediction of demand and supply, power generation efficiency and maintenance management can be effectively increased. In addition, HDRE, a pioneer in the energy industry, established the "Intelligence Center" as the key to smart electricity dispatch, thereby jointly contributing to sustainable development.

· Operating Locations of HDRE

1.1.1 Introduction of HDRE

Full Name of Company	HD Renewable Energy Co., Ltd.
Stock Code	6873
Number of Official Employees	154 People
Capital Amount	NTD 850 million
Date of Establishment	16 May 2016
Chairman	Yuan-Yi Hsieh
President	Shih-Chang Chou
Services	Development and construction of electrical power, power station asset management, smart power services
Location of Headquarters	5F, No. 35, Dexing W. Rd., Shilin Dist., Taipei City
Company Website	https://www.hdrenewables.com/

· HDRE's Key Milestones

2016

- HD Renewable Energy Co., Ltd. was established

2018

- First water surface-based solar photovoltaic system construction (4MW) was completed
- MOU was signed with Shin Kong Chao Feng Co., Ltd. to obtain the development right for 375ha of land of the Chao Feng Ranch and Resort, and constructed the largest single solar photovoltaic project (400 MW) in Taiwan
- Hongbo Technology and Energy Co., Ltd. was established for the expansion of solar photovoltaic maintenance and operation services

2019

- Established a fishery company as a first mover in fishery-electricity symbiosis

2020

- Established Star Power Energy Corporation together with Taiwan Life Insurance, TransGlobe Life Insurance, and AcBel Polytech to jointly develop power stations
- Established Star Exchange Co., Ltd., a subsidiary.

2021

- Subsidiary Star Exchange Co., Ltd. obtained the electricity sales license issued by the Ministry of Economic Affairs
- Contracts were signed with Taiwan Mobile and E.SUN Bank for the sale of electricity through a power wheeling arrangement
- Subsidiary Star Charger Co., Ltd. was established to start the electric vehicle charging business
- Public offering and listing at the emerging stock market for trading was approved by Taipei Exchange (TPEx)

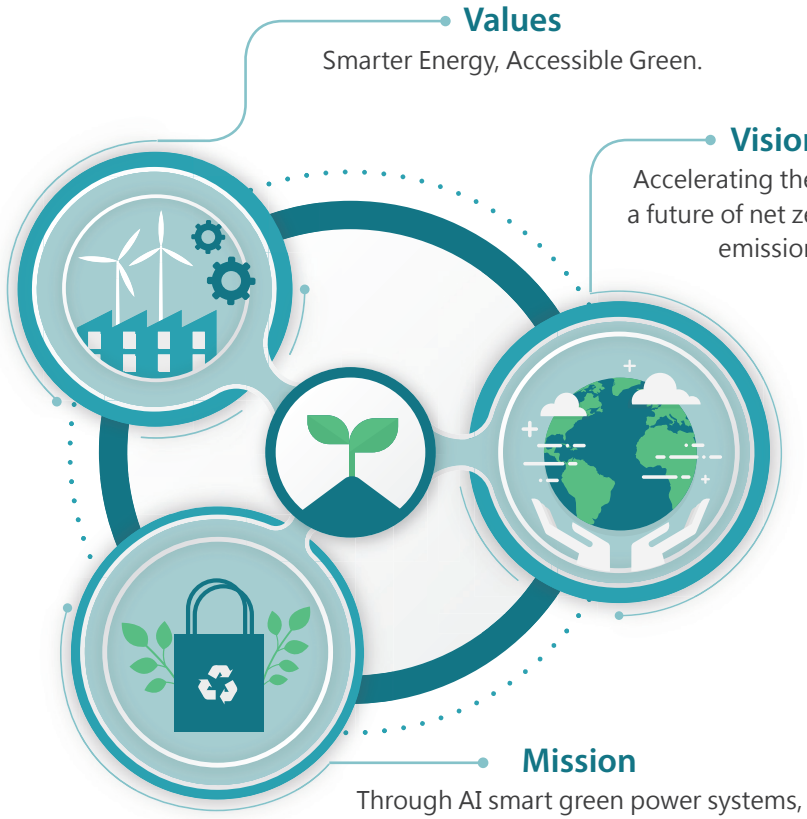
2022

- Established Aquastar Energy Corporation with Taiwan Life Insurance, TransGlobe Life Insurance, and Fubon Life to jointly develop fishery and electricity symbiosis
- Established the Intelligence Center for smart electricity dispatching and initiated facelift for new power company
- The Board of Directors passed resolutions on the application for public listing of the company stock
- Expanded the operating scale of the Company by a capital increase of cash infusion on 15,000,000 shares
- First edition of Sustainability Report was published
- Established Star Aquaculture Co., Ltd. and engaged in ecological aquaculture, aiming to create the first "National Taiwan Fishery Team" through production and marketing strategies.
- Developed the "TITAN Smart Green Power System "by incorporating AI algorithms to analyze power generation and consumption data, thereby simulating the optimal power generation and usage model.
- Aquastar Energy Corporation's subsidiary, Ri Yun Green Energy Co., Ltd., has completed joint loan project of Qigu, Tainan, worth NT$2,089,000k. For more details, please refer to:
- Passed the review by Securities Listing Review Committee of Taiwan Stock Exchange Corporation for the listing application on the Innovation Board. The applied capital for listing is NT$850,000k, making it the first energy company to be registered on the Innovation Board.

Philosophy and Vision

HDRE has branched out the field of solar power and wind power generation and has planned for fishery-electricity symbiosis, energy storage and EV charging markets. We are becoming a "smart green energy company" through the three main business units, electricity development, asset management and smart power service. We maximize green energy utilization rates and are committed to green energy popularization. In addition, customized and integrated services are provided to create a green living circle jointly and facilitate energy transformation.

‧ Core Philosophy of HDRE



Values

Smarter Energy, Accessible Green.

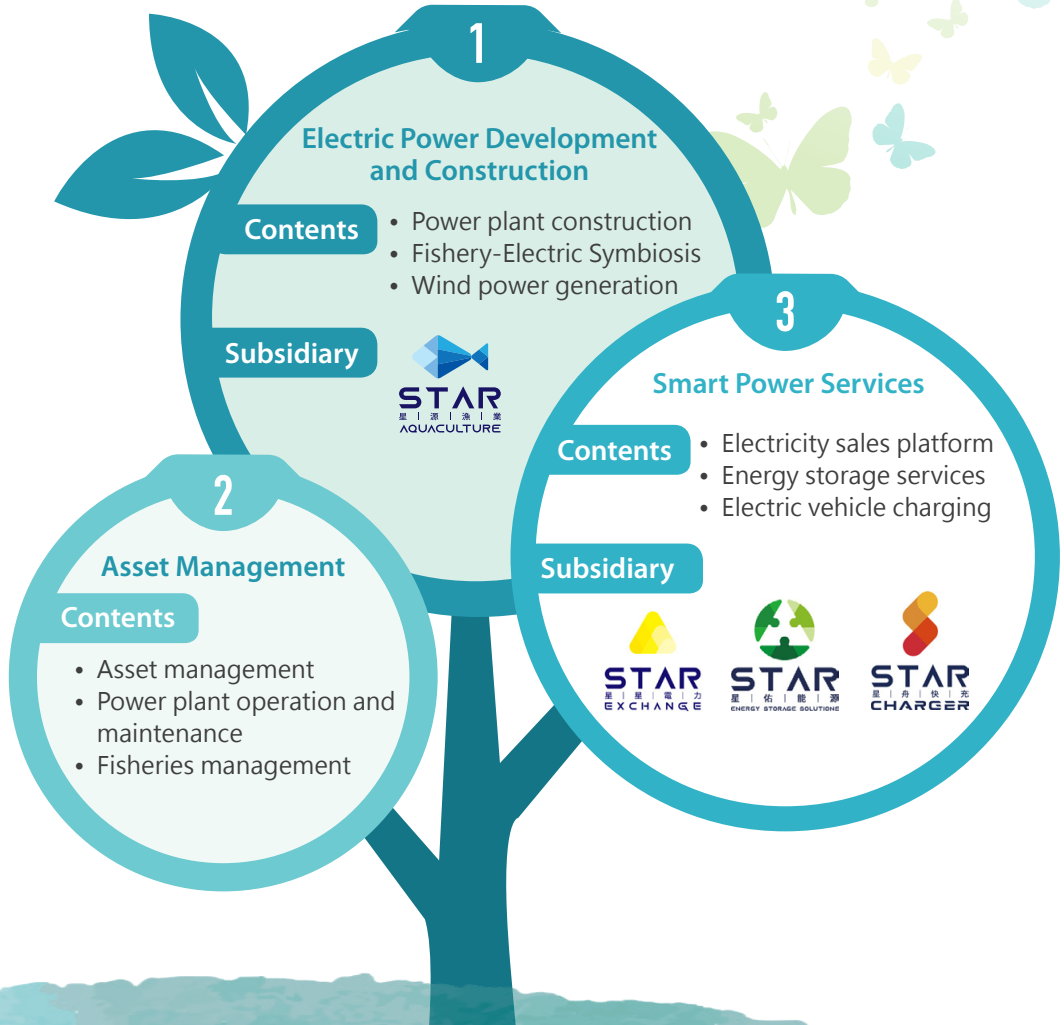
Vision

Accelerating the arrival of a future of net zero carbon emissions.

Mission

Through AI smart green power systems, green energy use efficiency can be maximized, thus allowing green power to be accessible and used in our daily life.

‧ Introduction of Three Main Business Units



· Operational highlights and future plans by 2022

Photovoltaic Field
- Established projects with a capacity of over 300MW.
- Developed projects with a capacity of over 1.5GW.

Wind Power Field
- Wind power generation plans are still in the preparation stage.

Power Plant Operation and Management
- Signed operation and maintenance contracts for power generation installations with a total capacity of over 300MW.
- Goal: Manage power generation installations with a total capacity of 1GW.

Investment Management
- Established two joint venture platforms.
- Managed assets exceeding 3 billion.

Fisheries Management
- Completed the development of fishing grounds covering an area of over 100 hectares.
- Goal: Develop fishpond areas covering an area of 1,000 hectares.

Renewable Energy Retailer
- Signed green energy supply contracts, supplying 28 million kWh of electricity.
- Currently negotiating green energy demands exceeding 120 million kWh.

Charging Stations
- Conducted site evaluations with retail businesses owning over 4,000 stores.

Energy Storage
- Developed energy storage facilities to meet demands exceeding 600MW.

Energy Aggregator
- Implemented the TITAN Smart Green Energy System.
- AI-managed photovoltaic, fishing-electricity, front-of-meter storage, demand management, green energy supply, and charging station operations.
- Developed virtual power plants in line with the electricity liberalization process.

1. Electric Power Development and Construction

HDRE provides services based on project development and Engineering Procurement Construction (EPC), and we have developed our own projects with team members who have professional backgrounds to design and customize exclusive plan for different types of fields. As ecological environment in Taiwan is complicated and diverse, in addition to the conventional roof and ground type projects, our engineering team is also equipped with exclusive and special techniques and technologies for special terrains, such as land subsidence areas, salt pans, floating platforms on water surfaces etc. In addition, we also have expertise in the construction of ultrahigh voltage systems which comprehensively consider various aspects of design, construction, civil works, machinery, electrical and mechanical systems, etc. in relevant fields, hence reducing risks and costs.

Roof Type

Solar photovoltaic (PV) modules are constructed on the roof of existing building, and solar panels can be directly installed on the roof or shed frame which can be constructed before the installation of solar panels, which is the construction method adopted by fishery-electricity symbiosis facilities. Covered playground in school, users with large power consumption, RE100, and corporates with green power demands are all business partners of HDRE.

Roof type field in Zhuxing Elementary School at Zunan Township, Miaoli County

Ground Type

Solar PV modules and steel points are installed on the floor (including sun tracking type) or on the ground. The system is typically installed on farmlands, parking lots, and all-weather open-top stadiums. From the early days, ground-type was mainly for fields with areas under 2ha. It has now become suitable for large PV area developments areas above 30ha. Through active participation in the government agency tender projects and state-owned land development, we aim to assist in the achievement of the 2025 green energy goal set out by the government.

Ground type field at Hualien County

Water Surface Type

Solar PV modules are installed on the water surface, and typically on the water surface of reservoir and detention basin. The structure contains no steel pile, and water resistant and weather resistant buoys made of special material are used to install solar PV modules on the water surface, followed by the anchoring and securement to prevent movement of the solar panel modules. HDRE has been actively tendering detection basin tender projects of government agencies and also participated in the construction of water surface type of EPC projects.

Water surface type field at Hsinchu's pond

Ultra High Voltage

For power transmission systems with voltages exceeding 25,000V, i.e., above 20MW, "Ultra High Voltage (UHV) Power Stations" are required to convert the voltage before delivering the electrical power.

Ground type + UHV field at Beimen District, Tainan City

Fishery-Electric Symbiosis

HDRE responses to the "Green Power Added Value for Fishery" initiative actively promoted by the government in recent years. From the development stage, fishery operations are considered and included in various management regulations and integrated with solar PV technologies and maintenance plan to achieve balanced development in both solar power and fishery industries, thus promoting local symbiosis and co-prosperity.

HDRE's goal for fishery-electricity symbiotic power generation is 4.4GW, and they have announced a fishery-electricity symbiotic zone covering an area of 12,533 hectares in Changhua, Yunlin, Chiayi, Tainan, Kaohsiung, and Pingtung.

Fishery-electric symbiosis field at Qigu District, Tainan City

2. Power Station Asset Management

The asset management consulting service provided by HDRE focuses on the financial and legal related consulting service. With HDRE's extensive experience project development, assessment, solar power station system construction and maintenance management capability, we aim to provide professional and comprehensive services to customers for the period from their early development stage to the in-service operation of twenty years to maximize the asset value.

Fishery Management

- We focus on the ecological diversity and natural water circulation cultivation technique, and adhere to the lower density cultivation principle, along with the implementation of biological techniques and probiotics to maintain a safe and eco-friendly cultivation environment.
- With the integration of AI and the fish pond management, along with the use of sensors, computer/smartphone, cloud, and big data, a smart cultivation trend is established.

Aquaculture experimental station at Qigu District, Tainan City

Power Station Operation and Maintenance

- We provide the services of solar power station maintenance, including periodic module cleaning, inspection, repair and troubleshooting of accidental failure, etc.
- With the use of AI smart software monitoring and big data analysis, we provide customized maintenance services for power plants.

Power Station Investment

- We provide customer contract management, financial analysis, account management, accounts receivable and payable management, comprehensive authorized management method, to maximize pow-er generation benefits.

Star Power Energy Corporation 's first joint venture project located in Beimen District, Tainan City.

3. Smart Power Services

Energy Storage Dispatch

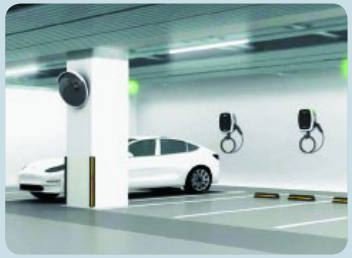
Energy storage systems refers to electrical energy storage equipment and is able to store renewable energy, so that the excess electrical energy generated during daytime can be stored for the use at night, thereby optimizing the energy storage and avoid the loss during transmission. It can hasten the progress to reach RE100. HDRE actively prepares and participates in the Taipower AFC frequency modulation auxiliary service, and uses quick charging/discharging energy storage equipment and power regulating system to mitigate the occurrence of unstable power supplies and power abnormalities so that Taipower's power supply stability can be enhanced, and the power generation benefit can be maximized.

Smart Charging Points

To overcome air pollution and greenhouse gases, the government has carried out a series of policies of EV. HDRE actively establishes brand new living models and provides net zero carbon emissions solutions. HDRE has become a pioneer of green-energy EV charging points, and we aim to integrate environment and sustainability into our daily life.

- Construction achievements
  The best solutions-Mid-size communities demonstration in northern Taiwan:

To provide complete EV charger solutions, the concept of "Full Zone Planning" has been introduced to assist the existing community in planning and modifications, and to ensure the safety of charging points and power consumption. The planning also facilitates uniform control and management, hence providing the best solutions to community management and household charging needs.



Green Power Supply

As many countries have established their carbon reduction goals, the demand for green power has increased rapidly. HDRE understands the difficulty in the accessibility of green power and is committed to assisting corporate customers by providing the best green power plan to achieve fast power wheeling and implementing RE100 precisely, reaching the goal of green energy utilization.

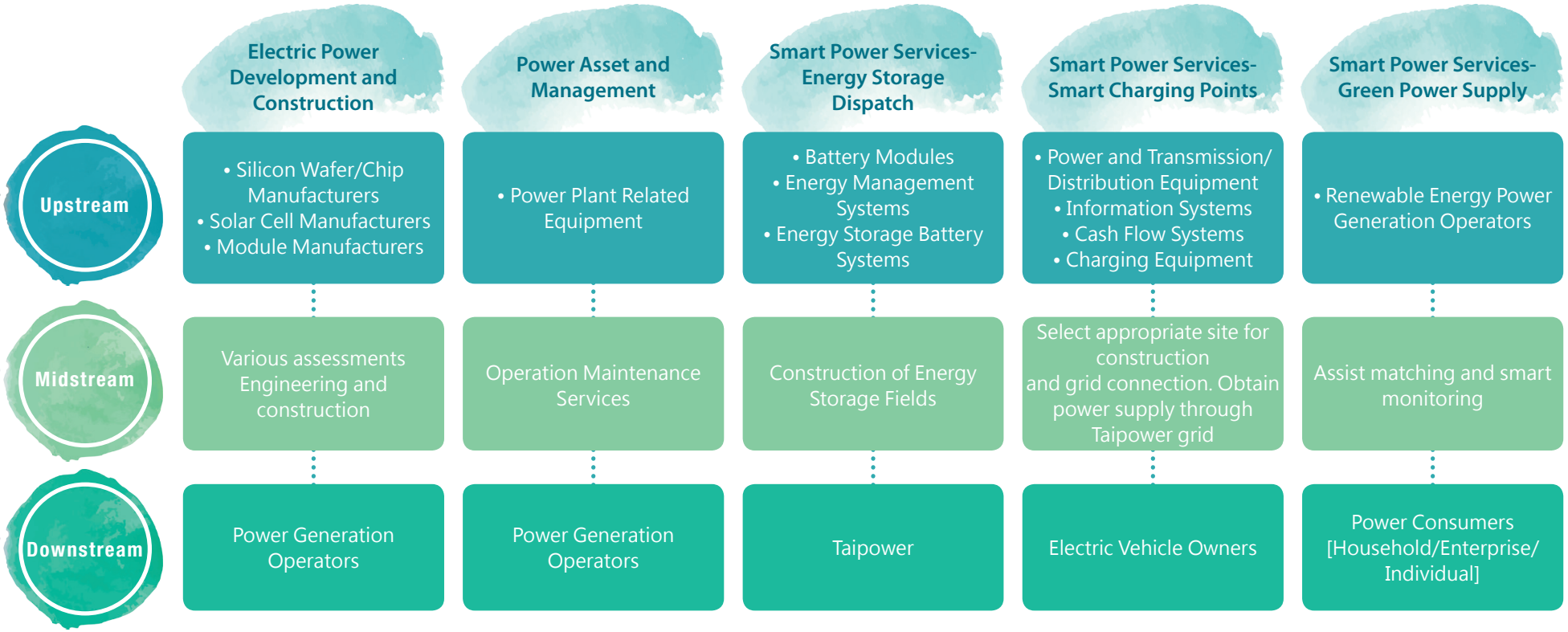
1.1.2 Industry Value Chain

As countries around the globe face the issue of global climate change, they have also started a new wave of green energy revolution. Taiwan also follows this new wave, and the government has set the carbon neutrality goal by 2050 and establishes the 2025 energy transformation key indicators. In addition, the development of renewable energies and non-nuclear homes have been implemented as key administrative governance direction.

HDRE, being a green energy integrator, has three main business service items. They range over site development, engineering construction, power generation, electricity sales, and smart power applications.

With regard to the electric vehicle charging point business, HDRE needs to collaborate with the power and transmission/distribution operators, the suppliers of charging equipment and information and cash flow services to provide charging service to electric vehicle owners. HDRE is committed to assisting all industries to use clean and green energy in their operations. We also look forward to encouraging all business partners in the value chain to contribute to efforts in both sustainable development and carbon reduction.

- HDRE Value Chain



1.1.3 Business Development Group (Subsidiaries and Investees)

HDRE engages in investment for the purpose of green power business development needs. The financial business management policy of investees mainly refers to relevant internal management regulations. Nevertheless, we have established the "Procedures for Subsidiary Supervision and Management" as a guideline for investees' investing in the subsidiary.

Note: If no special marking is made, it refers to the companies that HDRE have 100% investment in.

• Note

Name	Relationship with HDRE	Shareholding ratio
Rifa Green Energy	Affiliated company	40%
Yundan Green Energy	Affiliated company	40%
Richin Green Energy	Affiliated company	34.44%
Star Energy Storage Solutions Co., Ltd.	Subsidiary	80%
Star Aquaculture Co., Ltd.	Subsidiary	97.8%
Yingfa Energy	Subsidiary	99%
14 Aquaculture Technology Co., Ltd.	Subsidiary: Tian Hua, Tian Fang, Tian Tai, Tian Jie, Tian Xi, Tian Hui, Tian Yi, Tian Cheng, Tian Dong, Tian Chang, Tian Yu, Tian Yong, Tian Hong, Tian Sheng	100%

- **HDRE four major subsidiaries:** Please refer to CH3 Sustainable Innovation Green Intelligence.

Star Exchange Co., Ltd
Green energy sales

Star Energy Storage Solutions Co., Ltd
Integrated energy storage systems

Star Charger Co., Ltd
Electric vehicle charging service operator

Star Aquaculture Co., Ltd
Professional aquaculture

1.2 Stakeholder Engagement

1.2.1 Stakeholder Identification

The starting point of stakeholder identification is based on the daily business partnership from each unit of HDRE. Through analyzing numerous stakeholders, HDRE identifies the stakeholders with the greatest influence. Following the AA1000 Stakeholder Engagement Standard (SES), HDRE assesses stakeholders based on five dimensions: dependency, responsibility, tension, influence, and frequency. Eight major stakeholders are identified based on their relationship significance with HDRE. These stakeholders are ranked in order of significance, with employees being ranked first, followed by suppliers/contractors, customers, government agencies, shareholders/investors, communities/non-profit organizations, unions/associations, and media.

Dependency
Stakeholders who directly or indirectly rely on HDRE's products, activities, or services.

Responsibility
Stakeholders of HDRE who have legal, commercial, operational, or ethical responsibilities towards it.

Tension
Stakeholders who are concerned about HDRE's financial performance, economic, social, and environmental issues.

Influence
Stakeholders who have influence over HDRE's strategies or business decisions.

Five assessment dimensions

Frequency
The frequency of communication between HDRE and the respective stakeholders.

1.2.2 Key Stakeholders

HDRE has established diverse communication channels for stakeholders to actively understand the attitudes, thoughts and concerns of stakeholders. In addition, the Company's business strategy is also adjusted on a timely and dynamic basis, thus achieving a win-win situation in both sustainable corporate operations and with stakeholders.

Employees

Importance and Meanings

We value our employees' opinions and feedbacks, and consider our employees as important assets. By establishing a "Diverse Culture Inclusion and Happy Workplace" in conjunction with our employees, we implement employee care thoroughly and provide a safe and secure workplace.

Communication Channel and Frequency

【Regularly】
- labor-management meetings [quarterly]
- Safety and Health Committee [quarterly]
- Sustainable Newsletter [monthly]
- Employee Ecological Tour [semiannually]

【Occasionally】
- Diverse Communication and Complaint Channels
- Care Conference

Issues of Concern

- Local community
- Labor relations
- Biodiversity

Communication Key Results for 2022

- In 2022, a total of four labor-management meetings were held.
- The Safety and Health Committee consists of 10 members, with 5 representing the workers, exceeding the legal requirement of one-third representation.
- An ERP implementation conference was organized.
- There were no significant employee complaint incidents in 2022.
- The total training hours for general staff education reached 1,641.5 hours.

Suppliers

Importance and Meanings

To provide high-quality services and products, suppliers are the critical partners of HDRE. We cooperate with suppliers and fulfill the vision of sustainable supply chain gradually.

Communication Channel and Frequency

【Regularly】
- Supplier and contractor evaluation [annually]
- Project meetings [monthly]
- Regulatory compliance audit [quarterly]

【Occasionally】
- Toolbox talks
- Occupational safety education and training
- On-site inspection of critical materials
- supplier and contractor management procedures

Issues of Concern

- Biodiversity
- Climate change adaptation
- Waste management

Communication Key Results for 2022

- A total of 26 subcontractor education and training sessions were held in 2022, with a total of 66 trainees.
- Annual initial assessment of suppliers and subcontractors, with an increase of 48 in 2022, totaling 90 completed assessments to date.
- Proper implementation of supplier safety and health evaluations and investigations.
- A total of 5,568 hours of subcontractor safety and health education and training were conducted, with participation from approximately 930 individuals.

Customers

Importance and Meanings

We are committed to providing quality services to our customers, and we also strive to ensure both high quality and customer satisfaction as we implement customer privacy protection and information security management.

Communication Channel and Frequency

【Regularly】
- Establish business, assets, electricity sales, and management procedures [annually]
- Conduct customer satisfaction questionnaire survey [annually]

【Occasionally】
- Electronic complaint mailbox or hotline

Issues of Concern

- Corporate governance
- Waste management
- Risk management

Communication Key Results for 2022

- Held 8 investment review meetings
- Conducted customer satisfaction surveys, averaging 96% satisfaction rate
- Proportion of customer satisfaction / very satisfied in 2022: Power sales (97%), Business (73%), Assets (100%)
- Implemented information security system access control to ensure customer information is not maliciously leaked, stolen, and recorded

Government Agencies

Importance and Meanings

We guarantee to meet the requirement of local laws and decrees. According to the government, we actively disclose all of our products and services, and they are required to be complied with regulations and be supervised by authorities.

Communication Channel and Frequency

【Regularly】
- Reviewing updates on the latest regulations [monthly]
- Compliance checks for regulatory requirements [annually]
- Government reporting platform [annually]

【Occasionally】
- Document circulation
- Participation in government public information activities

Issues of Concern

- Corporate governance
- Biodiversity
- Employee compensation and benefit

Communication Key Results for 2022

- A total of 92 occupational safety regulations were updated, of which 47 regulations are applicable and undergo regular audits.
- In 2022, the Board of Directors conducted legal education and integrity-related training courses seven times, totaling 21 hours.
- There were no significant penalty incidents in 2022.

Stakeholders and Investors

Importance and Meanings

Achieving best construction quality and generating maximum profits are the goals of the Company. These goals can increase the trust and cohesion of both shareholders and employees on the Company, and they are also considered as key matters to sustainable development and business operation.

Issues of Concern

- Product quality and responsibility
- Innovation management
- Waste management

Communication Channel and Frequency

【Regularly】
- Shareholders' Meeting [annually]
- Annual Report [annually]
- Sustainability Report [annually]

【Occasionally】
- Earnings call

Communication Key Results for 2022

- Held 2 shareholder meetings (including 1 extraordinary shareholder meeting) to provide updates on operations, policy implementation progress, etc.
- Ensured the protection of shareholders' rights and enhanced confidence in the company.
- Established a dedicated sustainability section on the official website of HDRE.
- Achieved operational management targets for the project sites in 2022.
- Conducted 19 board communication meetings.
- No negative feedback or complaints from shareholders/ investors in 2022.

Communities/ Nonprofit Organizations/ Non-Governmental Organizations

Importance and Meanings

We uphold the principles of contribution and giving back to the society through core technologies and capabilities, thus preventing impacts on the local ecology, therefore achieving the goal of wonderful living with green power and innovation. We also promote awareness of green power and organize various public welfare events to convey our passion and positive energy.

Issues of Concern

- Waste management
- Greenhouse gas management
- Corporate governance

Communication Channel and Frequency

【Regularly】
- Environmental and Social Impact Assessment [annually]
- Environmental Due Diligence Investigation [annually]
- Water and Soil Assessment [quarterly]

【Occasionally】
- Local Briefing Sessions
- Public Welfare Activities
- External Seminars/ Conferences
- Site Visits

Communication Key Results for 2022

- Conducting ESDD (Environmental and Social Due Diligence) for energy storage projects
- Engaging environmental organizations to conduct assessments of environmental and social aspects, enhancing credibility
- Hiring external ecological consultants to carry out investigations and monitoring activities
- Ensuring that each local project hires a certain percentage of local residents, for example, hiring up to 60% of local residents for the Hualien project
- In 2022, engaging in communication and consensus-building with opinion leaders in the vicinity of the Shashanziliao operation project in Qigu District

Industrial Unions and Associations

Importance and Meanings

In addition to participating in the open events of government agencies, we also actively participate in events announced by the unions, including courses and field on-site visits to achieve operation safety management exchange, and also promote industrial safety and development of maturity in health management.

Issues of Concern

- Risk management
- Supplier management
- Biodiversity

Communication Channel and Frequency

【Regularly】
- Public education and training sessions [quarterly]
- Participation in counseling activities [quarterly]
- Membership meetings [annually]

【Occasionally】
- Participation in government agency events
- Attendance at external conferences and seminars

Communication Key Results for 2022

- Participation in 3 government public information courses and events
- Membership in various public associations, trade unions, or external organizations (refer to section 2.2.3 for details on external participation).

Media

Importance and Meanings

Through media exposure, press conferences, brand activities and media gathering events, we hope that important information on HDRE can be conveyed to all stakeholders to use media as an important channel for our communications with the general public.

Issues of Concern

- Biodiversity
- Product quality and responsibility
- Climate change adaptation

Communication Channel and Frequency

【Regularly】
- Media luncheons/gatherings [annually]
- Press releases [monthly]

【Occasionally】
- Press conferences
- Interviews
- Media tours

Communication Key Results for 2022

- Organizing a media tour for the groundbreaking ceremony in Penghu
- Organizing a media tour for the commencement of the solar power project
- Participating in the co-organized Energy Forum by Today Magazine
- Participating in the Energy Taiwan Week Forum

Spokesman
President Shih Chang Chou
Tel.: +886-2-2832-8057

Deputy Spokesman
Manager, Business Analysis Department, Tzu Ching Hsu
Tel.: +886-2-2832-8057

Direct Customer Service Line
Sales Division
Tel.: +886-2-2832-8057
Email: hd.sales@hdrenewables.com

Employee Complaint Channels
Human Resource and Administration Department
Tel.: +886-2 2832 8057
Email: equality@hdrenewables.com

Fraud Report Section
Audit Department
Tel.: +886-4-2255-8858
Email: hd.ac@hdrenewables.com

Investor Section
Marketing Department
Tel.: +886-2-2832-8057
Email: ir@hdrenewables.com

ESG Section
Sustainable Development Office
Tel.: +886-2-2832-8057
Email: esg@hdrenewables.com

1.3 Analysis of Material Topic

1.3.1 Material Process Analysis

HDRE values communication with stakeholders and upholds the principles of transparency and openness. We provide diverse communication channels to facilitate effective two-way communication. Through regular communication with stakeholders, we disclose relevant information and gather their opinions. We actively seek feedback and suggestions from stakeholders regarding our operations to ensure continuous adjustment and improvement on the path of sustainable management and to address the expectations of the wider society.

HDRE utilizes multiple channels to communicate with stakeholders and combines them with significant thematic analysis to identify the most important issues for stakeholders and the company. Furthermore, we are committed to establishing the foundation for sustainable operations and continuously improving areas of weakness while enhancing information disclosure.

Step 1 Identify Stakeholders	Step 2 Topic Selection	Step 3 Assess Impact Level	Step 4 Determine Material Topics	Step 5 Developing management policies and conducting regular reviews
Identify internal and external groups or individuals significantly have influence on the Company or affected by the Company in accordance to the five major principles of the AA1000 Stakeholder Engagement Standards (SES). Each supervisor of the units shall fill in the questionnaire based on it.	A sustainability assessment was conducted focusing on 24 sustainability issues that are relevant to the operations and business of HDRE. The assessment was based on sustainability standards and frameworks such as GRI (Global Reporting Initiative), TCFD (Task Force on Climate-related Financial Disclosures), SASB (Sustainability Accounting Standards Board), as well as industry-specific concerns and global sustainability trends. The purpose was to evaluate the potential impacts of these issues on the company.	Based on the importance that stakeholders attribute to each topic and the impact it has on the company, we have created a matrix known as the Materiality Matrix. This matrix visually represents the assessment results of the various topics, categorized into high, medium, and low levels of significance. The Materiality Matrix serves as a reference for determining the significance of each topic for HDRE.	10 material major topics are selected by full-scale consideration based on the relevance and impact level on company's operation. The analysis is according to the questionnaires, horizontal communication between each unit, and suggestions from external consultants.	The results of the identification of significant topics are carefully reviewed, and a comparison is made with the significant topics identified in the previous year. Based on this review, we establish management policies and set targets for the significant topics. These management policies and targets are reviewed annually to ensure their alignment with the sustainability context and integrity requirements.
20 stakeholder questionnaires were distributed to identify 8 categories of stakeholders.	13 cross-departmental sustainability interviews were conducted, and 24 sustainability issues were selected and assessed the impacts.	21 internal questionnaires on the significant topics and 165 stakeholder's questionnaires on material topics	Determine 10 material topics	The material topics are 100% compliant with the requirements of sustainability and integrity.

1.3.2 Material Topics Analysis and Matrix

Sources of Sustainability Issues

HDRE identifies potential significant topics for the company's sustainability by referring to international sustainability standards and frameworks, such as the United Nations Sustainable Development Goals (SDGs) and Responsible Investment. Industry trends and stakeholder engagement also play a crucial role in identifying these sustainability issues. The identified topics are then narrowed down to 24 sustainability topics, and further investigation is conducted to assess the impacts associated with each topic.

International sustainability standards and frameworks	Referring to international sustainability standards such as the Global Reporting Initiative (GRI) Sustainability Reporting Guidelines, Responsible Business Alliance (RBA), Task Force on Climate-related Financial Disclosures (TCFD), Carbon Disclosure Project (CDP), and other relevant guidelines.
Sustainable Development Goals (SDGs)	Evaluate the 17 Sustainable Development Goals (SDGs) and their corresponding 169 targets, and identify how HDRE can contribute to them through specific actions.
International sustainability indices and ratings	Refer to rating indicators such as the MSCI ESG Leaders Indexes and the Sustainability Accounting Standards Board (SASB) to assess HDRE's performance in ESG (Environment, Social, and Governance) criteria.
Industry development trends	Trends and developments in specific industries.
Stakeholders' concerns	Stakeholder concerns include issues related to employees, suppliers, customers, government agencies, shareholders/investors, communities/non-profit organizations/non-governmental organizations, industry associations, and media.

Sustainability Issues

After internal discussions within the Sustainable Development Department of HDRE and consultation with stakeholders, we conducted an analysis based on four dimensions: governance, environment, social, and products/services. Through this process, we identified 24 sustainable topics. We will continuously refine our governance policies and drive the company's sustainability efforts in line with these sustainable topics.

Governance

- Corporate governance
- Operational performance
- Corporate Integrity & Legal Compliance
- Risk management
- Information security management
- Supplier management

Environment

- Climate change adaptation
- Biodiversity
- Energy management
- Waste management
- Greenhouse gas management
- Water resource management

Social

- Talent attraction and retention
- Talent development and training
- Labor-management relations
- Workplace diversity and human rights
- Social engagement
- Occupational health and safety
- Employee compensation and welfare
- Local communities

Products and Services

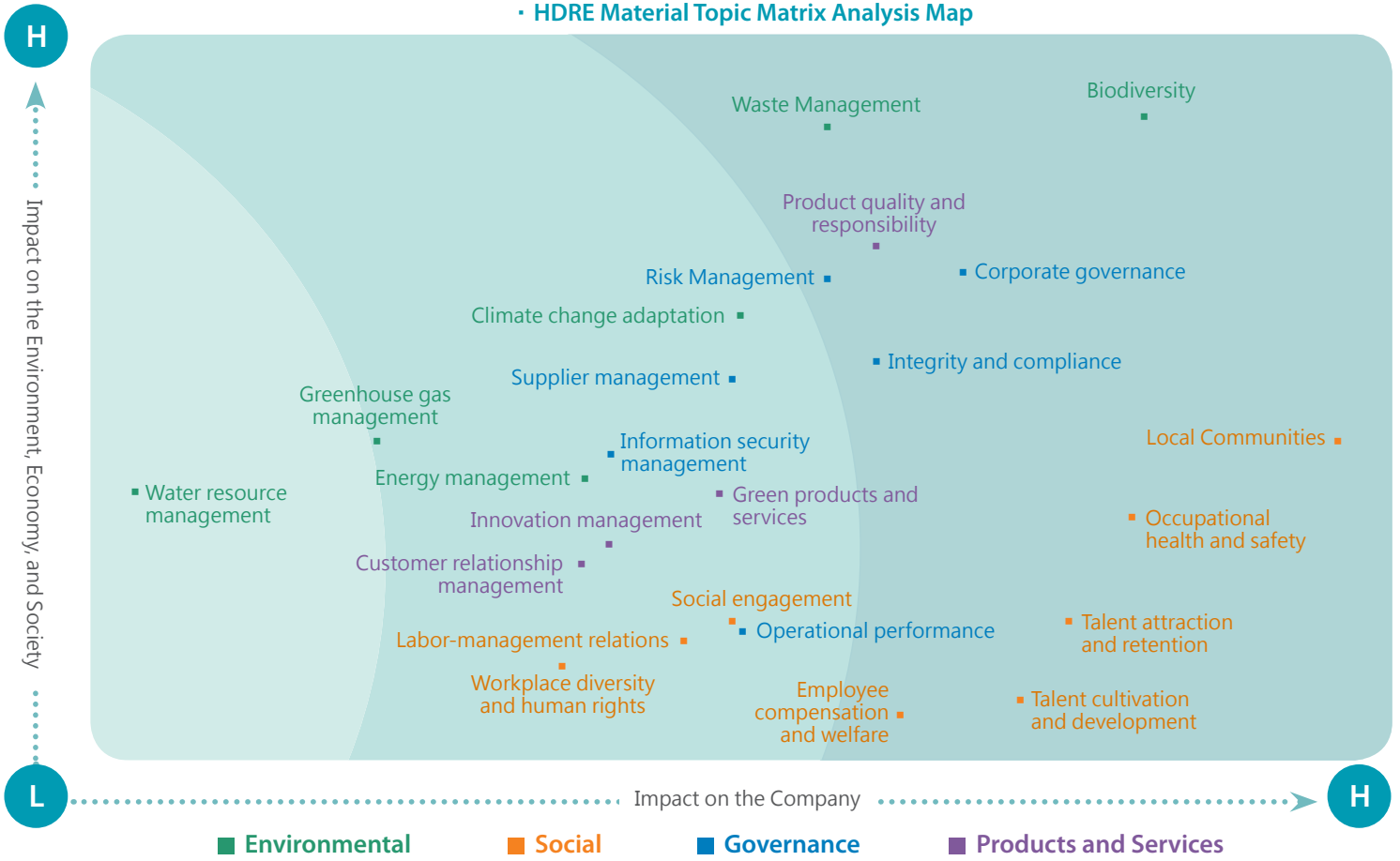
- Innovation management
- Green products and services
- Product quality and responsibility
- Customer relationship management

Material Topic Matrix

HDRE has conducted a significance analysis of the 24 sustainability issues based on their impact on the economy, environment, and people (human rights), as well as their impact on the company's operations. The results have been visualized in the form of a materiality matrix, as shown below. With this analysis, HDRE has developed its sustainable development strategy and periodically reviews its performance and goal achievements. The credibility of performance improvement is ensured through internal verification and independent third-party verification.

Based on the management policy for material issues, performance management indicators have been established to track the progress and status of goal achievements. Consistency between the performance management indicators and sustainability principles is ensured. Issues that have a significant impact on both operational and economic, environmental, and social aspects are defined as "highly material issues." The following definitions and management strategies are applied:

· HDRE Material Topic Matrix Analysis Map



Highly Material

Set goals and regularly track and manage performance.

Moderately Material:

Establish management policies.

Low Material:

Low short-term impact, but continued observation is maintained.

· 2022 Top 10 Material Topics

No.	Material Topics
1	Local community
2	Biodiversity
3	Occupational safety and health
4	Corporate governance
5	Waste management
6	Product quality and responsibility
7	Talent retention and attraction
8	Corporate Integrity & Legal Compliance
9	Risk management
10	Talent development and training

· Explanation of Issue Change

2022 Sustainable Issues	Explanation	2022 Issue Adjustment Recommendations
Local Community	Adjusted Name	"Energy Education and Promotion" has been adjusted due to business development.
Biodiversity	New Issues	Due to the significant impact of our business development on biodiversity, our company also places great emphasis on the balanced development of green energy and ecology. After conducting a significance analysis, it has been identified as a highly material topic for this year.
Corporate Governance	Rank Increase	Due to the listing of HDRE in 2023, the significance of corporate governance issues has increased.
Waste Management	Rank Increase	Considering the increasing importance of waste management within HDRE, it has been identified as a highly material topic through a materiality analysis for this year.
Integrity and Regulatory Compliance	Adjusted Name	The topics of " Legal Compliance " and " Ethical Management " have been merged due to their complementary nature and aligned content.
Risk Management	Adjusted Name	The topic of "Corporate Risk Management " has been adjusted based on commonly used material topic names in sustainability reports.
Talent development and training	Adjusted Name	The topic of "Talent Cultivation and Educational Training" has been adjusted based on commonly used material topic names in sustainability reports.

1.3.3 The Value Chain of Material Topics

Through internal and external impact assessments and incorporating stakeholder perspectives, we have identified 10 material topics for HDRE. We will continue to engage with stakeholders, monitoring whether there are any changes in the positive and negative impacts of these material topics on HDRE's stakeholders. We will also follow up on stakeholders' expectations of HDRE.

Category	Material	The impact hotspots and influences on the value chain								The relation between material topics and stakeholders	SDGs
		Upstream	Downstream	Internal	External						
		Suppliers	Customers	HDRE	Government Agencies	Shareholders/ Investors	Communities/ NPOs/NGOs	Industrial Union/ Association	Media		
social	Local Communities	✓		✓			✓		✓	1. HDRE actively engages in local community energy education and environmental conservation. They regularly discuss collaborative solutions with community organizations and non-profit organizations and communicate with the society through media releases. 2. They assess suppliers /contractors and conduct safety and health inspections to ensure alignment with the policies and objectives of the local community. 3. To enhance employees' understanding of local community conservation, the company organizes regular staff eco-trips to increase their awareness and knowledge of local community issues.	11 永續城市 14 海洋生態 15 陸地生態
	Occupational safety and health	✓		✓	✓			✓		1. Through channels such as the Occupational Safety and Health Committee, complaint mailbox, and labor-management meetings, relevant occupational safety and health information is communicated to employees. 2. Regular mail and correspondence are exchanged with government agencies and industry unions /associations to stay updated on the latest occupational safety regulations. 3. Occupational safety and health education and training, as well as safety inspections, are conducted to ensure the quality of occupational safety and health practices among suppliers /contractors.	3 健康與福祉 16 和平與正義制度
	Talent retention and attraction			✓	✓	✓				1. Hold labor-management meetings to communicate with employees about working conditions, benefit, and environmental improvements. 2. In the annual corporate governance evaluation, explain to government agencies the changes in employee turnover and new hires. 3. Communicate with shareholders/investors through annual reports, earnings call, shareholders' meetings, and sustainability reports to provide talent review.	4 教育品質 5 性別平等 8 就業與經濟成長 16 和平與正義制度

Category	Material	The impact hotspots and influences on the value chain								The relation between material topics and stakeholders	SDGs
		Upstream	Downstream	Internal	External						
		Suppliers	Customers	HDRE	Government Agencies	Shareholders/ Investors	Communities/ NPOs/NGOs	Industrial Union/ Association	Media		
social	Talent development and training			✓	✓	✓				1. Through company-wide monthly meetings and departmental weekly meetings, communicate with employees about the planning of diverse education and training programs. 2. In the annual corporate governance evaluation, explain the plan of employee cultivation and development programs to government agencies. 3. Shareholders/investors can learn about how the company enhances employees' professional capabilities and training programs through the annual report and sustainability report.	4 教育品質 8 就業與經濟成長
	Corporate governance			✓	✓	✓				1. Actively take notice of the updates in government regulations and adjust company rules and regulations timely in order to let the employees to comply with the latest rules. 2. Set up a corporate governance and sustainability development page on the official website and provide contact information to enable shareholders/investors to understand the company's governance status.	5 性別平等 8 就業與經濟成長 9 工業、創新基礎建設 12 責任消費與生產
Governance	Product quality and responsibility	✓	✓	✓						1. Conduct regular satisfaction surveys to gather feedback from customers regarding product quality. 2. Request suppliers / contractors to cooperate in self-inspections, random inspections, and quality checks to ensure the quality of materials and services. Establish a supplier/contractor evaluation system to improve product quality.	9 工業、創新基礎建設 12 責任消費與生產
	Corporate Integrity & Legal Compliance			✓	✓	✓				1. Promote ethical business practices and reinforce the concept of integrity among employees. 2. Actively take notice of changes in laws and regulations and adjust company rules and regulations timely. 3. Establish a page on the official website dedicated to ethical business practices and sustainable development, transparently presenting the company's business policies, enabling shareholders/investors to have a clear understanding of HDRE business principles.	16 和平與正義制度

Category	Material	The impact hotspots and influences on the value chain								The relation between material topics and stakeholders	SDGs
		Upstream	Downstream	Internal	External						
		Suppliers	Customers	HDRE	Government Agencies	Shareholders/ Investors	Communities/ NPOs/NGOs	Industrial Union/ Association	Media		
Governance	Risk management	✓	✓		✓		✓			1. Regularly verify with suppliers/contractors through meetings and make sure the risk management of site development is in compliance. 2. Actively communicate the risk management indicators of the site with stakeholders by occasional visits, report writing, and physical meetings to ensure a balance between development and ecology. 3. Conduct physical review meetings, correspondences, and regular updates with government agencies to ensure risk control in site management.	
Environment	Biodiversity			✓		✓	✓		✓	1. Use non-periodical sustainability newsletters and environmental education to ensure employees have a comprehensive understanding of HDRE's biodiversity policies and related actions. 2. Communicate with shareholders/investors through annual reports, official websites, and sustainability reports. 3. Utilize press releases and non-periodical media interviews to ensure the media is aware of HDRE's commitment to biodiversity and its tangible efforts and achievements. 4. To communicate with the local community, we emphasize the co-prosperity of ecological and renewable energy. The community and NGO could understand HDRE's dedication to biodiversity and facilitate their support to resource contributions.	
	Waste management	✓		✓	✓		✓		✓	1. Hold monthly project meetings regarding waste transportation and disposal with employees, suppliers / contractors. 2. Under the supervision of the government, potential penalties may be imposed for any violations. 3. Communicate with communities/non-profit organizations regarding waste management policies during the early stages of project development to minimize environmental impacts. The result will be reported to the media or other stakeholders non-periodically.	

1.3.4 The Significance of the Material Topics for HDRE

Each major topic has a significant impact on economy, environment, society, and the company itself, requiring HDRE to respond with relevant policies. The major topics are crucial to the administration of HDRE. By the assessment and management, they could strengthen the company's risk management capabilities, improve its positive social image, increase competitiveness, and enhance its overall sustainability.

Regarding the major topics, HDRE has planned out short, medium, and long-term management policies and response measures. Specific action plans and goals are formulated for each topic, and progress is regularly tracked. We revise plans by ongoing adjustment. For detailed information on the management policies regarding the major topics, please refer to the respective sections at the beginning of each chapter.

Local community

The Meanings to HDRE

We are committed to reducing our negative impact on the local environment and society, and we aspire to co-create a better quality of life with the local community. We respect the original land use and the lifestyle of local residents, and strive to provide employment opportunities and other contributions to the local community, fostering mutual prosperity and coexistence between the solar energy industry and the local community.

Talent retention and attraction

The Meanings to HDRE

We are committed to creating "flat organization, happy workplace with diverse cultures". We value the opinions of our employees and consider them as important assets. We establish competitive salary and compensation packages and regularly review our salary and benefit system. We continuously enhance long-term human capital through internal management systems and motivation system.

Corporate governance

The Meanings to HDRE

HDRE has been listed in 2023 and will focus on corporate governance in the future. This includes enhancing board diversity and function, as well as refining the division of responsibilities within the management. Our goal is to enhance the evaluation score and framework.

Corporate Integrity & Legal Compliance

The Meanings to HDRE

With regulatory compliance as our starting point, we have established a suitable regulatory compliance system to strengthen employees' awareness of compliance and integrity and to prevent malpractice. By doing so, we aim to reduce the potential risks of legal investigations, fines, or lawsuits that the company may face. We also seek to enhance the company's reputation externally, thereby achieving the goals of risk management and corporate image maintenance.

Biodiversity

The Meanings to HDRE

We value the balance between natural ecology and development. We are committed to ensuring that our project development and services do not harm local ecosystems. We assess the potential impacts, engage in habitat conservation and environmental education for employee to protect and maintain the diversity of the natural environment.

Occupational safety and health

The Meanings to HDRE

We strive to implement employee care and welfare by establishing a safe and secure working environment. It is our priority to ensure the safety and well-being of every employee and stakeholders. It is the priority to ensure their safety from arrival to departure and working areas. We are committed to maintaining the safety and compliance of our operational sites. Regarding employee care, we provide health consultations, maternity support, human factor in risk assessments, and monitoring for illegal infringements to ensure the physical well-being of our personnel.

Talent development and training

The Meanings to HDRE

We conduct regular performance and career development assessments to enhance employee competence. We develop employee training programs that offer diverse courses, including knowledge, skills, and trends related to the green energy industry, and increase their professionalism and competitiveness.

Product quality and responsibility

The Meanings to HDRE

The concept is to ensure quality throughout the entire process, from upstream procurement of raw materials to quality control during site building and construction, and all the way to the completion and operation of the project in the later stages. We prioritize quality assurance at every step of the process.

Risk management

The Meanings to HDRE

The key factor of company's growth and sustainable operation is risk management. Our company gathers internal and external data and information to analyze the potential risk factors that individual business and investment may face. We define various types of risks and propose corresponding management measures.

Waste management

The Meanings to HDRE

We have established proper waste management policies and developed solar panel recycling policies and standards. We engage in recycling, reuse, or proper disposal of solar panels. We also manage the lifecycle of solar panels by planning their lifespan, conducting regular inspections and maintenance to minimize the generation of waste solar panels. Through these measures, we aim to reduce our environmental impact and enhance our competitiveness in the industry.

02

Sustainable Governance
Integrity and Transparency

Core Vision and Commitment

As HDRE progresses toward the listing, we are committed to continuously improving our corporate governance, sustainable development, integrity operation, and risk management policies. While achieving operational growth, we are dedicated to enhancing our performance and achievements in corporate governance, fostering ecological and environmental co-prosperity through sustainable development, and creating opportunities and benefits of risk management.

‧ 2022 Achievements and Performance

1. 2022 Internal board of directors, director members, and functional committee performance evaluations were conducted, with evaluation scores ranging from **95.58 to 98.10**.
2. Director members accumulated a total of **45** hours of sustainability-related training.
3. The investment in research and development amounted to NT$12,178,000, representing a growth of **2.5 times** compared to the previous year.
4. No significant legal violations occurred.
5. No information security incidents were reported.

2.1 Corporate Governance

Material Topic : Corporate Governance

Positive impacts (opportunities) on the economy, environment, and society

We have established corporate governance policies and improved our governance framework to strengthen the overall structure of the company. We are actively striving to meet the expectations of internal and external stakeholders regarding corporate governance, aiming to create positive value for both our company and society.

Negative impacts (risks) on the economy, environment, and society

Neglecting issues of corporate governance may result in a management team or board of directors that lacks diversity or focuses solely on specific issues, which may hinder the company's overall development.

The resources invested in 2022

Placed corporate governance standards on both the company's official website and internal shared folders to allow internal and external stakeholders to access them at any time so that they can gain a clear understanding of our corporate governance objectives.

Strategic Objectives

Company Policies and Commitments on corporate governance

While pursuing the company's business growth, we adhere to corporate governance standards and actively engage with internal and external stakeholders to achieve our goal of sustainable development.

Short-term goals (1 year):

1. No significant violations of economic, environmental, and sociological regulations.
2. Evaluation of corporate governance falls within the range of 21% to 35% among listed companies.

Medium to long-term goals (3-5 years):

Continuously participate in corporate governance evaluations and improve the governance strategies based on the evaluation results.

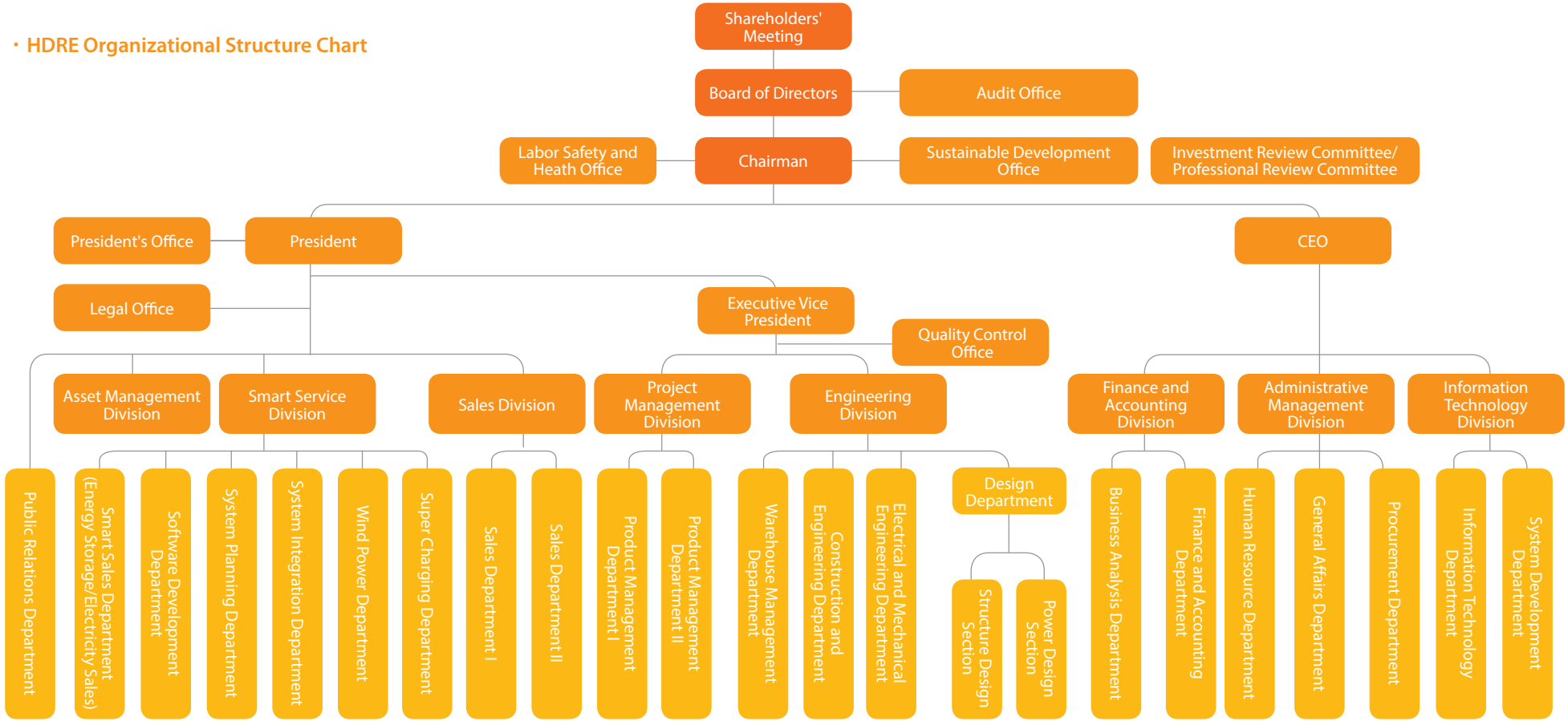
2.1.1 Governance Structure

Corporate Governance Based on Sustainable Development

HDRE expands its corporate footprint year by year and adjusts its corporate governance structure in a timely manner according to the company's business development status. From development and construction of electric power to asset management of power station, we will continue to expand our corporate footprint by promoting our smart power business and strive to realize the vision of electricity liberalization.

To better respond to the changes in the domestic market, HDRE has established a Sustainable Development Department to strengthen the company's sustainable governance. HDRE implements its corporate sustainability responsibility and contributes to society and the environment while obtaining more business opportunities. We hope to create more value through sustainable development.

- **HDRE Organizational Structure Chart**

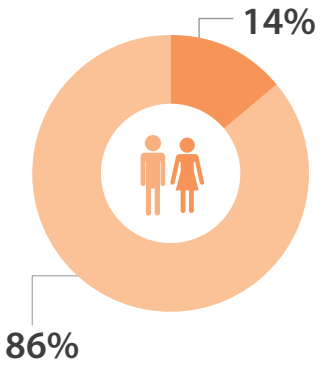


2.1.2 Board of Directors

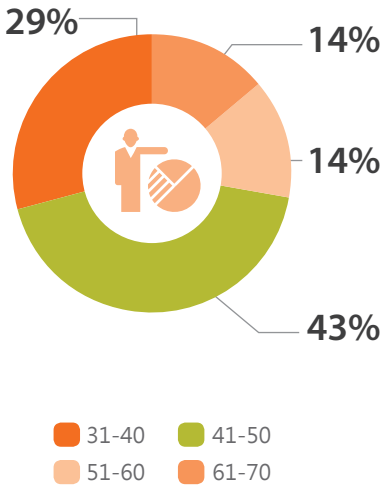
HDRE follows the principle of integrity governance and is committed to establishing an genuine and transparent corporate culture to implement comprehensive corporate governance and continuously strengthen the corporate governance efficacy. The Board of Directors of HDRE is the highest decision-making and governance team of the company. It is responsible for HDRE's overall operation and supervises the outcomes of operation team's execution of policies. The board members are nominated and elected according to the Articles of Incorporation, thereby achieving sound function and operation of the Board. In addition, we also comply with the "Corporate Governance Practice Principles" to ensure the diversity and independence of board members. Furthermore, the "Procedures for Performance Evaluation of Board of Directors" is implemented to review and evaluate the performance of the board. All resolutions made by the Board of Directors are recorded in detail, and the resolution methods are also indicated to protect the rights and interests of shareholders.

In 2022, the Board of Directors of HDRE consisted of 7 directors which included 3 independent directors, 1 female director and 2 directors who are employees of the company. The age range of directors is wide, and five of the directors are under 50 years old, which is a demonstration of HDRE's corporate governance vitality. In addition, with the goal of the ratio of female directors reaching 25%, the Company emphasizes gender equality of the Board.

- **Board Member Gender Distribution**



- **Board Member Age Distribution**



- **Composition of the Board of Directors**

Diverse Composition / Director Name	Gender	Age	Seniority		Industry Experience			Professional Competencies	
			More than 3 year	Business Management	Ventue Capital	Green Energy Application and Registration	Construction Development	Finance and Accounting Securities Finance	Securities Finance
Yuan-Yi Hsieh	Male	41-50	✓	✓	✓	✓	✓		
Shih-Chang Chou	Male	41-50	✓	✓	✓	✓	✓		
Yi-Neng Hsu	Male	41-50	✓	✓	✓		✓		
Han Cheng	Female	31-40	✓	✓				✓	
Liang-Yu Chang	Male	31-40		✓	✓				✓
Feng-Sheng Wu	Male	61-70		✓	✓			✓	
Ren-Hao Deng	Male	51-60				✓	✓		

▪ Functional Committee

Committee	Audit Committee	Remuneration Committee
Process and Principles of Selection	In accordance with the "Regulations Governing the Exercise of Powers by the Audit Committee of Public Issuing Companies," the Board of Directors shall be composed of all independent directors, with a minimum of three members. One of them shall serve as the convener, and at least one member should possess accounting or financial expertise.	In accordance with "Regulations Governing the Establishment and Exercise of Powers of Remuneration Committee for Companies Listed on the Stock Exchange or Engaging in Securities Business," the committee shall consist of no fewer than three members appointed by the Board of Directors, with a majority of the members being independent directors.
Composition of the Committee	Composed of all three independent directors of the Board, with Liang-Yu Chang serving as the convener.	Composed of all three independent directors of the Board, with Liang-Yu Chang serving as the convener.
Responsibilities of the Committee	Assist the Board of Directors to supervise the quality and integrity of the Company in its execution of accounting, auditing, financial reporting and financial control-related works. Continuously to both strengthen the operational efficiency of the Board and establish sound corporate governance culture.	Conduct preliminary review of Board of Directors' proposals on the policies, systems, standards and structure pertaining to directors and managers' performance evaluation. Ensure that the performance evaluation and remuneration of both directors and managers are closely linked to the Company's implementation of business strategies and outcomes of corporate sustainability responsibility execution, in order to improve overall operation performance of the Company while demonstrating the Company's commitment to sustainable development.
Operation Status (Times)	2	2
Attendance Rate (Including Proxy Attendance)	100%	100%
Articles of Association	Please refer to HDRE official website under the section- "Corporate Governance" for more details. https://www.hdrenewables.com/investor_status.php	

Note 1: Proposals are submitted to the Board of Directors for approval after being reviewed by functional committees, and relevant information is disclosed in the company's annual report.

Director Nominations

The director appointment is based on a candidate nomination system, and the procedures are carried out in accordance with the "Director Election Regulations." The company actively seeks external professional talents and prepares for the succession planning of directors. To cultivate important management personnel and their deputies, the company periodically organizes internal and external training programs. These programs focus not only on developing professional skills but also on fostering power of judgment, management abilities, and problem-solving skills. This aims to enhance the decision-making quality of the management team and prepare a high-quality workforce necessary for the company's long-term development.

Diversity of Competencies in the Board of Directors

HDRE has established a policy for the diversification of board members in Article 23 of the "Practical Guidelines for Corporate Governance." The suitability and diversity of the professional backgrounds of board members should be immediately taken into consideration while planning the composition of the board. Board members possess the necessary expertise, experience, and qualities to fulfill their duties, including areas such as finance and accounting, business management, and also possess extensive industry experience. They demonstrate a global perspective, decision-making and leadership abilities, as well as skills in crisis management to adapt to changes in the economy, environment, and society.

Avoidance of Conflicts of Interest in the Board of Directors

The company has established policies to prevent conflicts of interest and to identify, supervise, and manage the risks of dishonest behavior that may arise from such conflicts. We also provide appropriate channels for directors, executives, and other stakeholders to attend or participate in board meetings to proactively disclose any potential conflicts of interest they may have with the company.

Directors, executives, and other stakeholders attending or participating in board meetings who have a vested interest, whether personally or through their represented entities, in matters being discussed by the board, are required to disclose the significant details of their interests during the meeting. If there is potential harm to the company's interests, they are not allowed to participate in the discussion or voting. They should abstain from voting and discussions and are not permitted to act as proxies for other directors' voting rights. Directors should also exercise self-discipline and avoid improper mutual support.

Furthermore, directors, executives, employees, appointees, and substantial controllers of the company are prohibited from using their positions or influence within the company to obtain undue benefits for themselves, their spouses, parents, children, or any other individuals.

Important Board Resolutions in 2022

The important decisions made by the Board of Directors in 2022 covered various areas including business development, organizational restructuring, employee compensation and director's remuneration, financial reporting, internal control system statements, and investment in subsidiary companies.

Continuing Education for Board of Directors

To enhance the capabilities and stay updated in fulfilling the duties, members of the Board of Directors participated in continuous education programs. In 2022, the total number of hours of further education attended by all board members was 45 hours. The education programs included topics such as corporate governance, securities regulations, financial key information, ESG information disclosure trends, and other courses, aiming at strengthening their abilities to issue crisis warnings and optimizing corporate governance.

Course Name	Description	Hours	Number of Participants
Corporate Governance and Securities Regulations	Lectures conducted by instructors from the Chinese Corporate Governance Association on relevant regulations regarding corporate governance and securities.	3	5
Viewing Insider Trading from the Perspective of Prosecution and Investigation	Lectures conducted by instructors from the Chinese Corporate Governance Association on regulations related to insider trading.	3	5
Introduction and Case Analysis of Short-term Trading by Insiders in Companies	Participated in a course offered by the Foundation of Securities and Futures Markets Development, Taiwan.	3	1
How the Audit Committee Supervises the Effectiveness of Internal Controls	Participated in a course offered by the Chinese Corporate Governance Association.	3	1
Trends and Regulations in ESG Information Disclosure	Participated in a course offered by the Foundation for Accounting Research and Development.	3	1
Analyzing Key Financial Information to Strengthen Crisis Warning Capability	Participated in a course offered by the Foundation for Accounting Research and Development.	3	1
Legal Regulations and Risk Responsibilities That Directors, Supervisors, and Insiders Must Know under Corporate Governance	Participated in a course offered by the Association for Corporate Management and Sustainable Development.	3	1

Board Performance Evaluation

HDRE uses the results of board and functional committee performance evaluations as a reference for selecting or nominating directors and committee members. Additionally, the individual performance evaluation results of directors and committee members are used as a reference for determining their compensation. The internal performance evaluations of the board, directors, and functional committees for the year 2022 were completed in the first quarter of 2023 and will be reported to the board in the second quarter. The scores ranged from 95.58 to 98.10, indicating an overall excellent performance.

- **Areas of assessment for director performance evaluation include:**

1. Mastery of the company's objectives and tasks
2. Responsibilities of Directors Awareness
3. Company Operations Participation
4. Internal Relationship Management and Communication
5. Director'Expertise Continuing Education
6. Internal Controls

Remuneration Policy for Directors and Executives

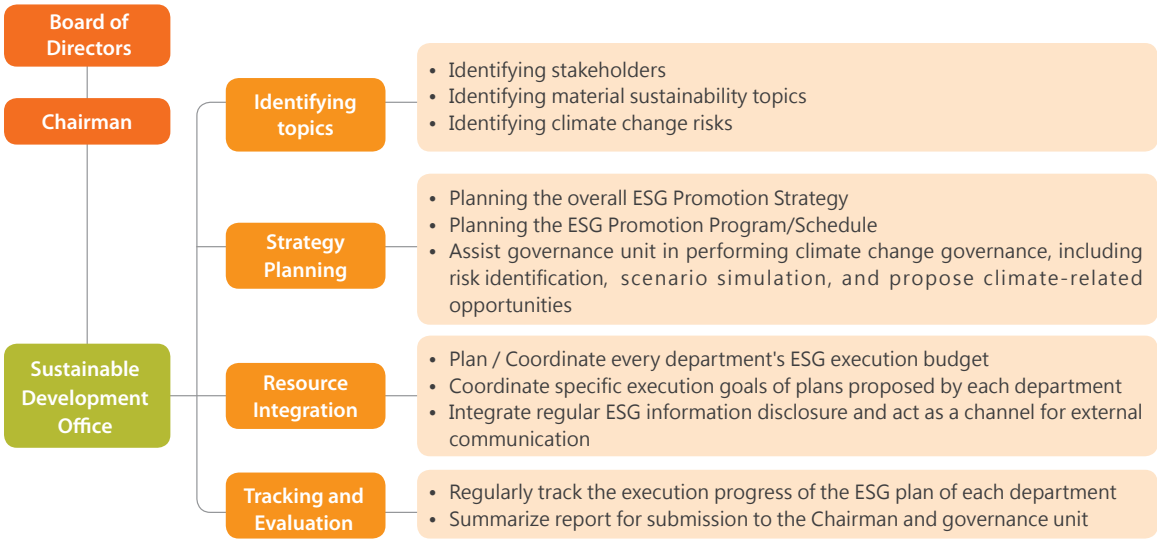
Directors: The remuneration of directors and supervisors is determined in accordance with the provisions of the company's articles of incorporation. It is decided by the Remuneration Committee and the Board of Directors, and distributed after submission to the shareholders' meeting.

Executives: The salary and compensation of the General Manager and Deputy General Managers are determined based on the company's remuneration policy and refer to industry standards at the time of appointment. Subsequently, adjustments are made based on the company's annual salary adjustment policy and performance evaluation results. Bonuses and employee compensation are allocated in accordance with the company's articles of incorporation and considering the operating performance of the current year and their contribution to the company. All relevant distribution proposals are reviewed and discussed by the Remuneration Committee.

2.1.3 Sustainable Development

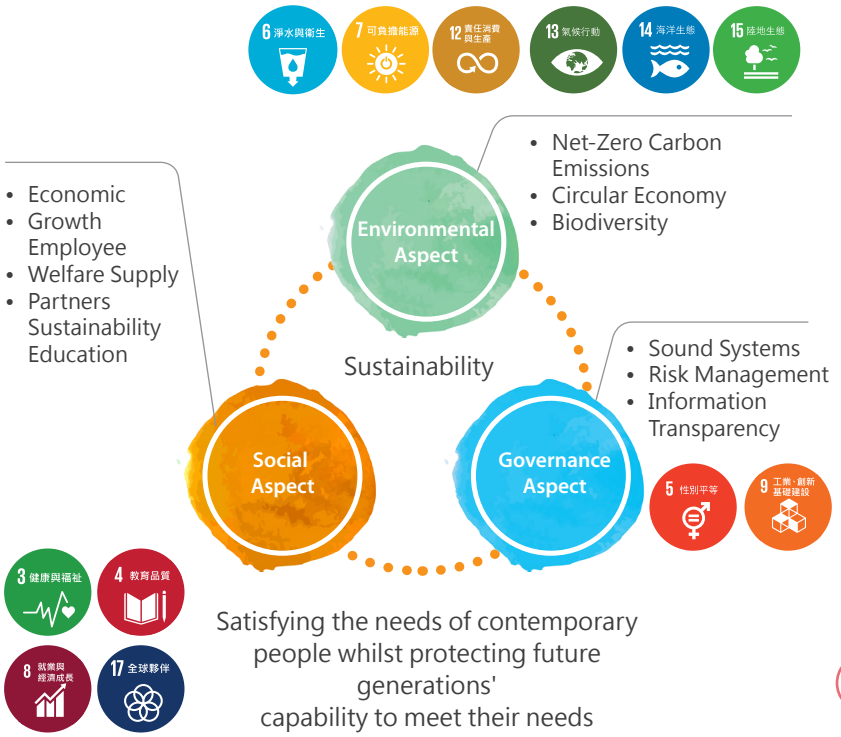
In 2021, the Board of Directors of HDRE passed a resolution on the establishment of Sustainable Development Office under the Chairman. Its duties and authorities include issue recognition, strategic planning, resource integration, and evaluation tracking. The office assists the Board of Directors in continuously promoting the implementation of corporate sustainable management.

- **HDRE's Current ESG Promotion Mechanism**



With the SDGs as our blueprint, the Sustainable Development Office integrates the concept of Environmental, Social, and Governance (ESG) into our business strategy. We aim to enhance our corporate governance system, promote environmental protection, and achieve sustainable development. Aligning with the United Nations' Sustainable Development Goals (SDGs), we have established short, medium, and long-term goals, and developed corresponding plans to move closer to our vision of sustainable HDRE. Additionally, we have formulated "Sustainable Development Policies" that encompass seven key areas, enabling us to advance toward low-carbon operations and foster a sustainable future characterized by ecological friendliness, social inclusiveness, and economic growth.

‧ HDRE Sustainable Development Blueprint



HDRE's Seven Main Sustainable Development Policies

HDRE upholds the core values of professionalism, innovation, passion and integrity, and is dedicated to the provision of sustainable clean energies. In addition, we are also committed to reducing ecological damage and to implement environmental safety and health measures while creating economic values, throughout the process of power station development, EPC engineering, maintenance, and the research and development of green technologies such as smart monitoring systems. We provide quality and satisfactory services to customers and make joint efforts towards the sustainable development of the corporation, environment and society, aiming to become an outstanding enterprise in the industrial supply chain.

HDRE commits to and implements the following sustainable development policies

1. Establish corporate sustainable development goal, and implement execution and periodic performance review
2. Comply with relevant government laws and regulations, international human rights standards and other requirements
3. Provide necessary resources and trainings to maintain the effective operation of company policies and management systems
4. Promote circular economy, improve environmental energy performance, and effectively reduce environmental impact
5. Establish safe and secure workplace, enhance prevention of hazards, and promote employee well-being and mental health
6. Ensure unobstructed communication with stakeholders through diverse negotiation channels and transparent disclosure of relevant information
7. Promote all employees to participate in activities related to quality control, environmental and occupational health and safety, health promotion and energy efficiency enhancement, and continuously improve them

To enhance the sense of identification among our company colleagues towards sustainable policies, we distribute the HDRE Sustainable Development Policy cards and display the ESG Lifestyle Charter on bulletin boards, strengthening internal communication and fostering a greater awareness and understanding of ESG among our colleagues.

2.2 Business Performance

2.2.1 Operational Performance

Based on the concept of smart green energy, our company strengthens its core capabilities and establishes robust decision-making mechanisms. Establishing a transparent and fair supervision system to prevent internal corruption, fraud, and other misconduct. Our goal is to ensure accurate and transparent financial reporting, minimize financial risks, and mitigate the impact of market fluctuations on the company. Additionally, we enhance communication with stakeholders. Through proactive deployment, risk reduction, and deepening our involvement in AI, we explore and develop the renewable energy market, thereby achieving operational growth for the company.

Increasing caseload development year by year

In 2022, HDRE was committed to the development of fishery-electric symbiosis. The construction of the Tainan Qigu fishery-electric symbiosis project has been completed, and species such as blackfish, clams, and white shrimp have been successfully cultured. Through the use of the Fishing and Renewable Energy Cloud, production data such as weather and water quality are managed, aiming to optimize future aquaculture management based on historical farming data.

Tainan Qigu Fishing and Renewable Energy

Expand Revenue, Collaborate Jointly

In 2021, we initiated a collaboration with eTreego Co., Ltd. , which holds over 60% market share in Taiwan, to lead the deployment of the electric vehicle charging market. In 2022, a total of 12 charging stations were installed, and it is projected that 41 charging stations will be built in 2023. Regarding the mid- and long-term goal, we aim to complete the installation of 200 charging points in Taiwan, which will also contribute to the revenue of smart power service business.

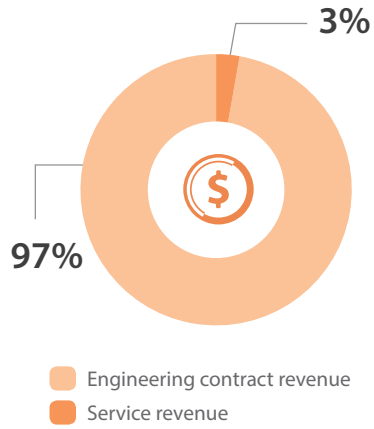
HDRE Headquarters

2.2.2 Financial Performance

Due to the support from government policies and international trends, the company obtained a government subsidy of NT$102,000 in 2022. According to the accompanying financial statements of HDRE for the year 2022, the EPS was NT$8.18 and the operating revenue was NT$5,052,656 thousand, showing an almost twofold growth compared to the previous year. An investment of NT$12.178 million was allocated to research and development (R&D) technology, accounting for 0.24% of the operating revenue. It is of great significance to provide customers with the most efficient and energy-saving technological solutions, enhance the efficiency of renewable energy utilization, and contribute to the future goals of green development and energy conservation and carbon reduction.

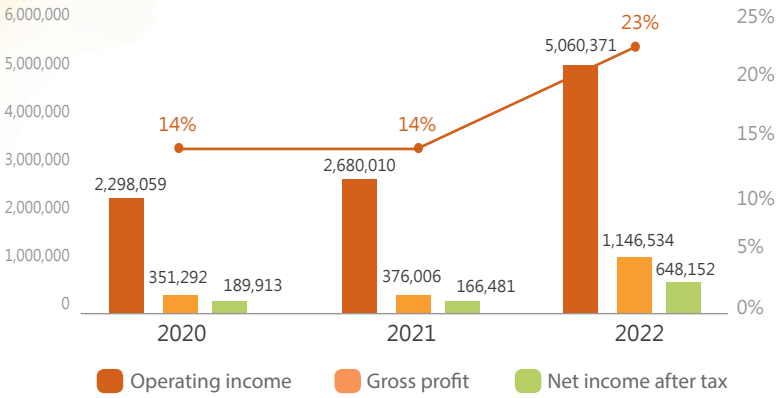
In 2022, the majority of HDRE's business revenue came from engineering contracts, primarily focusing on the construction of projects in Taiwan. The sales regions for 2022 were all within Taiwan.

・Revenue composition



· Overview of Three-Year Operational Results (Consolidated Financial Statements)

Unit: NT$1,000



Year	2020	2021	2022
Operating income	2,298,059	2,680,010	5,060,371
Gross profit	351,292	376,006	1,146,534
Net income after tax	189,913	166,481	648,152
Gross profit margin	14%	14%	23%

· Three-Year Business Performance (Accompanying financial statements)

Regarding tax policies, HDRE ensures compliance with tax regulations through internal control mechanisms and management practices. Tax risks and impacts are taken into consideration in important decision-making and transactions.

Unit: NT$1,000

Composition	Basic Element	2020	2021	2022
Direct economic value generated	Income (including net sales, income from financial investments, income from sale of assets)	2,186,124	2,655,474	5,052,656
Economic value distributed	Operating expenses	97,768	143,572	282,540
	Operating costs	1,948,647	2,184,926	3,729,337
	Employee salary and welfare	98,215	132,224	246,038
	Dividend and dividend payment (cash dividend)	-	100,000	170,000
	Expenses of income tax payment	7,163	19,214	100,995
Economic value preserved	"Direct economic value generated" minus "Economic value distributed"	34,331	75,538	523,746

· Profitability Analysis (Accompanying financial statements)

Unit: NT$1,000

Composition	2020	2021	2022
Return on asset (%)	13.63	6.82	15.4
Return on shareholders' equity (%)	30.73	14.00	26.02
Net income before tax to paid-in capital ratio (%)	46.08	32.12	95.66
Net profit margin (%)	8.75	6.22	12.87
Earnings per share	3.83	3.02	8.18

For detailed operational performance and financial information, please refer to the HDRE official website- Financial.
https://www.hdrenewables.com/financial_statements.php

2.2.3 External Organization Participation

HDRE aspires to keep pace with external organization partners and actively establish collaborative relationships. Through exchange of the ideas and promotion of key issues, we aim to lead the industry in upward development. We will actively participate in domestic industrial unions and associations to obtain the latest industry information and research and development status of diverse innovative technologies through industry exchanges. This will enhance the industry competitiveness and continuously refine our sustainable strategy.

- Organization Name

Organization Name	Participating Units / Departments	HDRE Identity
PVGSA(Photovoltaic Green Sustainable Association)	Sales Division	Member
SEMI(Semiconductor Equipment and Materials International)	President office	Member
TAEDT(Taiwan Energy Digital Transformation Industry-Academia Technology Alliance)	Star Energy Storage Solutions Co., Ltd.	Member
TEGA(Taiwan Energy Digital Transformation Industry-Academia Technology Alliance)	HDRE	Member
TPiSA (Taiwan Photovoltaic Industry Sustainable Development Association)	President office	Council
Taiwan Electrical Engineering Industrial Association	Sales Division	Member
Taiwan Power and Energy Engineering Association	Star Energy Storage Solutions Co., Ltd.	Member
Green Impact Academy	Star Energy Storage Solutions Co., Ltd.	Member
Taiwan Solar Photovoltaic Industry Association	President office	Member
Taiwan Franchise and Chain Store Association	Star Charger Co., Ltd.	Member
Aquaculture Seed Association of the Republic of China	President office	Member
Aquaculture Development Association of the Republic of China	President office	Member

2.3 Corporate Integrity & Legal Compliance

Material Topic : Corporate Integrity & Legal Compliance

Positive impacts (opportunities) on the economy, environment, and society

The company has established policies related to integrity business conduct, considering upright operations as the foundation of its operations and create positive value for society.

Negative impacts (risks) on the economy, environment, and society

Neglecting corporate integrity may lead to violations of legal regulations by the company's management and employees, resulting in negative impacts on the company's reputation.

The resources invested in 2022

1. Hiring experienced professionals who are knowledgeable in legal compliance to assist in promoting policies related to legal compliance.
2. Placing policies such as corporate integrity code of conduct on the company's official website and internal shared folder to allow internal and external stakeholders to access them at any time so that they can gain a clear understanding of the goal of corporate integrity.

Strategic Objectives

Company Policies and Commitments on Corporate Integrity& Legal Compliance

While pursuing the growth of our company, we adhere to the principles of corporate integrity, actively engage in communication with internal and external stakeholders, and strive for steady and sustainable development.

Short-term goals (1 year)

1. No significant violations of laws and regulations.
2. Ensuring that internal operations and management regulations comply with the latest legal requirements and that there are no violations of significant regulations.

Medium to long-term goals (3-5 years)

1. Establish a comprehensive education and training program to enhance employees' awareness of legal compliance and ethical business practices.
2. Develop a clear and effective system for conveying, consulting, coordinating, and communicating legal requirements, transforming the corporate culture from being business-oriented to compliance-oriented with a focus on risk control.

2.3.1 Corporate Integrity

Our company has established the "Corporate Integrity Principles" and "Code of Corporate Integrity Procedures and Conducts," which clearly state that company personnel are prohibited from directly or indirectly providing, promising, requesting, or accepting any form of improper benefits or engaging in other dishonest behaviors that violate integrity, laws, or entrusted obligations. The Audit Department, which reports to the Board of Directors, is designated as the responsible unit. It is equipped with adequate resources and competent personnel to carry out auditing, verification, and supervision of various operational procedures, and regularly reports the audit results to the Board of Directors and the Audit Committee.

HDRE has established appropriate oversight mechanisms to ensure the implementation of integrity policies and takes necessary preventive and corrective measures. If any violation of the Code of Conduct is detected, immediate action is taken, and a review is conducted to prevent the recurrence of similar incidents. In business activities, we adhere to the principles of integrity and establish contracts with agents, suppliers, customers, or other business partners, specifying terms that comply with the Code of Conduct and provisions for contract termination. This helps create a fair and transparent business environment, fostering sustainable development.

Risk Assessment Mechanism for Dishonest Behavior

The Company has established a mechanism for assessing the risks of dishonest behavior, and regularly analyzing and evaluating business activities within their operational scope that carry a higher risk of dishonest behavior. Based on these assessments, preventive measures are formulated, and the adequacy and effectiveness of these measures are regularly reviewed.

1. Prohibition of bribery and acceptance of bribes.
2. Prohibition of providing illegal political donations.
3. Prohibition of improper charitable donations or sponsorships.
4. Prohibition of offering or accepting unreasonable gifts, hospitality, or other improper benefits.
5. Prohibition of infringement on trade secrets, trademark rights, patent rights, copyright, and other intellectual property rights.
6. Prohibition of engaging in unfair competition practices
7. Prohibition of products and services that directly or indirectly harm consumers in their research and development, procurement, manufacturing, provision, or sale.

Educational Training and Promotion

The corporate integrity requirements for employees, customers, suppliers and contractors have been established in the corresponding management regulations. Such as conveying the company's policies on corporate integrity and anti-corruption through intranet and e-mails. Members of senior management or managerial level and above are required to sign the declaration for compliance with corporate integrity policy. In addition, the employment contract also specifies provisions related to compliance with the corporate integrity principles.

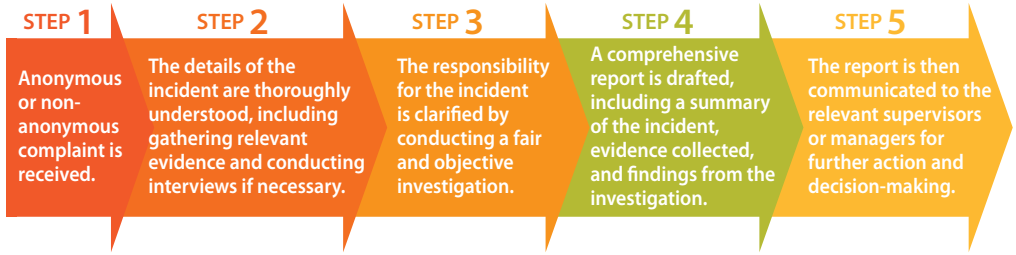
Training Courses	Course Description	Hours	Number of Participants
Self-Assessment in Practice	The course covers the fundamental principles of self-assessment, regulations, criteria for determining the effectiveness of internal controls, the preparation of effective operating procedures, and practical guidelines to be considered during implementation.	6	1
Overview of Common Internal Control Management Deficiencies in Enterprises and Practical Case Analysis	The course summarizes recent cases of common internal control management deficiencies in enterprises and explores practical approaches to tracking and improving these deficiencies through case analysis and discussions.	6	1

For detailed information on integrity-related policies, you can refer to the HDRE official website under the "Corporate Governance" section.
https://www.hdrenewables.com/investor_status.php

Complaints and Handling

The Company has established and published a disciplinary and complaint system for handling violations of corporate integrity regulations and shall make immediate disclosure on the company's internal website of the job title and name of the violator, the date and details of the violation, and the actions taken in response. We encourage both internal and external individuals any acts of dishonesty or misconduct. During the handling process, strict confidentiality is maintained regarding the identities of the whistleblower and the reported individuals. Only authorized personnel have access to the reported information. Upon receiving a report, a tracking committee is formed to conduct an anonymous investigation. A whistleblower protection policy is also established in our Code of Corporate Integrity Conduct and Whistleblowing Procedures.

・Operation Process of Reporting Mailbox



Reporting Channels

Whistleblowers can file their complaints through the following channels:
Email: hd.au@hdrenewables.com
Hotline: 04-2255-8858#220
Handling Unit: Audit Department

2.3.2 Legal Compliance

Our company is committed to ensuring compliance with relevant laws and regulations. We regularly review government regulations and conduct company assessments to ensure that our internal procedures and regulations comply with the latest legal requirements. We have also established a compliance system and procedures to promote regulatory compliance to all employees through document revisions, educational training, announcements, and other means. This helps strengthen awareness of legal compliance within the company, and regular supervision is conducted to monitor the implementation status of various units.

Furthermore, for significant changes in domestic and international policies and regulations, we engage consultants, lawyers, accountants, and other relevant experts to assess, provide recommendations, and plan appropriate measures. This ensures that HDRE complies with the law and minimizes adverse impacts on our financial and business operations.

To ensure the realization of corporate integrity culture, we strictly monitor our daily operations and actively promote and educate our employees on the values and attitudes of integrity, including honesty, fairness, transparency, self-discipline, and responsibility. We firmly believe that such efforts can prevent corruption, violations of laws and regulations in the social and economic spheres, as well as anti-competitive, anti-trust, and monopolistic behaviors. There were no incidents related to anti-competitive behavior, anti-trust, or monopolistic practices in 2022.

Our company is committed to complying with environmental protection policies, adhering to government regulations and industry requirements to control and minimize the impacts on environment while ensuring compliance with regulations. To achieve this, we have implemented various management procedures to ensure that the entire factory premises comply with legal requirements. In 2022, no significant fines or non-monetary penalties were imposed on our company for violations of social, economic, and environmental regulations.

Regarding intellectual property rights management, we have established an intellectual property rights control system and regularly assess the status of trademarks. Moving forward, we will continue to enhance our contract management system, control contract progress, and implement systematic document management. We will also provide consulting and recommendations on risk management to business units, transforming our corporate culture from being business-oriented to compliance-oriented with a focus on risk control.

Note: A significant violation event is defined as having a significant adverse impact that causes serious damage, loss, expenses, or liabilities affecting the company and/or its subsidiaries' operations, business performance, conditions (including business, technical, legal, or financial conditions), assets, or liabilities.

For detailed information on our management of relevant regulations and policies, please refer to HDRE official website under the "Corporate Governance" section: https://www.hdrenewables.com/investor_status.php

Handling of Litigation Cases in 2022

In 2022, we handled a total of two cases. One case involved a defendant's failure to fulfill contractual obligations, and we initiated legal proceedings against them. The other case arose from a dispute over unpaid project fees. Currently, both cases are still in the legal process. Our legal department will regularly communicate with the appointed lawyers to track the progress and provide relevant information to safeguard the company's interests.

▪ Legal-Related Education and Training in 2022

Course Name	Description	Number of Participants	Hours	Organizers
Retrospective and Prospective Series of Seminars on Key Issues in Offshore Wind Power Development and Operation	Analyzing the nature and issues of administrative contracts in offshore wind power development and operation, the framework and process of power purchase agreements, and exploring the current international and Taiwanese status of renewable energy development and the potential challenges faced.	4	8	Arbitration Association of the Republic of China, Taipei Bar Association, Taipei Bar Association Energy Law Committee, Taipei Bar Association Cross-Border Transactions and Dispute Resolution Committee.
Energy Storage System Auxiliary Services	Analyzing the changes and challenges in the power generation structure of Taiwan's power system, and explaining the architecture, operational models, and current development status of energy storage systems.	4	4	HDRE

2.4 Risk Management

Material Topic : Risk Management

Positive impacts (opportunities) on the economy, environment, and society

- Economic: By exploring new markets and business models, the company aims to reduce revenue concentration and increase profit opportunities.
- Environmental: Establishing an ecological conservation policy to preserve local biodiversity and promote sustainable development.
- People: Implementing a comprehensive environmental management system and occupational health and safety policies to minimize environmental pollution and hazards to the local community.

Negative impacts (risks) on the economy, environment, and society

- Economic: Failure to properly manage various risks in operations may have a negative impact on the company's revenue or business.
- Environmental: Land development and construction activities may have adverse effects on existing ecosystems and biodiversity.
- People: Land development and construction activities may affect the livelihood and living environment of local residents, leading to protests and grievances.

The resources invested in 2022

Established rigorous accounting and internal control systems. The audit department constantly monitored changes in domestic regulations and regularly updated the company's regulations. In addition, timely information on relevant regulations to be aware of was provided to the board of directors and managers.

Strategic Objectives

Company Policies and Commitments on risk management

1. Continue to develop new products to ensure market share.
2. Conduct environmental and social assessments to investigate aspects such as ecology, water quality, and local communities. Adjust the company's site planning based on the results.

Short-term goals (1 year)

1. Establish the system of monthly operational meetings and investment review committees to review and identify the operational risks of various business areas and develop corresponding strategies.
2. Review the effectiveness of the internal control system and the design and implementation of management practices.

Medium to long-term goals (3-5 years)

We will continuously enhance our knowledge of company laws, securities regulations, and enterprise risk management. This knowledge will be shared with various operational units during our routine internal audit operations.

2.4.1 Risk Management Mechanism

Risk management is a crucial factor in pursuing stable growth and sustainable operations for enterprises. HDRE establishes, implements, and maintains an internal control system. By collecting internal and external data and information, analyzing potential risk factors faced by each department, defining various types of risks, and proposing corresponding management measures. Within the acceptable range of risks, efforts are made to prevent potential losses and optimize resource allocation, aiming to reasonably ensure the achievement of the company's strategic objectives. Ensuring the effective operation of risk management mechanisms is an important responsibility of the internal management hierarchy of our company. We strive to internalize risk management in the daily operations of each department, ensuring the company's normal business operation and creating maximum value for shareholders, employees, customers, and society. Thus, achieve the objective of sustainable business operation.

- Risk management framework

Regularly report the status of risk management and audit results to the Board of Directors, allowing the Board to oversee and provide guidance on risk management, thereby reducing the adverse impact of risks on the organization.

Responsible Unit	Business Risk Management
Board of Directors	Review and approve overall risk management policies and major decisions.
Audit Committee	1. Proper presentation of the financial statements of the Company. 2. Effective implementation of internal control of the Company. 3. Company's compliance with relevant laws and regulations. 4. Control of existing or potential risks of the Company.
Remuneration Committee	Evaluate the remuneration policies and systems for the directors and executives of the company from a professional and objective standpoint, and provide recommendations to the board of directors.
Audit Office	1. Ensure the internal control system is effectively and continuously implemented, and assist the management staff in fulfilling their responsibilities. 2. Assist the Board of Directors and management staff in establishing management directives and achieving business objectives.

Risk Management of Key Events

The risk management organization of our company is led by the Board of Directors, which serves as the highest authority for risk management. Its goal is to comply with laws and regulations, promote and implement overall risk management within the company. In addition, it also ensures a clear understanding of the risks faced by the company's operations and ensures the effectiveness of risk management. Through the collection of internal and external data and information, we identify the potential risk factors that may be encountered by each department periodically. We define various types of risks and, based on the "probability of occurrence" and "impact on the company," propose corresponding management measures. We provide regular reports to ensure that risks can be addressed in a timely manner when they occur.

The impact of risks on operations, their financial implications, and the potential opportunities created can be found in various chapters. The following provides an explanation of the risks commonly encountered in our daily operations, as well as the risk management mechanisms in place. It also outlines the actions taken by the risk management unit and the board of directors.

‧ Risk Management Framework

Risk	Risk Management Mechanism	Future Goals	Role of the Board of Directors	Unit in Charge	Reporting Frequency
Supply Chain Risk	1. Monitor fluctuations in raw material prices, devise hedging strategies, and develop procurement strategies. 2. Engage with multiple suppliers through the procurement department to understand market demand.	Collaborate on research and development to allocate appropriate resources, equipment, and development projects based on site characteristics.	Conduct reviews and evaluations of investment/ bidding projects.	President	Weekly
Occupational Health&Safety, and Environmental Risks	1. Provide occupational health and safety education and training for on-site construction personnel. 2. Thoroughly complete and submit occupational health and safety forms.	Assign dedicated personnel from the occupational health and safety office to ensure compliance and oversight.	Stay informed and supervise through regular reporting from the management team.	Occupational Health and Safety Office	Daily

‧ Risk Management Framework

Risk	Risk Management Mechanism	Future Goals	Role of the Board of Directors	Unit in Charge	Reporting Frequency
Business Operation Risks	1. Increase market share. 2. Enhance brand exposure. 3. Continuously analyze and optimize energy policies.	1. Develop production lines to diversify customers. 2. Improve market share. 3. Optimize systems to increase matching efficiency.	1. Regularly review the proportion of sales from the top ten customers. 2. Conduct financial modeling analysis and decision-making. 3. Conduct reviews and evaluations of investment/ bidding projects.	President Asset Management Division Sales Division Star Charger Co., Ltd. Star Energy Storage Solutions Co., Ltd.	Weekly
Information Security Risks	1. Establish firewalls. 2. Conduct regular cybersecurity assessments. 3. Provide regular employee cybersecurity education and training.	Assign dedicated personnel from the IT department to manage information security.	Stay informed and supervise through regular reporting from the management team.	President Software Department Operations Department Star Energy Storage Solutions Co., Ltd.	Weekly
Quality Risk	1. The acceptance period will be supported by the engineering department or contractor to ensure completion. 2. During the operational period, the contracting unit will provide warranty and improvement.	By implementing a procurement supplier evaluation mechanism, higher-risk suppliers will be filtered out to reduce the risk of product quality issues.	Stay informed and supervise through regular reporting from the management team.	Asset Management Division	At least once a mo
Protests from Local Residents/ Environmental Groups	1. Conduct inquiries with relevant administrative authorities regarding land sensitivity during the initial development phase. 2. Hold local briefings to obtain consent and evidence compliance with regulatory requirements.	Strive to prevent conflicts with local residents or environmental groups.	Stay informed and supervise through regular reporting from the management team.	Asset Management Division	Quarterly Operational Reports
Biodiversity Risk	Conduct environmental and social assessments to identify the scope of impact. Perform land sensitivity analysis, water quality and ecological surveys to ensure that the project site does not affect the surrounding environmental biodiversity.	Committed to reducing environmental impacts.	Stay informed and supervise through regular reporting from the management team.	Asset Management Division	Quarterly Operational Reports
Regulatory Risk	1. Strictly control customer information to protect customer privacy, avoid legal disputes, and reduce the risk of reputational damage to the company. 2. Periodically promote compliance with laws and regulations to prevent employees from violating laws and causing harm to the company.	In the event of new regulations being issued in the future, the company will conduct rolling reviews and communicate them to employees.	Stay informed and supervise through regular reporting from the management team.	Legal Office	Irregular
Natural Disaster Risk	1. Strengthen disaster and flood prevention mechanisms to minimize losses to power generation equipment. 2. Harvest seafood in advance for processing and preservation.	1. Enhance protective measures before the rainy season or typhoons. 2. Develop processing and freezing capabilities for preserving products.	Stay informed and supervise through regular reporting from the management team.	Engineering Division Asset Management Division Star Aquaculture Co., Ltd.	Irregular

2.4.2 Internal Control

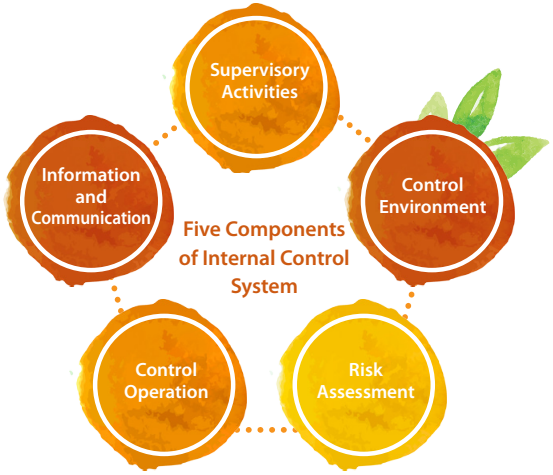
Based on the "Regulations Governing Establishment of Internal Control Systems by Public Companies" by the Financial Supervisory Commission, our company has established the principles and policies for enterprise risk management. We have integrated the eight major operational cycles and management systems of internal control to establish a robust and efficient internal control system.

Internal Control System

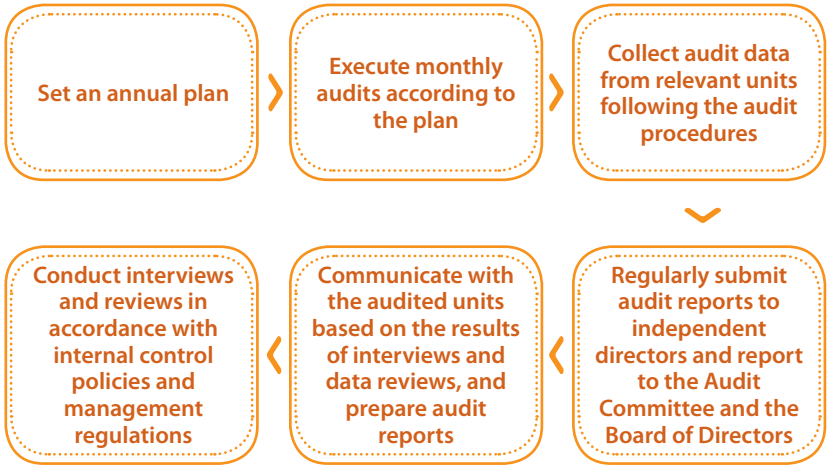
1. HDRE understands that the establishment, implementation, and maintenance of an internal control system are the responsibility of the company's Board of Directors and managers of management. The purpose is to achieve the effectiveness and efficiency of operation (including profitability, performance and safeguarding of assets, etc.), reliability of financial reporting and compliance with relevant laws, in order to provide reasonable assurance to the company's stakeholders.

2. The internal control system has inherent limitation, and no matter how well-designed it may be, an effective internal control system can only provide reasonable assurance regarding the achievement of the three aforementioned objectives. In addition, due to changes in the environment and circumstances, the effectiveness of an internal control system may also be influenced. Nevertheless, our company has established a self-monitoring mechanism within the internal control system. If any deficiencies are identified, immediate corrective actions are taken.

3. The Company evaluates whether the design and implementation of its internal control system are effective based on the criteria for internal control system effectiveness specified in the "Regulations Governing Establishment of Internal Control Systems by Public Companies". The internal control system assessment criteria used in the "Guidelines" are based on the management control process. The internal control system is divided into the following five components:

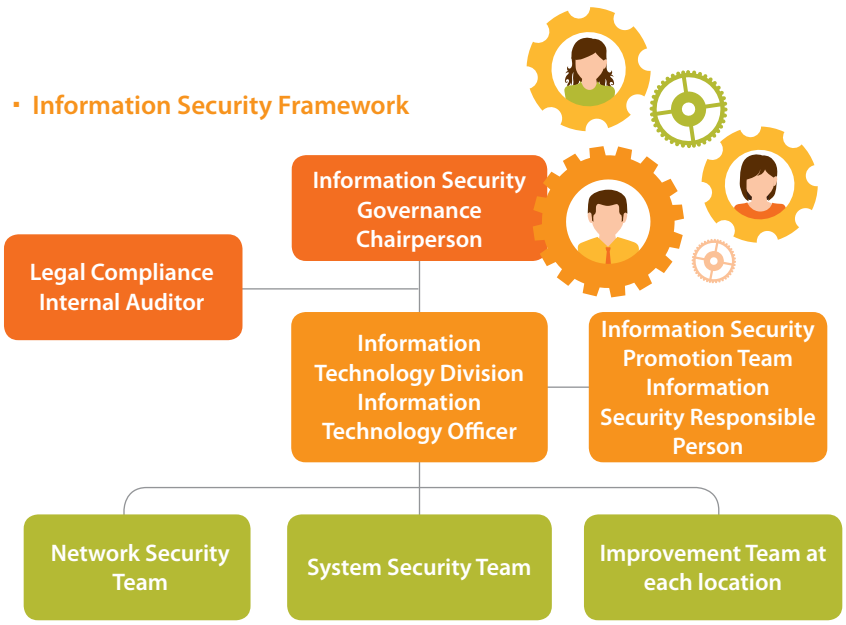


- Internal Control Process



2.4.3 Information Security Management

- Information Security Framework



HDRE has an Information Department and a Cybersecurity Promotion Team responsible for planning, implementing, monitoring, and improving information security management. Various layers of controls and protection mechanisms have been established in areas such as system servers, operating systems, and network systems to prevent disasters, data loss, and confidential information theft. In the event of a cybersecurity incident, the company has an Information Security Incident Emergency Response Plan to ensure a swift recovery and resumption of normal operations. Additionally, HDRE places great importance on physical environment security and mitigating the risks of malicious data leakage, theft, and recording.

In 2022, HDRE invested NT$401,133 in information security management, and a budget of NT$1,200,000 has been allocated for 2023 to further enhance information security and reduce the risks of hacking and system attacks. To reduce network security risk and maintain the security of company and customer data, HDRE has been progressively establishing relevant information security management mechanisms in recent years. By having the information security governance unit develop the information and communication security policies, we are continuously promoting cross-departmental collaboration to implement the company's information security policies and protect and handle ISO documents. In addition, regular reports are provided to the board of directors to ensure the secure use of information within the company and maint

- **Purposes of Information Security Enhancement**

- Prevent hackers and various types of viruses from intrusion and causing damage.
- Maintain Continuous Operation of Information System.
- Conduct cybersecurity awareness campaigns to instill basic information security concepts among employees.
- Recover damaged system/ data effectively.
- Ensure the protection of company information from malicious leaks, theft, and unauthorized access.
- Maintain Physical Environment Security.

- **SOP for Preventing Virus Attacks**

Ransomware attack

Network disconnection

Report to the IT department

Isolate the compromised computer

Check if the virus attack has spread to other systems

Examine and rescue the compromised computer

Perform system overwrite using backup software

Information Security Control

To implement information security management, in terms of the policy aspect, we perform relevant protective and control measures based on the company's internal control system. We have fully implemented a confidential document encryption system to reduce the risk of data leakage. On the technical front, we strengthen the use of information technology and implement technological and organizational security measures to manage business confidential data. It scope covers the core technologies, trade secrets and customer personal data, etc. Furthermore, we also set up network firewalls, e-mail security systems and antivirus protection systems, and other measures to enhance information security management in various aspects. Moreover, our internal auditors and independent audit unit also conduct assessments on the information security policy at least once annually.

HDRE Information Security Reporting Process

Note：Alerts detection includes unauthorized software/phishing email links/operating system or virus codes major updates/warnings regarding malicious software

HDRE regularly disseminates internal communications via email to raise awareness among colleagues. In addition to advising against the installation of unauthorized software, the company also plans and conducts educational training sessions, along with coordinated drills, to reinforce colleagues' understanding of cybersecurity. This comprehensive approach ensures that we are well-prepared to prevent and respond to security risks effectively.

Information Security Awareness Content in 2022

- Information Office Announcement: Please refrain from installing unauthorized software.
- IT Department Announcement: User Manual for 070 Desktop Phones.
- IT Department Announcement: Introduction of 070 Internet Telephony.
- IT Department Announcement: Notice of multiple information system downtime this weekend. Please be informed (including updated operation manuals).
- Security Awareness: Regular password change reminders for colleagues.
- Information Department Announcement: Electronic Signature Execution for Accounts Payable_7150_Loan Payables_7190_Other Payables.
- Information Department Announcement: Electronic Signature Execution for Accounts Payable_7130_Construction Expenses Payables_7140_Asset Payables.
- Information Department Announcement: Electronic Signature Execution for Accounts Payable.

Information Security Management Plan

Internal Control

- Implement access control measures for each system.
- Regularly backup of systems/ important data.
- Conduct backup data restoration drills.
- Conduct cybersecurity awareness training and new employee education.

External Defense

- Establish firewalls and antivirus software, regularly update system firmware and virus databases.
- Regularly update operating systems and software on personal computers.
- Outsource cybersecurity vulnerability scanning and detection, and implement necessary improvements.

03

Sustainable Innovation
Green Intelligence

Core Target and Vision

HDRE have accumulated extensive experience in the solar photovoltaic system field for a long period of time and continue to develop and construct various types of fields. Through the field monitoring system, we are able to understand the field power generation status in real time and to provide professional green power consulting service, thus assisting users to obtain the most suitable and stable green power. Under the trend of rapid development of electric vehicles, the power consumption market for electric vehicle is optimistic, and charging point has become the necessary electricity sales channel. Furthermore, due to the feature of intermittence of renewable energies, the demand for stability of power grid is further increased. Accordingly, to assist customers to reach RE100 swiftly, HDRE has also included the investment in energy storage as a key item for the business operation planning. HDRE is now fully committed to transferring its development focus from engineering construction to the development of smart grids, aiming to achieve the net-zero emissions target by 2050.

・2022 Achievements and Performance

1. Developed **9 sites**, totaling **168 MW**
2. Star Charger expanded to **4** locations nationwide with a total of **12** charging stations.
3. Star Energy Storage Solutions has developed **6 sites**, totaling **383.5MW**.
4. The harvest expected in **Q2 2023** at Star Aquaculture demonstration site for fishery-solar symbiosis.
5. TITAN EMS has upgraded to the level of **7** clouds.

3.1 Green Energy Aggregators

HDRE started its journey from engineering development and EPC, accumulating a total installed capacity of 357kW in project installations by 2022. The accumulated installed capacity for operation and maintenance reached 177kW in the same year. It has now emerged as one of the leading players in the photovoltaic industry, possessing a complete team for project development and engineering. This enables effective management of project investment risks, allowing for customized project construction, as well as providing operation, maintenance, and post-investment management services. We complete grid connections and develop projects nationwide including outlying islands. In the future, HDRE will uphold the spirit of "Smarter Energy, Accessible Green," continuously enhance integrated intelligent services, promote the popularization of green energy, and strive to become a smart green energy company.

3.1.1 Power Plant Operation and Vertical Integration

In the field of solar photovoltaics, HDRE plays the role of a vertically integrated supplier, providing comprehensive services to meet customers' diverse needs. Our team consists of interdisciplinary talents who prioritize analyzing geographical conditions and assessing the feasibility of project development. We then ensure regulatory compliance, evaluate financial aspects, and assess related risks. We offer professional legal consulting services and engage in discussions with customers to design customized projects. Our in-house engineering team takes charge of site preparation, installation, wiring, and grid connection. Moreover, HDRE maximizes the efficiency of assets during the 20-year operation and investment management of power plants, serving as a strong support for customers in terms of plant operation and post-investment management.

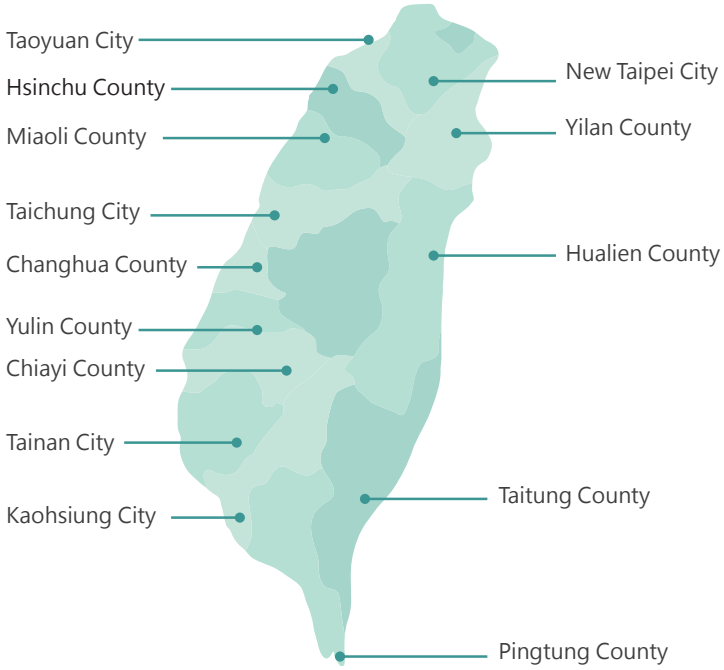
Solar Photovoltaic Field Introduction

・Solar Photovoltaic Field Life Cycle

Life cycle stages	Case assessment and investment review	Land development	Planning, design and field construction	Maintenance management
Key job description	• Land regulations • Engineering execution • Financial calculation and Grid-connection feasibility • Land sensitive area • Survey of Assessment and strategies for important environmental and social issues (Fisheries-Electricity Symbiosis) • Cultivated species and aquaculture management planning (Fisheries-Electricity Symbiosis)	• Obtain consent of landowner • Aquaculture site water source (well), Species and electricity usage investigation (Fisheries-Electricity Symbiosis) • Obtain power feeder from Taipower • Review of strategies for addressing environmental and social issues (Fisheries-Electricity Symbiosis) • Apply for electricity enterprise registration • Obtain development plan or use permit approval • Obtain construction permit • Obtain electricity enterprise license	• Geotechnical engineering • Module stands • Electrical and mechanical works • External cable construction • Completion test	• Checking routine • Annual inspection • Abnormality monitoring • Troubleshooting • Improvement proposal
Authority	• Sales Division • Project Management Division • Design Department • Financial Division • Members of Investment Review Committee • Star Aquaculture	• Sales Division • Design Department • Financial Division • Star Aquaculture	• Design Department • Procurement Department • Construction and Engineering Department • Electrical and Mechanical Engineering Department • Project Management Department • Labor Safety and Heath Office	• Engineering Division • Maintenance Department • Asset Management Division

HDRE provides solar photovoltaic fields of outstanding and stable quality and is able to provide comprehensive cross-sector professional services, in order to reduce risks caused from the field development and engineering and construction process along with cost reduction. Furthermore, to greatly promote the construction of solar photovoltaic fields, we engage in collaborative development with operators in the same industry and create a system with teamwork and mutual support. To facilitate the successful promotion process during different stages of the operation, we understand customer demands in depth and continue to maintain proper interaction and communication with government agencies and local residents, in order to reduce the risk of construction delay.

- **Grid-connected solar photovoltaic fields constructed by HDRE**



Grid connection before 2022

A total of 245 projects with capacity 189,341.95 kW

Fields constructed in 2022

A total of 9 projects with capacity 168,026.53 kW

Field Type	Fields constructed before 2022	New construction in 2022
Ground type solar photovoltaic field	111,677.18 kW	126,447.59 kW
Roof type solar photovoltaic field	17,932.89 kW	1,344.8 kW
Water-surface type solar photovoltaic field	59,731.88 kW	none
Fishery-solar symbiosis field	none	40,234.14 kW
Total photovoltaic fields	189,341.95 kW	168,026.53 kW

3.1.2 Power Plant Operation and Post-Investment Management

HDRE's operation and maintenance management team provides services for various types of power plant installations, including rooftop, ground type, and water surface type of solar projects. They offer comprehensive operations and maintenance services for the power plants after grid connection. Through a communication technology-based monitoring system, real-time generation data can be monitored. Whenever an alert notification is received via the mobile app, personnel can be dispatched to address the situation promptly. In addition, the team carries out rigorous scheduled inspections and preventive measures on a regular basis. The services cover both internally owned assets and power plants entrusted for operation by clients (including related entities that are not consolidated). Quarterly formal operation reports are provided to communicate with the owners.

HDRE has extensive experience in the photovoltaic industry and sustainable management practices from its background in large-scale manufacturing. In addition to providing operational and management consulting services to clients, the team also possesses the expertise to effectively manage power plant operation and maintenance contractors. We integrate various resources and manage project progress accordingly.

Moreover, the HDRE team has professionals in finance, accounting, and legal fields. We can assist clients in implementing sound financial, accounting, and tax planning strategies. This not only maximizes asset value for investors but also promotes responsible investment and advances green finance initiatives.

Field Operation Management

Power station operation management is an important post-construction service item after the completion of the construction of solar power generation systems. If solar power generation system is not maintained periodically, the reduction of power generation rate may occur due to equipment circuit failure or environmental changes, such as wind, sand, bird's droppings, dust oil stain, etc. HDRE maintenance team is equipped with extensive experience in field maintenance, and personnel are able to predetermine and identify risks that may cause unstable power supply and propose countermeasures, in order to mitigate hazards caused by the risk.

Like the flooding caused by typhoon and heavy rainfall, operation interruption and equipment loss caused by earthquake, power generation efficiency affected by high temperature and monsoons and dust. During the evaluation and planning phase, we assesses and confirms the 100-year flood line. Based on past flooding situations, adjustments are made to the construction framework. This may involve raising the support structures or opting for a floating design. Additionally, an outflow plan is developed to manage water discharge. We ensure normal power generation of fields according to real-time monitoring and routine maintenance. In case of typhoons or heavy rainfall announced by the weather forecast, water drainage and pump equipment are ensured to function normally in advance, in order to reduce the chance of flooding. In case of large scale of loss due to natural disaster, all fields are under machinery insurance and operation interruption insurance, in order to reduce the level of loss. In areas with high salt damage, the salt damage prevention module and framework are used, and the corrosion resistance is strengthened in the structure.

Due to the impact of the COVID-19 pandemic and Russo-Ukrainian War, there has been a general increase in equipment costs and lead times in 2022. Therefore, regular supplier evaluations are conducted to maintain the quality of supply and accuracy of delivery schedules. For overseas or longer lead time equipment, material quantity management is implemented to ensure an adequate supply of materials and to mitigate potential risks and minimize the impact on power plant operation.

If there are issues with the construction quality of a project, such as equipment improper power generation, failure, base damage, improper drainage design, etc., the acceptance is performed by an independent third-party institution and report is submitted. In addition, the Engineering Division or contractor provide assistance to improve deficiencies. If the defects occurred during in-service operation period, deficiencies in layout design, civil or drainage construction can be found, typically, one to two years after the grid-connection of a photovoltaic field. If it is determined to the construction defect, negotiation is engaged with the proprietor, and the contractor will perform warranty improvement. In the future, we will continue to implement a procurement supplier assessment mechanism to proactively filter out higher-risk vendors and reduce the risk of abnormal maintenance quality. Additionally, maintaining constant communication with the maintenance team allows for immediate troubleshooting when equipment emits abnormal signals or experiences malfunctions. This proactive approach ensures efficient problem resolution and minimizes downtime.

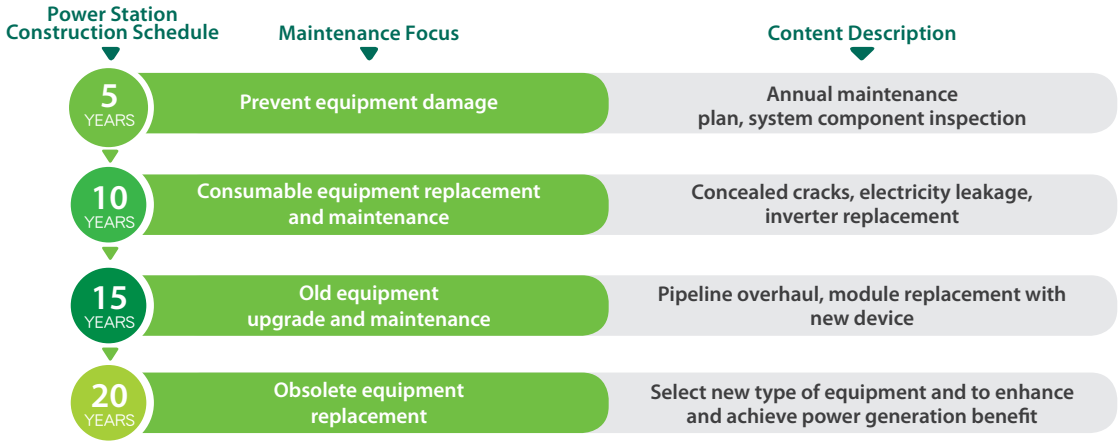
HDRE implements daily inspection and performs data analysis monthly and quarterly, in order to ensure the highly efficient operation of the power stations and stable power generation, and to resolve abnormalities. Different operation managements are carried out during each period:

Daily
Verify the field status via monitoring system. In case of any abnormality of equipment under warranty, the equipment warranty contractor is contacted to proceed to the site for determination and clarification of liability.

Monthly
Monthly power generation status is compared and analyzed with the status of the same period, in order to determine whether there is any deficiency or abnormality in the maintenance schedule and any adjustment or improvement may be made.

Quarterly
Power testing and field environment inspections are arranged quarterly, and work arrangement is adjusted timely or recommendation of optimization is provided to customers.

- Regular Operation Management



▪ Field Maintenance Items

System Maintenance and Inspection	Power station preventive maintenance, solar module inspection, solar inverter inspection, relevant machine inspection and calibration
Repair Management	Repair work, inverter and relevant machine repair, trouble-shooting report preparation, field maintenance
Cloud monitoring	Remote monitoring, failure response, 365-day remote monitoring, cor-responding troubleshooting, issue analysis
Periodic Follow-up	Periodic report, monthly power generation report, quarterly inspection report, communicating with the Bureau of Energy and Taipower unit to confirm corresponding warranty
Module Cleaning	Value-added service, anti-burglar security system construction, module cleaning, environment cleaning and weeding

HDRE has completed the development of field monitoring system in 2020, and the system is able to monitor the operation status, sunlight, environmental temperature, power generation capacity, voltage and current of each node, equipment stability of the photovoltaic station, and performance calculation based on the information collection, in order to monitor whether there is any performance abnormality in real-time. Furthermore, for self-developed system, greater flexibility in electricity, workforce dispatch and data simulation, etc. can be achieved via information links. In 2022, HDRE introduced climate big data and implemented a simulation-based power generation forecasting function. This enables more accurate evaluation of project performance. Currently, this system is being utilized for monitoring purposes in both internally owned projects and by most of the company's clients.

Up to 2022, the total capacity of fields contracted to Hong Bo Energy of HDRE Group for operation and maintenance was approximately 177 MW. As the quality of our service is recognized by customers, we expect that the total capacity of service in 2023 will be increased by 1.6 times to reach 275 MW. Furthermore, based on the calculation of medium and large fields exceeding 5 MW, the monthly average Performance Ratio (PR) in 2022 was 84 %. Accordingly, the overall maintenance quality is stable and reliable.

▪ Field Monitoring System

Main Functions

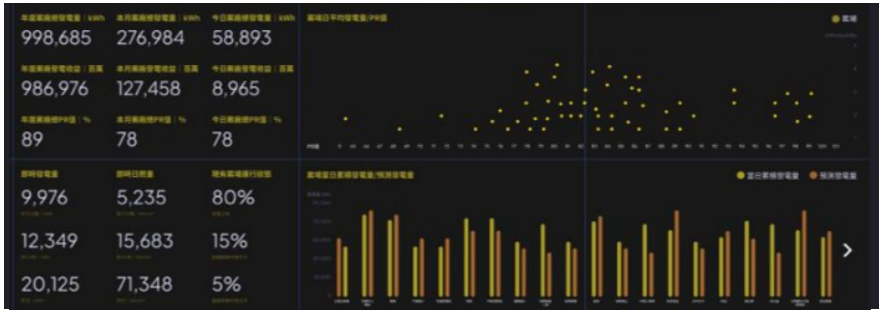
- Provide field power generation information and equipment running status information in real-time, ensure power plant generates power continuously and stably and resolve abnormalities swiftly, assist the team to manage solar power station.
- Link to job dispatch system, such that when the system detects abnormality, it is able to inform the job dispatch system timely and use APP to transmit information.
- By incorporating weather data, to enhance its power generation forecasting capabilities.

Future Planning

- Optimize the maintenance job dispatch schedule, and integrate with the staged early warning mechanism, in order to achieve the planning objective of AI smart automatic job dispatch.

Field Monitoring System

▪ Field Monitoring System



HDRE handled the asset management of a total of 32 fields in 2022, and the total installation capacity was 140.5 MW. The annual power generation of approximately 57,721,337 kWh of green electricity, equivalent to the reduction of 29,380 tons of CO_2e emissions, and the benefit of approximately 1,958.67 hectares of forestation, and the carbon absorption volume is equivalent to approximately 75.5 Taipei Daan Parks for the entire year. In addition, we have also established the joint venture platform including own assets and investments. The number of new fields with meter installation in 2023-2024 will be 2 fields, and the installation capacity is estimated to reach 75 MW. For the short-term goal, the total management capacity of own assets is 200 MW. For the long-term goal, the installation capacity of service management is planned to be over 700 MW.

Note 1: According to the 2021 power generation carbon emission coefficient announced by the Bureau of Energy: the carbon emission per kWh of electricity is approximately 0.509kg of CO_2/kWH.

Note 2: The forestation benefit refers to the research result of forestation effect announced by the Forestry Bureau, Council of Agriculture, and the carbon dioxide fixed volume for each hectare of woodland is approximately 15 tons per year. In addition according to the data provided by the Bureau of Energy, MOEA, based on the area of 25.8 hectares of Daan Part in Taipei, the carbon absorption of one Daan Park is 389 tons per year.

Note 3: First type of Electricity Enterprise: Refers to power generation facilities that utilize renewable energy and comply with the Electricity Act and relevant regulations. Second type: Refers to self-use power generation facilities that utilize renewable aenergy and comply with the Electricity Act and relevant regulations. Third type: Refers to self-use power generation facilities that utilize renewable energy and have an installed capacity of less than 2,000 kilowatts (2MWp) in accordance with the Electricity Act and relevant regulations.

‧ HDRE Solar Photovoltaic Field Operation Management

Customers	Number of Fields	Accumulated Installation Capacity in 2022	Accumulated Power Generation in 2022
Internal (own fields)	13 fields	6,620.80 kW	7,057,978 kW
External (including non-consolidated affili-ate enterprises)	19 fields	133,838.76 kW	50,663,359.15 kW

2022 Field Projects

In 2022, one of the highlights among the power plants taken over by HDRE's operations and management team was a first-type electricity enterprise with an installed capacity of 21,167.9 kW. The services provided for this facility included daily operation and performance management of the power station, achieving an operational achievement rate of 216%. Additionally, this power plant entrusted HDRE's subsidiary, Star Exchange, would match the generated electricity with companies that have a demand for green energy, thereby promoting the practice of a green circular economy.

3.1.3 Smart Green Energy, the Rising Force

TITAN Energy IoT Platform

With the increasing diversification of green energy applications, the importance of intelligent green energy management systems has become crucial for achieving higher efficiency in management and integration. HDRE has established its own Energy Command Center, combining AI, cloud technology, and big data analytics to develop the TITAN Energy IoT Platform. This platform enables cloud-based management and offers multiple functionalities for intelligent green energy solutions.

HDRE introduces the TITAN Energy IoT Platform, integrating its self-built PaaS with the AWS cloud platform, to develop an aggregated platform for applications in solar energy, fishery and electricity, front-end energy storage, demand management, green energy supply, and charging station operations. The platform activates the intelligent hub of distributed energy systems, with its core technology sourced from HDRE's subsidiary, Star Energy Storage Solutions Co., Ltd. It provides integrated software and hardware solutions for front-end and back-end energy storage, and through the exclusive TITAN Smart Energy System, offers customers a reliable and stable AFC energy storage system, solar storage, and energy management platform. The company implements power integration services to align with the liberalization of the power industry, developing optimized scheduling technologies such as virtual power plants, demand management, charging station energy centers, and green energy peer-to-peer supply. Additionally, HDRE provides services such as intelligent algorithms for multi-party green energy supply, bid decision systems for auxiliary service trading platforms, and charging station operation management platforms. With the flourishing opportunities in front-end and back-end energy storage in recent years, Star Energy Storage Solutions aims to sell 50 MWh of energy storage system integration solutions annually starting from 2023, and expects to integrate diverse resources such as energy storage, demand, and renewable energy to reach 2.5 GW by 2025. As an energy aggregator, it provides each resource provider with business monetization opportunities. Furthermore, during times of electricity shortages, it offers diverse solutions to Taiwan Power Company, including auxiliary frequency regulation and energy transfer, to provide more robust support and create a win-win-win situation for all parties involved.

Smart Green Power System Innovative Research and Development

To reduce the intermittence limitation of renewable energies, in 2021, we have launched 7 projects, including algorithm for matching with green electricity sales to increase supply-demand match level, energy integration platform, energy storage management system, power station asset cloud management, enterprise energy cloud management, super charging cloud, energy storage cloud, etc. We also provide smart green power system management, and have developed the AI smart green power system TITAN, in order to include maintenance and operation, green electricity sales, electric vehicle fast charging, energy storage service and fishery cultivation in the scope of management and dispatch. Furthermore, to achieve centralized management of field equipment, data transmitted by users and common algorithms and database, based on the present plans, we continue to develop overall functions and subsystems for the TITAN smart green power system, thus allowing the power generation, power consumption, charging and energy storage operations to achieve higher efficiency.

HDRE is committed to the innovative research and development and to engage in strategic collaboration in order to increase the company value and to pursuit growth. In addition to continuous innovation, research and development of own products and services, we also perform technology transfer and product collaborative technology development through strategy collaboration with the government, external companies or research teams, thus integrating internal and external perspectives on the industry and achieving fast planning of renewable energy trend to seize business opportunities.

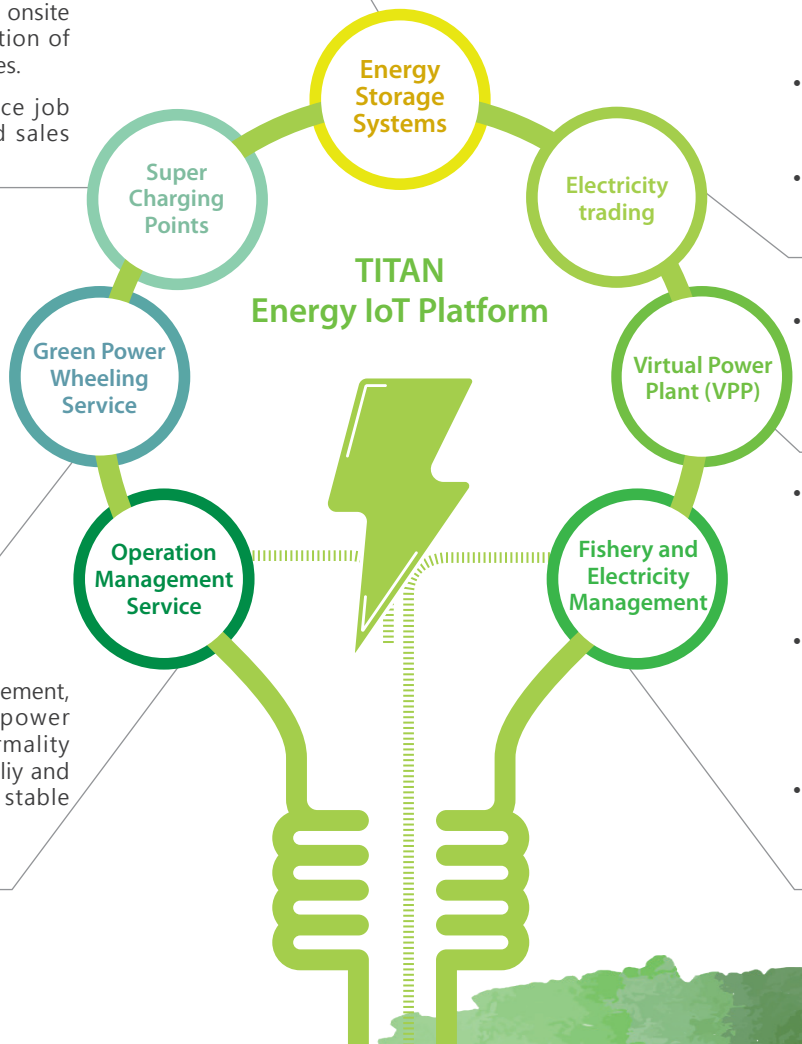
- **The research, development, and strategic collaboration process of HDRE's product and service involves the following steps**

- Integrating multiple users' energy storage equipment to participate in Taipower electricity trading market, and performing energy regulation.
- For energy storage management system, developing energy management mechanism satisfying the Taipower electricity trading market, providing frequency regulation control, and energy storage application control. Planning and developing light-preservation application control system in the future.
- TITAN Energy Storage Cloud: Monitoring Operational Status, Participation in Taiwan Power Exchange Market, Communication with Taiwan Power Company, Strengthening Maintenance and Security Management by the End of 2022.

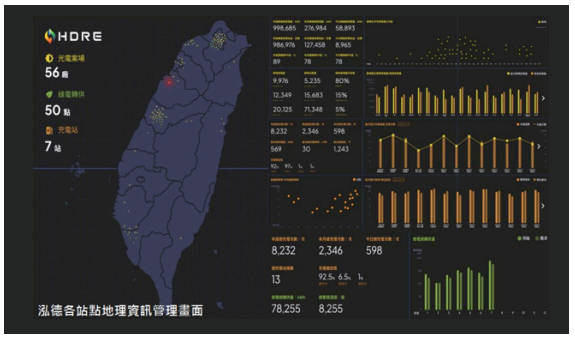
- Expanding charging station locations, understanding onsite charging points use status. Ensuring stable operation of charging points, and resolving equipment abnormalities.
- Integrating backend management of maintenance job dispatch and schedule, improving operation and sales function, and implementing operator connection.

- Assisting users to perform load prediction, optimizing green power distribution ratio; assisting users to perform green energy dispatch, and performing peak/off-peak electricity dispatch through energy management system.
- Investing in technology development of algorithms, including how to match green electricity sales, increasing supply-demand match level, and performing matching and computation to find the most optimal green power wheeling distribution ratio according to the power generation curve of power plants and power consumption curve of customers.

- Improving the TITAN power station asset cloud management, ensuring power plant's continuous and stable power generation and the capability of resolving abnormality swiftly, understanding power consumption abnormaliy and implementing response timely in order to ensure stable power supply.
- Optimizing dispatch schedule of maintenance job.



· TITAN Real-Time Site Management Information



- Integrating energy management interface, enabling analysis of electricity consumption reports and visualizing green energy usage.
- Real-time monitoring of green energy usage, analyzing data to identify abnormal energy consumption and achieve energy-saving goals.

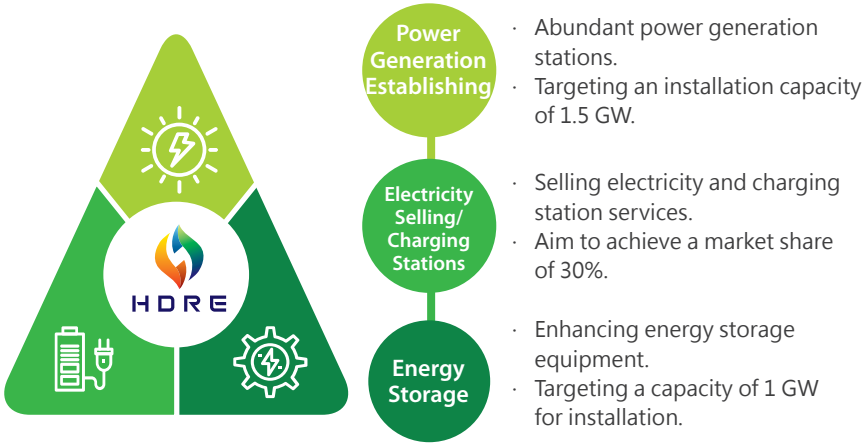
- Development of optimized scheduling technologies and platforms, such as virtual power plants, demand management, energy centers for charging stations, and peer-to-peer green energy trading, in alignment with the process of liberalizing the electricity market.

- Establishment of aquaculture big data, recording daily data on material inputs, water quality monitoring, etc., in the ERP system, calculating carbon footprints, and providing product traceability for production and distribution.
- Integration of meteorological data to predict weather disasters such as heavy rainfall, typhoons, and cold fronts, allowing for early disaster planning or harvesting to reduce losses in the aquaculture industry caused by natural disasters.
- Real-time monitoring of water quality, water temperature, oxygen levels, and other data, enabling prompt troubleshooting and addressing any abnormal conditions.

3.2 Smarter Energy, Accessible Green

HDRE expects to reduce the green power use threshold and to construct a power company adopting the virtual power plant operation model. We plan to use AI to provide smart power service, including smart management and green power dispatch, in order to provide diverse power consumption choices to corporates and consumers, and we have also entered the field of electric vehicle charging points, such that a comprehensive energy power grid can be provided to corporate users and general public, thereby achieving the goal of "Smarter Energy, Accessible Green".

- **Construct the "Green Power Golden Triangle" of power generation, energy storage and electricity sales, in order to advance towards the goal of smart green power company**



Power Generation Establishing
- Abundant power generation stations.
- Targeting an installation capacity of 1.5 GW.

Electricity Selling/ Charging Stations
- Selling electricity and charging station services.
- Aim to achieve a market share of 30%.

Energy Storage
- Enhancing energy storage equipment.
- Targeting a capacity of 1 GW for installation.

3.2.1 Star Exchange Green Power Wheeling Service

Under the liberalization of the electricity market, HDRE's subsidiary, Star Exchange Co., Ltd, was established in 2020. In 2021, it obtained the power supply license and began assisting customers in purchasing and acquiring green energy. Star Exchange is dedicated to providing green energy services by leveraging an electricity IoT framework and cloud edge computing technology. This enables energy optimization and real-time power visualization, ultimately promoting energy efficiency and delivering instant services to customers.

- **Star Exchange Organizational Structure Chart**

After entering the green energy market, Star Exchange has become a pioneer in green energy sales. It is the first private company in Taiwan with a green energy transfer capacity exceeding 1MW and has assisted over 50 companies. Through the green energy sharing platform, Star Exchange collaborates with various renewable energy generators, offering users a wide range of options such as rooftop, ground-based, and floating solar power plants, wind power, small hydropower, and other types of green energy. They also assist in obtaining Renewable Energy Certificates (T-RECs) to meet the carbon reduction and sustainability requirements of users and supply chains related to RE100, ESG, and CSR indicators. To improve the matching between power plant and power consumption user for the use of green power, HDRE provides four types of one-to-one, one-to-many, many-to-one and many-to-many for the green power wheeling. Accordingly, with the advantages of the energy integrator of HDRE, sufficient and stable green energy can be provided.

- **Star Exchange's Service Offerings**

Green Energy Consulting Service	Through on-site consultations, understanding the users' electricity needs, collecting data, and conducting professional analysis, Star Exchange provides optimized green energy solutions and assists in setting annual carbon reduction targets.
Power Visualization	By representing green energy data through graphics and colors, users can instantly grasp their electricity consumption profile. Analyzing historical data helps identify energy-consuming equipment systems, enabling energy optimization.
Energy Storage System Integration	With intelligent energy storage systems, we facilitates the allocation of energy during peak demand periods, reducing the frequency of exceeding contracted capacity penalties. At night, stored green energy can be utilized, thereby increasing the RE (Renewable Energy) target percentage. During power shortages or outages, the system can serve as a backup, assisting in the quick recovery of equipment to normal operation.
Assistance in Obtaining Green Energy and Certificates	Assisting users in finding suitable green energy sources, offering diversified options and customized contracts. They also help green energy users obtain "Electronic Certificates (T-RECs)" to meet the carbon reduction and sustainability requirements of the supply chain.

In the future, we will continue to develop a "many-to-many" green energy wheeling model, facilitating transactions between multiple power plants and multiple customers. This approach aims to optimize and address the mismatch between electricity generation and consumption times. Through Taiwan Power Company's transmission and distribution system, we will supply electricity to customers, companies, or factories. Our goal is to achieve a highly efficient matching of renewable energy generation and user consumption. To achieve this, HDRE will assist customers by installing data collectors to obtain electricity consumption statistics. We will then utilize AI algorithms to analyze users' electricity usage patterns, predict their electricity demand, and increase the proportion of green energy utilization. This approach will also help to reduce surplus electricity issues.

・User's Green Power Purchase Process

01	Green Energy Consulting Service	Presentation to provide explanation on Star Exchange and service, and collect customer demands, in order to provide assistance in the establishment of annual carbon reduction goal.
02	Plan Customized Solution	Reservation for visit and field survey, assess the status of user power consumption, in order to plan customized solution.
03	Sign Purchase and Sale Agreement	Purchase and sale agreement for three parties and signing of such agreement.
04	Assist Installation of Electric Meter	Assist the installation of smart electric meter and use such electric meter as the basis for the power consumption level.
05	Obtain Green Power and Certificate	Start to use green power, and one sheet of green power certificate is issued to the user for use of every 1,000 kWH of green electricity.

・Green Power Wheeling Real-Time Monitoring Screen

・2022 Green Power Wheeling Performance

	2021 Actual Green Power Wheeling	2021 Signed Power Wheeling	2022 Actual Green Power Wheeling	2022 Signed Green Power Wheeling
Green Power Wheeling	659,000kWH of green electricity	1,650,000kWH of green electricity	8,163,970kWH of green electricity	19,730,000kWH of green electricity

・Highlight Achievement in 2022

In 2022, Star Power announced its collaboration with the renowned battery manufacturer, Taiwan Yuasa, signing a green energy and certificate purchase agreement. It is expected to officially supply 0.752 MW of green energy in 2023, equivalent to 940,000 kWh, with an anticipated reduction of approximately 478 metric tons of carbon emissions. This partnership assists Taiwan Yuasa in accomplishing its first green energy supply and achieving the early bird incentive target for large electricity consumers.

Star Exchange also utilizes the proprietary "TITAN Smart Green Energy System" developed by HDRE to optimize the usage of green energy using AI algorithms. It provides corporate users with stable and sufficient green energy, analyzes electricity consumption patterns, and examines the electricity usage of their various factories and facilities. Moreover, Star Exchange actively supports Taiwan Yuasa in evaluating the plan for a self-built solar power plant in its Yilan plant area, conducting comprehensive analysis considering factors such as local site conditions, climate, investment costs, and subsequent operational expenses.

Future Plan

As global warming has caused climate change in deterioration, to prevent continuous increase of temperature of the Earth, a lot of domestic enterprises have declared to reach the goal of net zero carbon emissions by 2050. In addition, as Taiwan is also part of the international industry supply chain, the supply chain's demand for green power has also driven greater number of enterprises to purchase green power, and the demand for green power is expected to increase. To assist customers to obtain green energy and to accelerate the planning for the RE 100 goal, we are committed to satisfying the electricity consumer demands for green energy. In addition to the current green power wheeling model of one-to-one, one-to-many and many-to-one, we plan to develop the green power wheeling supply model of "many-to-many", which is more suitable to the market" in the future. Match trading among multiple numbers of power plants and customers will be performed, thus overcoming the match failure between power generation and power consumption time and assisting users to match and purchase the most suitable green power.

Short-term Goal

- The goal is to provide 125,000 MWH of green electricity to green power users in 2023

Medium-term Goal

- The goal is to provide 500 MW of green electricity to green power users in 2025

Long-term Goal

- RE 100 users are expected to have the demand of 2,000 MW by 2030, and green power market share is estimated to reach 30%

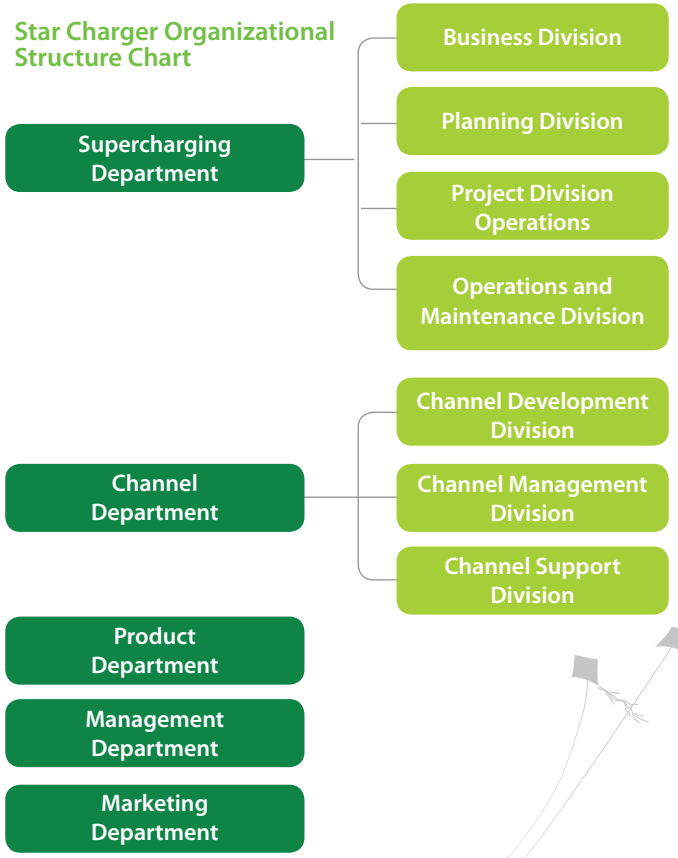
3.2.2 Star Charger Electric Vehicle Charging Stations

The National Development Council under the Executive Yuan of Taiwan published the "Taiwan's Pathway to Net-Zero Emissions in 2050" in 2020. In the transportation sector, it aims to reduce the annual carbon dioxide equivalent emissions from 35 million tons in 2019 to 3.3 million tons by 2050. To achieve the goal of "electrification and decarbonization of transportation," a complete ban on the sale of fuel-powered vehicles will be implemented in 2024. The target is to have electric passenger cars and electric motorcycles account for 100% of the market, further contributing to Taiwan's 2050 net zero emissions target.

To align with the national energy policy and prepare for the transition from fuel-powered to electric vehicles in the future, it is necessary to proactively plan and establish an electric vehicle charging infrastructure. Therefore, Star-EV-Charge, a subsidiary of HDRE, was established in 2021. As an operating service provider for charging services, Star Charger collaborates with domestic manufacturers through system and data utilization to provide energy solutions and optimize the efficiency of green energy consumption, thus achieving high-efficiency green energy utilization.

Star Charger signed the electric vehicle charging points collaboration agreement with eTreego in 2021 and purchased charging points of proper safety from eTreego, and also integrated with the construction of operation management system. The first stage of development mainly focuses on the living circle of the six major cities, and the construction of charging points at public area is promoted. Presently, the construction of electric vehicle charging zones at convenient stores, supermarkets and department stores have been planned. In addition, charging stations for customers of different needs are also provided, in order to satisfy the charging demands of different brands of electric vehicles.

- Star Charger Organizational Structure Chart



Star Charger's service offerings

Direct Operation (Direct Sales)

Self-operated Charging Stations

Target Customers:

- Electric vehicle owners who shop at retail department stores
- Traveling car owners visiting amusement parks
- Electric vehicle owners staying at hotels
- Entertainment industry
- Business travelers/office professionals
- Electric vehicle owners visiting tourist attractions

Revenue Sources:

- Charging service fees

Franchise

Managed Charging Stations for Customers

Target Customers:

- Owners of vehicles who use Supercharging Stations

Revenue Sources:

- Franchise fees (management fees)
- Advertising revenue
- Construction fees
- Electricity trading market (demand response, vehicle-to-grid)

Channel

Distributing Charging Station Equipmen

Target Customers:

- Developers/Property Management
- System Integrators
- Channels

Revenue Sources:

- Charging station equipment sales
- CMS (Charging Management System), EMS (Energy Management System) fees
- Monthly management fees
- Electricity trading market (demand response, vehicle-to-grid)

Highlight Achievement in 2022

Star Charger collaborates with FamilyMart to deploy fast charging stations at convenience stores.

Star Charger and FamilyMart have entered into a charging station partnership agreement, planning to install 100 kW fast charging stations equipped with CCS1/CCS2 connectors. These connectors are compatible with the charging needs of most electric vehicle brands in the market. It is expected that the stations will be gradually launched in 10 stores during the first quarter of 2023.

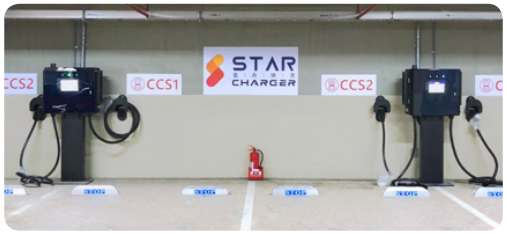
Through the collaboration with FamilyMart convenience stores, stable green energy will be provided by HDRE, while Star Charger will be responsible for the operation and service of the charging stations. This will enable electric vehicle owners who visit FamilyMart for their daily needs to fulfill their rapid charging needs while taking a moment to rest and enjoy a cup of coffee. In the future, HDRE also plans to expand collaborations with department stores, wholesale stores, parking lots, and other partners to further enhance the ecosystem of pure green energy charging.

In addition to the provision of charging point power supply service, HDRE plans to integrate LINE official account and provides charging points application program to users, including charging point station address search, charging and payment function, etc. We also plan to integrate the super charging in the TITAN smart green power system in order to assist the maintenance team to manage charging station timely.

Since the fiscal year 2022, a total of four sites with 12 charging stations have been established, and they are currently operational, serving as demonstration showcases. Plans are underway to collaborate with FamilyMart convenience stores, well-known retail stores, tourist attractions, major electric vehicle brands, and parking station operators. Charging stations will be strategically located based on consumer behavior and target customers. Furthermore, active participation in public tenders by various county and city governments is being pursued to expand market share in the charging station market.

・Information on the Charging Stations Established in the Fiscal Year 2022

Tainan Taisugar Shalun Smart Residence
7kW*2 Points, 30kW*2 Points



Taipei Shin Kong Skyscraper
17kW*5 Points

Taipei Tianmu Business Building (HDRE Headquarters) 30kW*1 Points

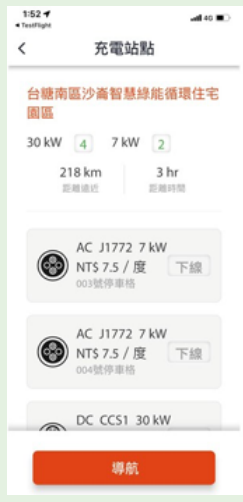
Nantou Cingjing National Guesthouse
17kW*2 Points

・Super Charging Cloud - Mobile Phone APP

Member Login Station

Site information

Backend Management



Future Plan

The initial goal of customers focuses on the people in the living circles of the six major cities, and the product strategy of Business to Business to Consumer (B2B2C) is adopted. We collaborate with parking lot owners of convenience stores, super markets, hotels and department stores, and conduct field assessment on the vehicle traffic volume, customer group pattern and business model. We also optimize the charging installation process, in order to provide the charging point services for slow charging of 7 kW / 17 kW and fast charging of 30 kW / 60 kW / 120 kW, thus satisfying the flexible charging demands of electric vehicles of the general public. Furthermore, we also follow the market trend. In view of the government's policy and electric vehicle development trend, we plan to develop the Business to Business (B2B) charging point market.

Short-term Goal

- Official launch of the Star Charger website.
- Development of 55 charging stations, with 27 stations operated.
- Introduction of Star Exchange charging options: 7 kW, 180 kW, and 360 kW.
- Establishment and promotion activities at the charging stations located in FamilyMart convenience stores.
- Marketing activities at the Qing Qing Grassland, Qi Zhangli, and Rui Jingxin charging stations.
- Press conference of the collaboration with parking lots
- Obtained bids for municipal parking lots.

Medium-term Goal

- Energy solution provider.
- Expect to accumulate 1000 units of charging station construction in 3 years.

Long-term Goal

- Energy sustainability, charging eco-friendly and environmental mutual benefits.

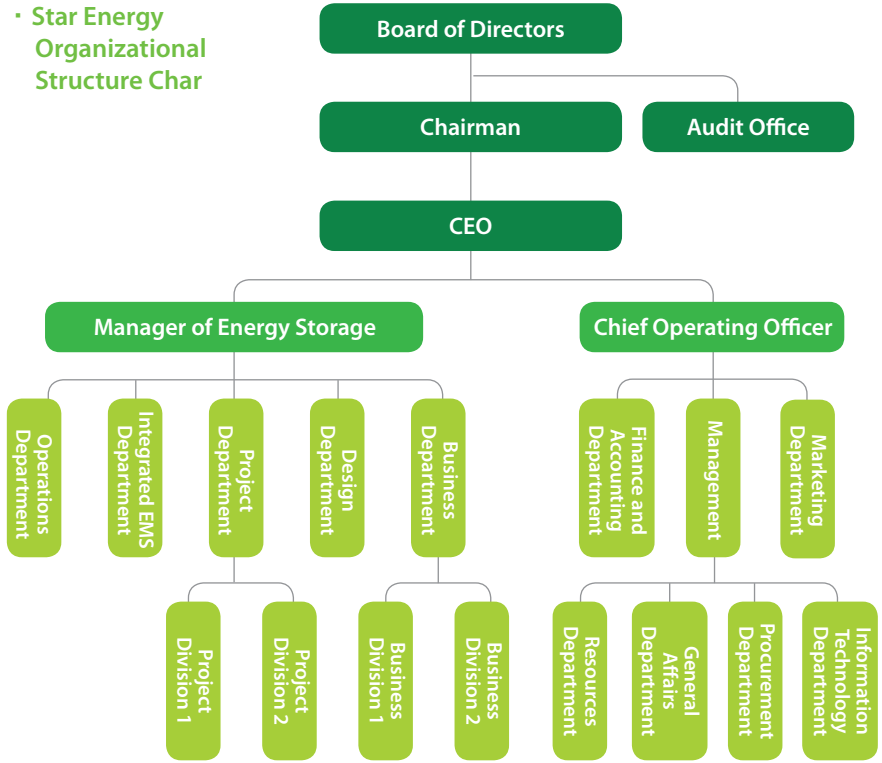
3.2.3 Star Energy Storage Solutions Electricity Grid for Energy Storage

Due to the inherent limitation of power generation time and weather condition factor, the power generation of green energy is unstable, and presently, companies cannot 100% rely on the green power as their sources of energy. In order to enhance the power supply of the electricity grid and enable flexible utilization of green energy, we plans to integrate energy storage systems in the future. To realize the concept of accessible smart green energy, HDRE established a subsidiary - Star Energy Storage Solutions in mid-2021. Star Energy focuses on the development of energy storage systems for the energy sector. Through core technologies such as system integration, localized energy software development, and system operation management, we aim to provide smart energy solutions that align with the goal of achieving net-zero emissions by 2050. We expect to complete energy storage resource above 500 MW for in-service operation in 2024. Through direct participation in the Taipower auxiliary service trading market, or assisting customers to participate in the Taipower auxiliary service trading market, the electricity supply of the power system can be stably maintained.

HDRE is planning to develop the TITAN Smart Green Energy System, which includes an Energy Storage Cloud to assist operators in monitoring the operation of energy storage sites. It provides information such as State of Charge (SOC), State of Health (SOH), voltage, current, temperature, and more. Through big data analysis, health diagnostics and preventive maintenance can be conducted, optimizing the operation of the system based on the collected data.

Furthermore, when there is a need for power dispatch in the power transportation sector, the status of the energy storage devices can be aggregated in real-time and participate in the Taipower's power trading bidding platform, to stable the power grid and to maintain the safe and stable operation of the power system. When power system is subject to accident, we are able to assist the power system to resume to normal power supply swiftly. With regard to the energy storage business, we will actively participate in the Taipower electricity trading platform, and our goal is to complete the construction of energy storage system above 500 MW in 2024, such that the overall energy planning covers the energy production, transmission, storage and management aspects. Currently, Star Energy plans to participate in auxiliary services using E-dReg and dReg to meet the requirements of frequency -regulation assistance of the Taiwan Power Company's trading market.

- Star Energy Organizational Structure Char



- Star Energy's Service Offerings

Modular Design

The capacity of battery modules can be flexibly designed according to different application scenarios.

Localized Software Development

Integration of localized product design, manufacturing, and warranty services. Customized energy management systems and control strategies are developed based on the latest system applications or electricity market rules.

Performance Warranty

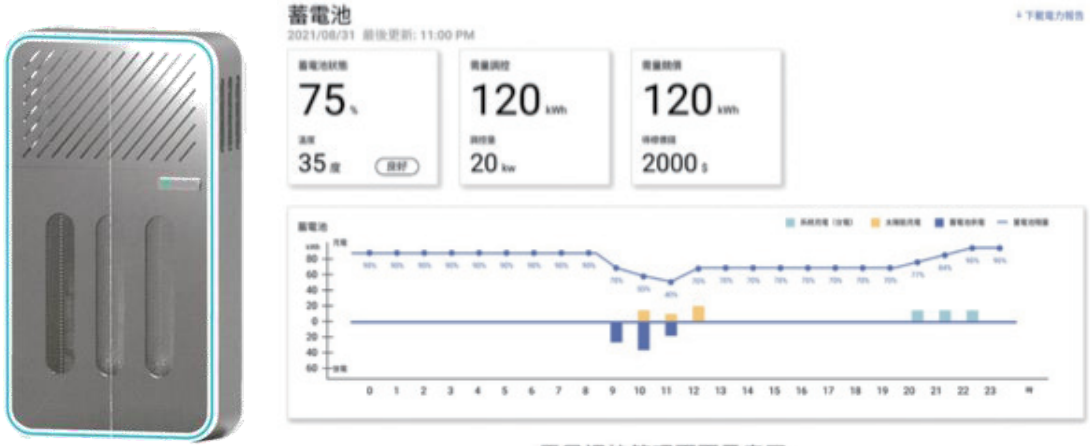
Long-term monitoring of battery health status and performance warranty based on planned charging and discharging operation modes.

Energy Storage System Building

In 2022, Star Energy has developed a total of 6 energy storage facilities throughout Taiwan, including both the main island and outlying islands. These facilities range in capacity from as large as 200MW to as small as 4MW. As of 2022, the cumulative installed capacity of these facilities has reached 483.5MW. Construction will be continued in 2022 and 2023, with the expectation of grid connection and operation starting in 2024. These facilities will be integrated into the Taipower grid to provide auxiliary services and assist in maintaining stable power output across the entire Taiwan region, in alignment with power dispatch requirements.

・Energy Storage Cloud - Energy Storage System Illustration

Introduce small energy storage to achieve field capacity demand management, and off-peak/ peak electricity adjustment



需量調控管理頁面示意圖

Future Plan

Location/Capacity of Energy Storage	2022 Achievement	2023 Target	Mid & Long-term Target
Tainan Liuying 200MW Energy Storage System Development	Development Completed	Construction in Progress	Expected Completion and Grid Connection in 2024, Participation in dReg Ancillary Services
Chiayi Shuishang 78MW Energy Storage System Development	Development Completed	Construction in Progress	Expected Completion and Grid Connection in 2024, Participation in E-dReg Ancillary Services
Taitung Chenggong 87MW Energy Storage System Development	Development Completed	Construction in Progress	Expected Completion and Grid Connection in 2024, Participation in E-dReg Ancillary Services
Taitung Fenggong 100MW Energy Storage System Development	Development Completed	Construction in Progress	Expected Completion and Grid Connection in 2024, Participation in E-dReg Ancillary Services
Penghu 10MW Energy Storage System Development	Development Completed	Construction in Progress	Expected Completion and Grid Connection in 2024, Participation in dReg Ancillary Services
Taitung Chenggong 4.5MW Energy Storage System Development	Development Completed	Completion and Grid Connection	Participation in dReg Ancillary Services
Tainan Liuying 4MW Energy Storage System Development	Development Completed Construction Completed	Completion and Grid Connection	Participation in dReg Ancillary Services

3.2.4 Star Aquaculture Fishery and Electricity Symbiosis

According to statistics from the Fisheries Agency of the Council of Agriculture, the number of fishing households decreased from 400,535 people in 2010 to 347,257 people in 2021, a decrease of approximately 13.30%. The aquaculture area also decreased from 36,158.53 hectares to 34,081.82 hectares, a decrease of approximately 5.74%. In recent years, the aquaculture industry has faced challenges such as climate change, rising labor costs, and labor shortages, resulting in a difficult situation for the industry. In response, the Council of Agriculture has proposed the Aquaculture White Paper, which includes six measures. One of the goals is to achieve a total installed capacity of 4 GW for land-based aquaculture photovoltaic systems by 2025, equivalent to about 10,000 hectares of fish ponds in Taiwan, accounting for one-fourth of the total pond area in the country. The promotion of aquaculture photovoltaic systems not only helps preserve agricultural land but also optimizes aquaculture practices, promotes green energy, and revitalizes local industries, creating a win-win situation.

In line with the national energy transition policy, HDRE established a subsidiary called Star Aquaculture in May 2022, specializing in the management of aquaculture photovoltaic systems. Star Aquaculture primarily develops aquaculture ponds in the southwestern coastal areas, such as Qigu in Tainan and Budai in Chiayi. In the second half of 2022, demonstration sites in collaboration with the Fisheries Research Institute of the Council of Agriculture were established in Tainan, focusing on the cultivation of clams, white shrimp, and barramundi, with expected harvests in the second quarter of 2023. Another aquaculture photovoltaic system project in Qigu, Tainan, with an installed capacity of 42.6 MW, commenced in the second half of 2022 and is expected to be completed in March 2023.

Vertical Integration of Fishery-Electricity Symbiosis

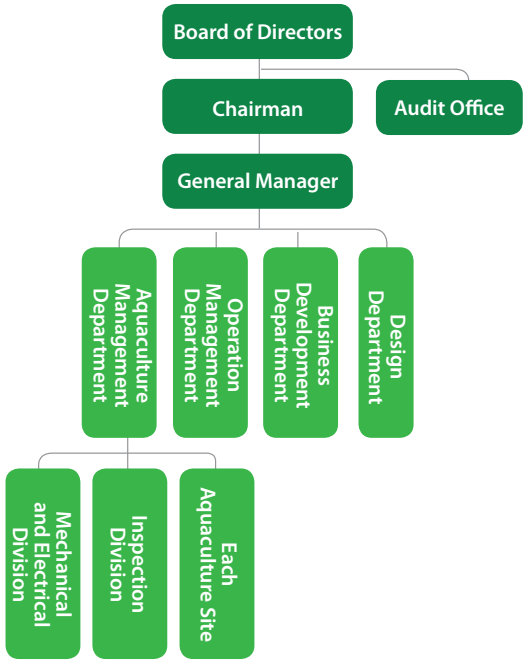
Star Aquaculture's development sites are primarily fish ponds owned by elderly landowners or fish farmers without successors. In collaboration with the development and engineering design teams, the entire site is carefully planned. The land is leveled, and the embankments are reinforced to ensure proper water drainage. Once the modules and related power generation equipment are installed, Star Aquaculture takes over the management of the aquaculture operations. Before releasing the fingerlings, we prioritize water quality cultivation. The cultivated species are based on the original local breeds. The entire process, from fingerling cultivation to harvest, can take from six months to one year. We establish production and sales records, carbon footprints, and water footprints, allowing consumers to trace the origin of the products and the resources consumed throughout the supply chain.

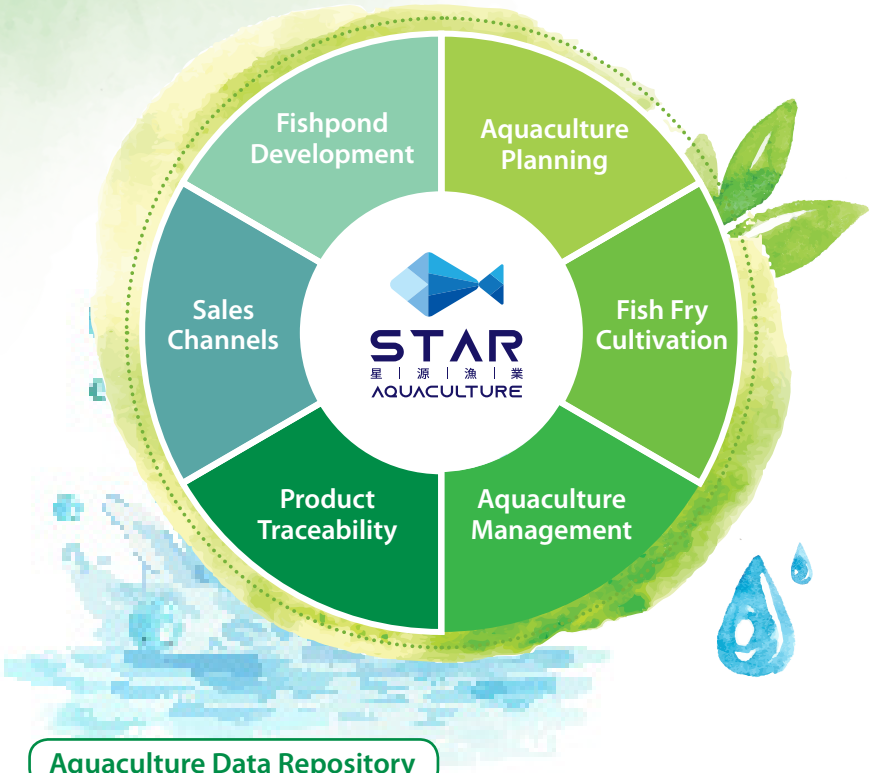
During the planning phase of the site development, waterways are a crucial factor. We refrain from extracting groundwater and instead rely on lagoons, surrounding channels, and the preservation of existing water routes. We reinforce the foundation of the original fish farms without causing damage. We also enhance the shoreline with the integration of power generation equipment, improving the planning of access routes and electrical arrangements to facilitate farming operations and harvest activities.

We prioritize the recruitment of local fish farmers, in alignment with our company's aquaculture management policies. This not only increases local employment opportunities but also enables us to provide professional guidance in aquaculture operations. Additionally, the installation of shading structures on the modules provides an extra layer of protection, shielding the aquaculture process from direct exposure to harsh weather conditions and temperature fluctuations.

Our focus goes beyond aquaculture itself. We center our efforts around aquaculture while considering the local environment, enhancing operational processes, and meeting the diverse needs of species cultivation. We adhere to the principles of low-density aquaculture, employing biotechnology methods and probiotics to maintain a safe and eco-friendly farming environment. Our dedication extends to the land, the people, and all forms of life involved.

- **Star Aquaculture Organizational Structure Chart**





Aquaculture Data Repository

By recording daily data such as feed input, dissolved oxygen level, water temperature, transparency, pH level, salinity, nitrogen, ammonia, nitrite, etc., the long-term (6 months to 1 year) feeding logs and recorded data become valuable assets for Star Aquaculture in establishing an aquaculture management big data system. It also serves as a foundation for further development of intelligent aquaculture management. By incorporating climate prediction and monitoring information, Star Aquaculture can automatically adjust feed materials and seedling placement, as well as manage and monitor water quality. Step by step, Star Aquaculture is moving towards automated intelligent aquaculture management, combining the expertise of its aquaculture team, modern technology, and establishing streamlined sales channels. By integrating traditional aquaculture knowledge and leveraging modern technology, Star Aquaculture not only ensures better fish harvests but also enables precise evaluation of financial models and investment returns.

· Real-time Monitoring Dashboard for Aquaculture Farm

· Star Aquaculture's Service Offerings

Fishery Planning	Management Approach	• Existing fish farmers • In-house aquaculture team • Outsourced aquaculture
	Environmental Assessment	• Climate, water sources, water quality, soil conditions
	Fish Pond Design	• Planning of farming area • Selection of suitable species based on market demand and water quality conditions
Smart Aquaculture	Dispatch System	• Real-time abnormality reporting
	Monitoring System	• Monitoring instruments • Data analysis • Dashboard management
	Prediction System	• Weather forecasting • Heavy rain forecasting • Cold wave alerts
	Aquaculture Traceability	• ERP system • Collection, aggregation, recording, and calculation of carbon footprint • Ensuring sustainability in every aspect
Sales Channels		• Primary processing of fish farm harvest • Collaboration with seafood retailers to ensure efficient seafood distribution

‧ 2022 Training Course

Course Name	Description
Greenhouse Gas ISO Series	• ISO 14064-1 Organizational Level Verification Operations • ISO 9001 Quality Management System • ISO 45001 Occupation Health and Safety Management System
Pre-release Operation	• Stocking Plan and Stocking Quantity Estimation • Farm Design and Planning Operations • Aquaculture Equipment and Material Procurement Practices
Disease Prevention and Control	Bacterial Diseases, Viral Diseases and Prevention of Diseases in Clams and Shrimp
Fish-Electricity Symbiosis Regulations	• Application for Aquaculture Permit and Reporting of Stocking Activities • Maintenance of Traceability Good Aquaculture Practices (TGAP) 3.0
Daily Aquaculture Management	• Water Treatment Mechanisms and Material Usage • Fisheries Counseling and Education Training • Introduction to SQL & Python Integrated Applications
Daily Aquaculture Management	• Key Points and Considerations in Farm Management • On-site Operation and Maintenance of Mechanical and Electrical Equipment • Inventory Management and Operational Practices
Farm Planning	Farm Distribution and Aquaculture Planning Introduction
Daily Aquaculture Management	• Operation of Water Quality Measurement Instruments • Calibration and Maintenance of Water Quality Measurement Instruments and Sensor Units • External Training and Certification Course - Practical Operation of Forklifts

Future Plan

Star Aquaculture has already been in talks with sales channels for cooperation. It is expected that in the second quarter of 2023, the first batch of fish products will be harvested from the demonstration aquaculture site of the Fisheries Research Institute. Subsequently, primary processing of fishery products will be carried out in collaboration with seafood fresh suppliers, and a traceability system will be established to ensure the safety of the consumed products. In addition to establishing traceability records related to aquaculture, carbon footprint and water footprint will also be recorded to monitor the resource consumption during the cultivation process and optimize energy consumption.

The development and management of the fishing grounds and aquaculture are actively seeking the participation of local aqua culturists to inherit their knowledge and move towards intelligent operations. The Yan Duck Ecological Reserve, preserved in the Qigu Fishery and Solar Power Generation Demonstration Site, will be integrated with the aquaculture site and planned for educational purposes in ecological conservation.

‧ Highlight Achievement in 2022

First Fisheries Taiwan Team Building a Win-Win Model for Fish-Electricity Symbiosis Production and Sales

HDRE Consortium, with 40 years of aquaculture experience, has established a professional water quality and fish species laboratory and obtained relevant permits for fish ponds. HDRE is committed to creating the 'Fisheries Taiwan Team,' not only forming the professional aquaculture team of Star Aquaculture Fisheries but also integrating the industry chain of fish pond development, aquaculture design, fish fry cultivation, and cultivation to harvest. It has also invited multiple seafood channels to establish strategic alliances, realizing the strategy of integrated production and sales, and seizing opportunities in both power generation and fishery.

The government demonstration project of fish-electricity symbiosis, in cooperation with the Fisheries Research Institute of the Council of Agriculture, has been completed in July 2022. In August 2022, it officially began stocking and cultivating clams. It is projected to provide 1 MW of green energy in the first year, and the first batch of clams is expected to be harvested in the second quarter of 2023, becoming a pioneer in the development of fish-electricity symbiosis.

3.3 Strengthen Sustainable Value Chain

Meaning of Material Topic: Product Quality and Responsibility

Positive impacts (opportunities) on the economy, environment, and society

Promote economic circularity, enhance environmental energy efficiency, and effectively reduce the impact on the environment. Ensure quality and minimize environmental effects during the construction process to avoid environmental impacts during the subsequent power generation phase. Increase customer satisfaction and create more opportunities for benefits.

Potential negative impacts (risks) on the economy, environment, and population

- If the construction quality is not properly managed during the construction period, such as causing soil loosening, it may lead to soil liquefaction or pose risks to personnel operations.
- If environmental cleaning is not conducted, such as vehicles leaving the site without cleaning their tires, it may result in ground pollution or generate nearby dust pollution.

2022 Resource Allocation

1. Conduct meetings with contractors prior to construction to discuss and provide guidelines on quality, environmental, safety, and health issues that must be followed.
2. Enhance environmental cleanliness during construction at the site (e.g., regular water spraying with water trucks in the morning and evening) and maintain construction quality. Keep records of inspections and checkpoints.

Strategy and Goal

Policy and commitment regarding product quality and responsibility of HDRE

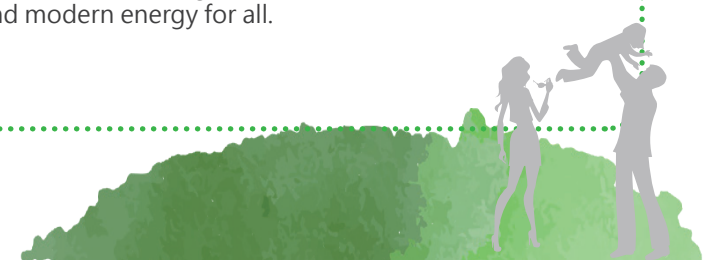
1. We place great importance on product quality and emphasize long-term, systematic planning. We firmly embed sustainability principles within our organization and are dedicated to providing intelligent green energy services and engaging in green energy development that positively affects both society and the environment.
2. Obtain the quality management system verification certificate to ensure the quality management ability of the site.

Short-term Goal (Within 1 Year)

1. Regulate 8 quality supervisions and measurements to reach KPI (Key Performance indicator), and regularly review and adjust.
2. In response to the company's operations and the development of subsidiaries, the performance evaluation of suppliers, contractors, etc. is extended to subsidiaries to ensure quality management capabilities and performance .
3. Maintain zero major quality abnormalities and environmental pollution.
4. Maintain customer satisfaction over 90%.

Mid & Long-term Goal (Within 3-5 Year)

We strive to maintain excellent product quality and contribute to the development of smart grids, in line with the goal of achieving "Smarter Energy, Accessible Green" Our aim is to support SDG 7, which focuses on ensuring access to affordable, reliable, sustainable, and modern energy for all.



3.3.1 Project Management and Progress Advancement

HDRE ensures that each power plant meets regulatory requirements and the demands of our clients and company after completion and grid connection, we have dedicated departments and teams at each stage to monitor project quality and progress. In 2022, our company obtained ISO 9001 certification for quality management systems, covering both office and project sites. We are gradually implementing quality management practices and executing ISO 14064-1 to assess significant carbon emissions and develop subsequent management and control measures. We have established a supervision and measurement checklist, defined four major quality dimensions, and included the performance and improvement points in the annual management review report. These matters are discussed in the annual management review meeting, where monthly reports and management plans are consolidated and reviewed for improvement. In planning for the year 2023, HDRE is also taking steps to implement and obtain ISO 9001 certification for quality management systems.

Our goal is to ensure that every project, from development and construction to operation, is completed on time and operates smoothly, meeting the expectations of our customers and contributing to the nation and the planet's net-zero carbon emission efforts. We are committed to upholding our "Smarter Energy, Accessible Green" philosophy throughout the entire process.

- **ISO 9001:2015 QUALITY MANAGEMENT SYSTEM**


bsi.
Certificate of Registration
QUALITY MANAGEMENT SYSTEM - ISO 9001:2015
..making excellence a habit.

- **Field Quality Management for Field Construction and Installation**

01 Construction Planning

Verifications of drawings, materials, proposals, and construction safety and quality management plan.

(1) After the field plan is finalized, the Project Division then submits relevant plan documents of each construction to the Engineering Department. The head of Engineering Department assigns the person who shall be in charge of the site, quality and environmental safety and health respectively.

(2) The Project Division shall specify the quality standard during the pre-construction meeting, and shall also request the Engineering Division to fill out the "Construction Safety and Quality Management Plan" and to output the"Construction Quality Key Point Checklist" for submission to the field supervisor.

02 Construction Execution and Autonomous Inspection

Drawing review, material management, Self-inspection of construction quality, construction process review and doubt resolution

(1) During the execution of works of a project, the contractor must fill out daily construction logbook and submit to the dedicated personnel for handling, in order to control the construction progress and quality. If there is any major abnormality during the execution process, the "corrective action request form" shall be filled out, and relevant handling report and documents must be preserved.

(2) The person in charge shall assign quality control or supervisor, and the contractor is requested to perform inspection according to the "Sub-item Construction Autonomous inspection Form." After the completion of each work, quality acceptance shall be performed respectively.

03 Construction Acceptance and Abnormality Handling

Acceptance, construction completion drawings correction and deficiency improvement

(1) Customer and contractor acceptance: After the construction is complete, acceptance is performed according to the customer's request, and "Acceptance Record Form" is issued, following which the person in charge of the field assigns supervision personnel to perform coordination and follow-up. After acceptance is complete, it is recorded in the acceptance record form or acceptance record is issued by a third party. In addition, dedicate personnel will summarize and confirm the documents in order to close the case. In case where there is any issue in the acceptance, assistance is provided after discussion with the customer, in order to ensure that all issues have been resolved and customer's requests are satisfied.

(2) Review by government agency: In addition to the acceptance by the contractor and customer, after a solar photovoltaic field construction is complete, grid-connection trial operation is applied with Taipower, and electricity quality measurement is performed, in order to ensure that the power supply quality satisfies the requirements. After the review and test are qualified, grid-connection can then be made.

04 Construction Execution Identification and Tracking

Preserve documents and provide to relevant personnel for subsequent identification, and track project management

After a project is closed, documents generated during the construction project process are summarized. All documents of survey reports, records, test reports and contracts must be preserved as electronic files and paper format in order. to be used as the basis for identifying and tracking the construction execution and service process. In addition, the following documents are submitted to the Asset Management Division:

(1) Construction completion drawings

(2) Equipment catalogue

(3) Operation manual

(4) Subcontractor (labor) contract

(5) Approval documents of each stage

(6) Acceptance record

3.3.2 Source Tracking Management and Procurement Policy

Procurement Management

During the purchase of raw materials, HDRE ensures that all construction materials comply with the material related test requirements, and a fixed quantity of samples are randomly selected for submission to the ISO certified laboratory for quality inspection. To prevent the risk of material supply interruption due to raw material shortage and overly centralized purchase from one single supplier, we adopt common specifications for raw materials as much as possible in order to increase the replaceability of raw materials. Even though they are different brands, the prices are within the same range, and would be increasing interchangeability and being less affected by price variations. Purchase of raw materials and equipment overseas may be subject to port congestion such that the product supply stability can be affected. Accordingly, we plan the temporary storage area to allow suppliers to deliver materials early. That can make sure the source and the raw material quality are stable from suppliers. We also introduce alternative materials or equipment from different countries to allow diversified sourcing and reduces dependence on a single procurement location. As for the purchase price, due to the demand over supply of materials, the risks of raw material price increase and potential material shortage exist. Accordingly, we use common materials and order materials early, in order to achieve price targeting and to reduce the impact of price fluctuation.

During the purchase of each raw material, we assess the purchase strategy according to the material characteristics. For materials of high cost ratio, well-known domestic suppliers and foreign first-class suppliers are evaluated. After the quality, performance and service aspects of suppliers are considered, the most competitive supplier is selected for cooperation. For converters, which are the core of field electromechanical equipment in fields, major manufacturers and equipment models with stable quality are selected as the priority cooperation partners, and other equipment is mainly from domestic suppliers with high quality, stable delivery and good service.

- Purchased Item and Expanse in 2022

Type	Number of Suppliers	Procurement Amount (NT$100 million)	Procurement Ratio
Solar modules	5	9.73	30.16%
Field peripherals and other relevant materials and equipment (except modules)	67	11.26	34.91%
Construction labor	30	11.25	34.87%
charger	1	0.02	0.06%

Local Procurement

In order to implement local procurement and prioritize supply chain localization, we aim to improve the service efficiency of suppliers, shorten lead times, reduce the transportation distance of raw materials, and lower carbon emissions. With a focus on quality and competitive pricing, we give priority to local procurement from Taiwanese suppliers, while also creating local employment opportunities to promote socio-economic development. Furthermore, suppliers that have been assessed and certified with ISO 9001 Quality Management System, ISO 14001 Environmental Management System, or ISO 45001 Occupational Health and Safety Management System will receive higher ratings. The local procurement amount in 2022 has slightly increased compared to the previous year, but due to the competitive performance of overseas suppliers in terms of supply capacity, the overall proportion of overseas procurement has increased, resulting in a decrease in the proportion of local procurement.

- Local Procurement Amount and Ratio in Last Three Years

	2020	2021	2022
Local Procurement [Note 1] Total Amount	2.0274 billion	1.8182 billion	1.9589 billion
Total purchase amount	2.0510 billion	1.9288 billion	3.2283 billion
Proportion of local procurement	98.85%	94.27%	60.68%

Note 1: The local procurement refers to that the material or equipment purchased is designed, manufactured and assembled by Taiwanese companies, or the parts of the aforementioned process is performed by Taiwanese companies, excluding suppliers that act as agencies in Taiwan for distribution and sale of products only.

- **Procurement Amount and Ratio with ISO Certification in Last Three Years**

Certification Type	2020	2021	2022	Percentage of total procurement
Procurement amount of suppliers comply with ISO 9001	814.8 million	520.3 million	727 million	25%
Procurement amount of suppliers comply with ISO 14001	648.7 million	382.0 million	853 million	20%
Procurement amount of suppliers comply with ISO 45001	614.8 million	382.0 million	703 million	19%

Green Procurement

In 2022, HDRE introduced the "Green Procurement Policy," incorporating environmental and social performance into the procurement decision-making process. It focuses on global environmental protection issues and strives to influence the upstream and downstream supply chain partners. Priority is given to procuring green products and services, supporting environmentally friendly design products. During material procurement at construction sites, environmentally friendly materials are used. To achieve the reuse of raw materials, steel templates that can be reused are used instead of single-use wooden templates. Inverters are also directly installed in the transformer box, reducing the use of cabinets and lowering costs. During the construction of the Penghu project, suppliers were required to handle the transportation of construction materials and tools individually. HDRE coordinated and consolidated the transportation, reducing carbon emissions and transportation costs in the construction process. Furthermore, the electrical wire routing is optimized during project planning to minimize the use of wiring materials.

In terms of office supplies, HDRE seeks environmentally friendly options. For example, it uses ReTissue, a sanitary tissue made from recycled paper pulp, and collaborates with international tree planting associations for the "Tree Planting Edition" recycled sanitary paper. This not only contributes to reforestation but also provides local job opportunities to address poverty issues. The company has also replaced its official vehicles with electric cars instead of fuel-powered vehicles to reduce carbon emissions. All office lights have been replaced with LED lights, and priority is given to purchasing products with green environmental labels or energy efficiency ratings, as well as avoiding products with excessive packaging. HDRE also promotes the reuse of resources and the recycling of reusable materials.

Green Procurement Policy

1. Products and services that meet the definition of green procurement should include, but are not limited to: "low energy consumption (with energy-saving/environmental labels), low pollution, use of recycled materials, recyclability, and green building materials."
2. HDRE declares its green procurement policy to suppliers and prioritizes the purchase of green products. Products or services should strive to achieve various environmental and energy-saving effects. Consideration is given to environmental issues, long-term energy-saving and carbon reduction plans, and future environmental strategies in the extraction of raw materials, production, and development of new equipment. The possibility of sustainable cooperation with suppliers is regularly evaluated, and environmental aspects are included in supplier performance assessments.
3. Preference is given to environmentally friendly office facilities, decorations, and consumables, while avoiding the purchase of excessively packaged products. Promote the reuse of resources and the recycling of reusable materials. The selection of equipment or appliances prioritizes products with green environmental labels or energy efficiency ratings. Engineering projects primarily choose products from vendors who share the ESG philosophy.
4. HDRE actively implements green operational policies from within. The company continuously promotes environmental education through action plans, strongly advocates the concept of green procurement, and regularly evaluates the group's green procurement performance.

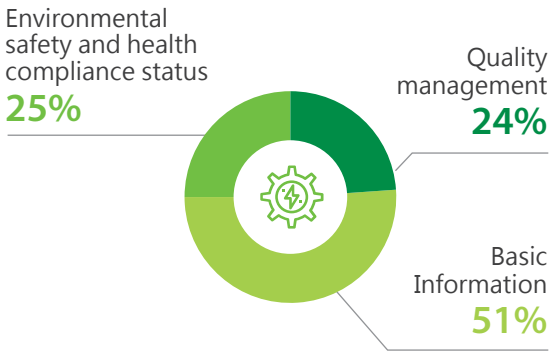
PackAge+ Trees for the Future Plan

3.3.3 Supplier Management & Quality Monitoring

HDRE evaluates and selects quality cooperating partners based on the breadth of international supply chain. Through periodic evaluation system and continuous communication and cooperation, we establish long-term cooperating partnership with suppliers. In addition, suppliers provide products and services of high quality to HDRE based on the stable supply chain cooperation. In addition to the establishment of a sustainable supply chain, to cope with the low-carbon supply chain trend in the future, we plan to include the sustainability topic factor in relevant procurement consideration, and request suppliers to actively adopt carbon reduction strategies in order to achieve carbon neutral by the supply chain.

Supplier and Contractor Selection Determination

HDRE prioritizes selecting vendors based on their competitiveness while maintaining high-quality standards. Prior to procurement, relevant departments collaborate with vendors to discuss and plan procurement specifications. Vendors are evaluated based on their product quality and excellent service to ensure the introduction of qualified procurement. Regular assessments are conducted annually to ensure the quality of the supplied goods and to monitor vendors' integrity and continuous improvement. Vendors with certifications such as ISO 9001 Quality Management System, ISO 14001 Environmental Management System, or ISO 45001 Occupational Health and Safety Management System may receive higher ratings.



▪ Supplier Management and Evaluation Mechanism

Management Sector	Raw Material Purchase Supplier	Field Contractor	Construction Completion And Field Maintenance
Procedure	Supplier management procedure	• Contractor management procedure • Design Management Procedure • Project management procedure • Engineering Planning and Execution, Acceptance Management Procedure • Material Inspection and Storage Management Procedure	• Project management procedure • Construction planning and acceptance management procedure
Document	Supplier periodic evaluation form	• Contractor periodic evaluation form • Corrective action request form • Sub-item Self-Inspection Checklist • Construction Safety and Quality Management Plan • Procurement Inspection Specifications & Factory Inspection Record Form • Occupational Health and Safety Work Guidelines	• Construction completion report • First acceptance inspection record • Recheck improvement record • Maintenance quarterly report

▪ Supplier and Contractor Selection Determination Criteria

Sector	Item	Ratio	Management Policy
Quality management	Product standard, technology capability	24%	The quality management of suppliers and contractors are verified according to the delivery quality abnormality handling of the actual field and the periodic evaluation of suppliers and contractors. In case where the evaluation is disqualified, and no improvement is made after communication and guidance, such supplier is classified as disqualified supplier, and cooperation is terminated.
Basic Information	Company type, capital, delivery capability, price standard, support service, workforce allocation	51%	
Environmental safety and health compliance status	Quality certificates, environmental management ratings	25%	For cooperating contractors, the following documents are signed first, and irregular audit is performed during the construction period, in order to ensure the environment safety and health performance of contractors. (1) Contractor safety and health undertaking (2) Notification for contractor violating safety and health regulations (3) Notice for joint prevention of occupational accidents

· Supplier And Contractor Selection Results For 2022

Distribution of Scores	Numbers of Supplier & Conductor
Priority Suppliers (85 points and above)	16
Recommended for Cooperation (84-75 points)	18
Can Be Improved (74-70 points)	4
Not Qualified (69 points and below)	0

· Initial Screening Results Of The 2022 Environmental, Health, And Safety Management Questionnaire For Suppliers And Contractors

Distribution of Scores	Numbers of Supplier & Conductor
Grade A: Good (81 points and above)	30
Grade B: Meeting Requirements (80-61 points)	8
Grade C: Need Improvement (60 points and below)	0

· Environmental & Social Evaluation of Suppliers

Environmental Evaluation

- Suppliers shall comply with all relevant domestic environmental laws and regulations.
- Suppliers shall manage and reduce impacts of operation and manufacturing process on the environment. The key points include greenhouse gas emissions, waste emissions, recycle and management, water resource use, biodiversity, etc.
- Relevant raw materials of suppliers shall be traceable materials, and certification and inspection shall be performed periodically to ensure that they are legal without violating the HDRE's energy regulations and management objectives., including the assessment of procurement with energy label.
- Suppliers shall be equipped with facilities and environmental permit for water and waste treatment.
- Determine whether any supplier is subject to the record of nonconforming with inspection of environmental protection competent authority and its subsequent response method.

Social Evaluation

- Basic ethics:

  Suppliers are expected to comply with the Ethical Corporate Management Best Practice Principles established by HDRE and to promote sustainable operation jointly.
- Human rights:

  (1) Suppliers shall not use any child labor or involuntary labor.

  (2) Suppliers shall ensure that the employee wage complies with the minimum wage specified in the law.
- Working environment:

  (1) Suppliers shall comply with all domestic and labor safety, health related laws and regulations.

  (2) Suppliers shall provide employees education, training and guidance related to their jobs, and shall establish appropriate preventive measures and accident handling regulations.

To effectively manage and timely understand the supply chain status, we categorize and classify suppliers. According to the evaluation result, we expand the cooperation opportunity with quality suppliers. For suppliers of poor evaluation result and having deficiencies, we request such suppliers to improve, and evaluate whether cooperation is to be continued according to the improvement result.

In 2021, HDRE established new supplier evaluation criteria and expanded the evaluation to include contractors in 2022. In 2022, a total of 38 suppliers and contractors were assessed based on these evaluation criteria. All 38 suppliers met the standards and demonstrated good performance in three major evaluation aspects: basic information, compliance with environmental, health and safety regulations, and quality management. No major non-compliance issues were identified. For suppliers and contractors that scored between 74 to 70, improvement will be required and communicated regarding areas of deficiency. Cooperation with these entities will be determined based on the results of the improvement measures.

Supplier and Contractor Evaluation

We conduct regular evaluations to identify high-risk suppliers and establish a two-way communication channel with them. This approach helps mitigate the risk of supply chain disruption and enables long-term collaboration with promising vendors. Based on the evaluation results, HDRE expands cooperation with high-quality suppliers. However, suppliers that do not meet our quality requirements, even after continuous communication and guidance, may be classified as disqualified vendors and will no longer be engaged in future collaborations.

In 2022, we conducted regular evaluations for existing vendors at project sites (9 suppliers and 9 contractors). Among them, one vendor scored within the range of 79 to 70 points, triggering a re-evaluation. If a vendor undergoes re-evaluation twice consecutively, they will be treated similarly to disqualified vendors. Overall, all vendors evaluated in 2022 achieved scores of 70 points or above, meeting the qualification criteria for suppliers and contractors.

Supplier	Contractors
Evaluation Items	Evaluation Items
Shipping record, quality abnormality record, product test or test report record, cooperation level, supplier advantages	Construction quality, cooperation level, quality abnormality handling capability, safety and health management, construction progress and delivery, drawing identification ability, construction method coordination, price competitiveness, construction progress and delivery, cooperation level

Distribution of Scores	Regular Supplier Evaluation
Qualified (80 points or above)	8
Re-evaluation (79-70 points)	1
Disqualified (69 points or below)	0

Distribution of Scores	Regular Contractor Evaluation
Qualified (80 points or above)	9
Re-evaluation (79-70 points)	0
Disqualified (69 points or below)	0

3.3.4 Customer Satisfaction at HDRE Services

In 2022, HDRE conducted a customer satisfaction survey among clients involved in project development and construction, asset management, and green energy sales. The annual satisfaction survey serves as an important basis for HDRE's continuous improvement of products and services. We value customer feedback and strive to build trust and meet customer needs through two-way communication.

The satisfaction survey questionnaire covers five key areas: customer service, professional competence, quality, delivery, and overall evaluation. We gather feedback on service quality from customers. After compiling and analyzing the survey results, we engage in further communication and understanding with customers regarding areas of dissatisfaction, and make adjustments to improve service quality accordingly. We highly value customer privacy and intellectual property rights for data collected from clients. All data collection, storage, and processing are conducted in accordance with the law. In 2022, there were no incidents of privacy infringement or complaints regarding the loss of customer data.

Business Development

The entire process of project development, from self-assessment and land lease contract signing to installation application, project execution, and grid connection operation, is jointly carried out by our front-end business and engineering teams in collaboration with clients. The successful establishment of a power plant requires coordinated efforts and collaboration among the HDRE team, with subsequent operation and management tasks handled by our maintenance team. The challenges and difficulties faced during the initial development phase are all part of HDRE's mission to promote green energy. The efforts put into these aspects can be understood through customer satisfaction surveys, as we strive to meet and exceed our clients' expectations.

In 2022, we conducted a satisfaction survey among our business clients, and a total of 16 questionnaires were collected. The overall average rating was 4.3 out of 5. The areas of dissatisfaction mentioned in the survey mainly revolved around the lengthy process of submitting documents to government agencies. We have addressed these concerns by providing further explanations to our clients and strengthening communication with local government departments to prevent project delays.

Composition	Survey Method and Frequency
Project Development & Engineering Services	Through paper-based questionnaire surveys, we conduct an annual customer satisfaction survey for clients involved in HDRE's development and construction of project sites.

▪ **Customer Satisfaction Evaluation Items**

Customer Service
- Personnel response is made promptly
- Problem solving skill is adequate
- Response attitude is proper

Professional Competencies
- The professionalism of our engineering personnel is excellent

Management Quality
- The engineering quality is excellent.
- The execution method is excellent.
- The overall functionality is excellent.

Delivery
- The accuracy of completion time is precise.
- It meets the scheduled acceptance date.
- The construction process meets the requirements.

Comprehensive Comments
- Overall satisfaction with this order.
- Overall satisfaction with the engineering services.

Asset Operation Management and Post-Investment Management

The operation of assets can affect the overall performance; therefore, equipment operation management and financial analysis are key objectives of the Asset Management Division. The platform customer financial model is used as the field performance target, and the management asset status and capital activities and reports are tracked according to the internal field management regulations and on a daily, weekly and monthly basis, along with the submission of operation report to track major matters quarterly, in order to increase the customer satisfaction.

The results of the 2022 customer satisfaction survey revealed an overall average rating of 4.8 out of 5. The findings from this satisfaction survey demonstrate that customers highly appreciate and are satisfied with HDRE's maintenance team in terms of customer service, professional competence, quality, and operational management.

Composition	Survey Method and Frequency
Asset operation management and post-investment management	Perform paper questionnaire survey, and conduct one time of satisfaction questionnaire survey on shareholders annually.

▪ **Customer Satisfaction Evaluation Items**

Customer Service
- Personnel response is made promptly
- Problem solving skill is adequate
- Response attitude is proper

Professional Competencies
- Professionalism of administrative management is adequate
- Professionalism for financial/taxation management is adequate
- Professionalism of consulting on site-related technical matters is adequate

Management Quality
- Administrative management service is good
- Meeting schedule and proposal content is proper
- Post-investment management overall performance is good

Operational Performance Quality
- Provide account settlement report complying with time-limit specified
- Provide management performance report within predefined time-limit

Overall Evaluation
- Provide prompt response to relevant management questions
- Satisfaction on the asset management service of current year

Green Energy Wheeling Service

Establish the green electricity sales management process of the Company, match the green power supply and customer demands, provide excellent service to green power customers. Customer satisfaction surveys are issued to current customers purchasing green power annually, and the questionnaire type of survey is adopted to collect feedbacks. After the surveys are collected, the quality management unit then statistically analyzes and reports during the management review meeting. In addition, the power consumption status of all customers for the last month is statically analyzed on a monthly basis. In addition, for customers with difference between the actual power consumption and the expected power consumption exceeding more than 20%, power consumption status report is prepared in order to analyze the power consumption difference cause and to propose improvement recommendations. The performance is tracked in the following month to determine whether improvement has been made, in order to satisfy the power consumption demands of customers timely.

In 2022, as Star Exchange was established at its inception, we collected a total of 1 questionnaire, which received an average rating of 4.6 out of 5. We aim to expand our services in the field of smart power in terms of breadth and depth in the future, in order to continuously meet customer needs and receive feedback and recognition from our clients.

Composition	Survey Method and Frequency
Green Power Wheeling Service	Perform paper questionnaire survey, and conduct one time of satisfaction questionnaire survey on current customers purchasing green power annually.

- **Customer Satisfaction Evaluation Items**

Customer Service
- Response of salesperson is made promptly
- Problem solving skill is adequate
- Response attitude of salesperson is proper

Professional Competencies
- Professionalism for inquiries on renewable energy sales is adequate
- Professionalism of power analysis is adequate

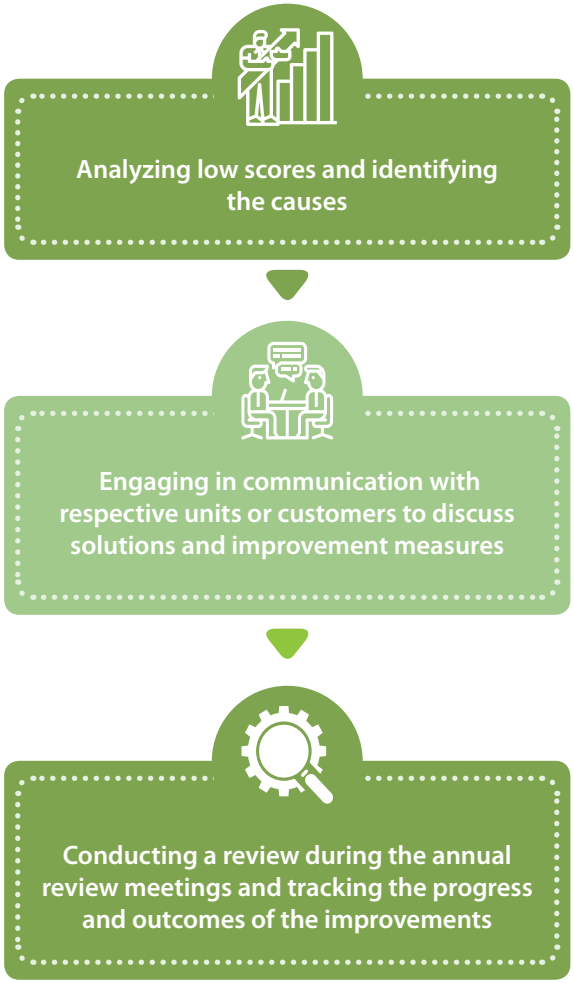
Quality
- Power wheeling quality is stable
- Overall functionality is good

Delivery
- Satisfy the predefined power wheeling date

Comprehensive Comments
- Overall satisfaction on the present order
- Overall satisfaction on the service

Customer Satisfaction Improvement Process

HDRE values the feedback and opinions of stakeholders. After the customer satisfaction survey, we engage in communication and discussions regarding areas with lower scores and propose solutions. These issues are then tracked and reviewed during the annual review meetings.



04

Sustainable Environment and Clean Energy

Core Vision and Commitment

As the global climate change and extreme weather becomes more prominent, we deeply understand the importance between energy management and sustainable development. We look froward to improving energy efficiency and using renewable energies to accelerate the clean energy planning. We consider various aspects of the impact of climate change on the business operation, in response to the environmental related policies of our nation and the concept of sustainability of the World Commission on Environment and Development (WCED). The concept refers to "development that meets the needs of the present generation without compromising the ability of future generations to meet their needs". Accordingly, we focus on "HDRE Sustainable Development Policy" to establish eco-friendly energy policy in terms of the environmental aspect, thus achieving the goal of "promoting circular economy, improving environmental energy performance, and reducing environmental impact effectively". We are committed to the direction of low-carbon operation and implementing corporate sustainable development.

▪ 2022 Outcomes and Performance

1. The Taipei headquarters utilizes **100%** green energy.
2. Implementation of **TCFD** (Task Force on Climate-related Financial Disclosures) for climate-related financial disclosures.
3. A reduction of **3.79%** in greenhouse gas emissions compared to the previous year.
4. **0** environmental regulation violations reported.
5. **91%** of participating colleagues found the employee eco-tour to be a rewarding activity.

4.1 TCFD (Task Force on Climate-related Financial Disclosures)

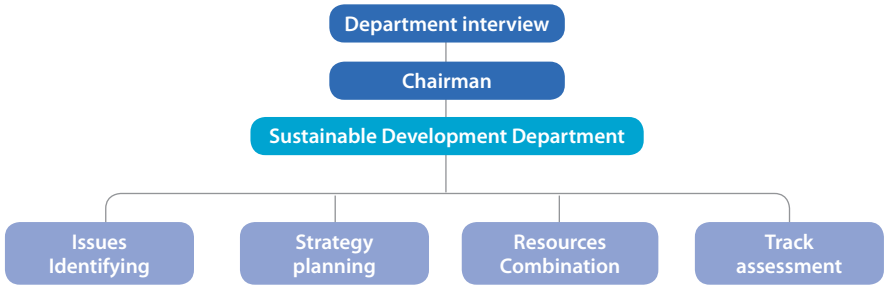
The intensification of extreme weather conditions is prompting the international community to call for proactive action in response to climate change. In line with this, HDRE is actively establishing a risk management mechanism to assess the potential risks and opportunities associated with climate change across various aspects. We adhere to international initiatives and standards related to sustainability and climate change and have set forth response measures and management policies to enhance our ability to adapt to potential climate risks and strengthen the resilience of our sustainable operations.

The four key frameworks of TCFD	Key implementation projects	Responsible unit
Governance	1. The Sustainability Department serves as the core unit driving sustainable development, including climate-related issues. In our 2022 Sustainability Report, we have incorporated the TCFD framework to outline climate risks and opportunities. 2. The Board of Directors irregularly receives reports from the Sustainability Department on the implementation status of significant sustainability issues, TCFD climate information, and greenhouse gas inventory pathways. The Board provides feedback and input on the report contents.	Board of Directors Sustainability Department
Strategy	1. Identify significant risks and opportunities through the climate risk and opportunity matrix. 2. Assess the potential impact of climate change on HDRE through scenario analysis. 3. Completed inventory and obtained ISO 14064-1 third-party verification for office locations in Taiwan. 4. By the end of 2022, the Taipei headquarters achieved 100% use of green energy; the Taichung office will reach 100% use of green energy in February-March 2023. 5. Develop a "Green Procurement Policy" as a basis for management and implementation, integrating environmental and social performance into the procurement decision-making process, and encouraging upstream and downstream suppliers to follow it.	Sustainability Department Various departments
Risk Management	1. The Sustainable Development Department identifies climate risks and opportunities based on the TCFD framework, converging on the issues through interviews and focusing on significant climate risks and opportunities through questionnaire responses. 2. The department consolidates the company's current management policies concerning significant climate risks and opportunities.	Sustainability Department Various departments
Metrics & Targets	1. We will continue to obtain ISO certifications, with the goal of completing assessments for all locations by 2025. 2. We have established green energy usage targets and regularly track the progress towards achieving them. We actively address the related risks associated with climate change. 3. Our subsidiary, Star Aquaculture Co., Ltd., plans to implement a water management system for aquaculture starting in 2023. This system will enable real-time monitoring of water usage. 4. We aim to expand localization and green procurement efforts. This includes reducing lead times, decreasing transportation distances and carbon emissions of raw materials, and simultaneously creating more local employment opportunities to promote socio-economic development.	Sustainability Department Various departments

4.1.1 Climate governance

Climate Governance Structure

Led by the Chairman, the Sustainability Department identifies climate change risks and opportunities within the company. The Board of Directors oversees the process and ensures the implementation of issue identification, strategic planning, resource integration, and performance tracking from top to bottom. This continuous effort aims to drive the company's sustainable development goals. Climate risks and opportunities are observed and identified by various units through their daily operations. They are then discussed, analyzed, and identified as short-term, medium-term, or long-term risks and opportunities in sustainability discussions with the Sustainability Department.



4.1.2 Identifying climate risks and opportunities

To promote sustainable development within the company, we adopt the Task Force on Climate-Related Financial Disclosures (TCFD) framework. This involves conducting cross-departmental climate education training and interviews to establish a basic understanding of climate change and TCFD among our employees, integrating climate awareness into their work scope.

Additionally, we utilize climate questionnaires for design, completion, and analysis. By using "frequency of occurrence" and "impact level," we perform matrix analysis of climate risks and opportunities. This helps us identify significant climate risks and potential opportunities within HDRE. We then consolidate these indicators and goals to strengthen our climate management efforts.

・Process description for identifying TCFD climate risks and opportunities

Climate related data collection
- Collect data on physical risks, transition risks, and opportunity categories based on the TCFD framework.
- Focus on the renewable energy industry and operational locations, and gather data from international reports, the Taiwan Climate Change Adaptation Platform, online sources, and news for data collection.

Department interview
- Engage in discussions with department managers based on the TCFD framework, inquiring about the operational conditions of each unit, and assist in identifying potential climate-related risks and opportunities.
- Consult with department managers about current climate-related management policies and objectives in order to align them with the indicators and goals of the TCFD.

TCFD Questionnaire
- Design TCFD risk and opportunity questionnaires based on the data collected and the results of departmental interviews.
- Distribute the questionnaires to department managers for completion, assessing the impact and frequency of climate-related events on each unit.

Materiality Matrix Analysis
- Conduct matrix analysis based on the questionnaire responses collected to identify significant climate risks and opportunities.
- Utilize matrix diagrams to assess the level of impact and frequency
- Establish connections between management policies, indicators, and goals for further action.

Setting Metrics and Goals
- Integrate existing management policies, indicators, and goals with the identified significant climate risks and opportunities.
- Combine the findings from the previous interviews and integrate the management policies, indicators, and goals.

TCFD Climate Risks and Opportunities Project Description

Based on the collected climate-related data, TCFD framework, and interviews with department managers, a total of 9 climate risks and 7 climate opportunities have been identified. These 16 TCFD risks, and opportunities have been incorporated into a questionnaire, which has been distributed to the respective department managers for completion. The responses from the questionnaires will be further analyzed using a matrix analysis approach to identify the significant climate risks and opportunities.

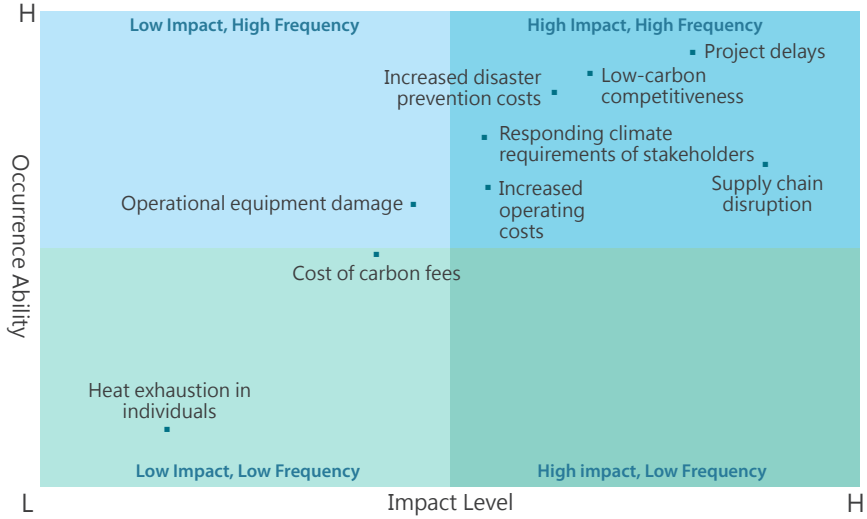
· Risk project

Risk	Risk category	Risk project	Potential operational and financial impact (description of risk impact)
Physical risk	Immediateness-typhoon/heavy rainfall	Project delays	Extreme weather events such as typhoons and heavy rainfall are considered abnormal incidents. For instance, if the project site experiences severe flooding or transportation disruptions due to extreme rainfall, it can lead to project delays or increased operational costs.
		Increasing disaster prevention costs	To mitigate climate-related disasters, there is a need to enhance equipment's resistance to wind, heat, and flood prevention capabilities, which can result in additional costs.
		Operational equipment damage	The increased frequency of extreme weather events such as typhoons and heavy rainfall can directly damage operational facilities or information equipments.
		Supply chain disruption	Climate-related disasters such as heavy rainfall causing flooding or severe drought leading to wildfires can impact the normal supply of raw materials from suppliers, resulting in supply chain disruptions.
	Long-term-long-term climate impacts	Increased operating costs	The volatile weather patterns and the inadequacy of existing risk assessment systems cannot predict weather accurately. It leads to uncertainty of increased costs, adding pressure to cost management.
		Heat exhaustion in individuals	Prolonged increases in temperature contribute to a higher frequency and likelihood of heat exhaustion in individuals, thereby affecting the health of employees working on-site and increasing the risk of operational disruptions.
Transition Risks	Policies and regulations	Cost of carbon fees	Governments worldwide are implementing greenhouse gas reduction or carbon pricing policies to achieve their net-zero carbon emissions targets by 2050. This requires companies to reduce their carbon emissions. With stricter regulations in various countries, there is a potential for an increase in the cost of carbon fees in the future.
	Market risk	Low-carbon competitiveness	Customers are increasingly inclined to purchase low-carbon products and are demanding that the entire supply chain of companies, including HDRE, reduce the carbon footprint of their products. As a result, HDRE may incur costs associated with driving supply chain transformation, such as increased raw material costs and expenses related to guiding suppliers through the transition. Additionally, HDRE may need to invest in its own equipment and assets to meet market demands.
	Reputation risk	Responding climate requirements of stakeholders	Customers' expectations regarding HDRE's ability to assist businesses in their low-carbon transition, energy conservation, and carbon reduction efforts can impact stakeholders' (shareholders, customers, and suppliers, etc) perceptions of the company's image and reputation.

Climate risk matrix analysis results

A total of 6 major climate risks identified in 2022：

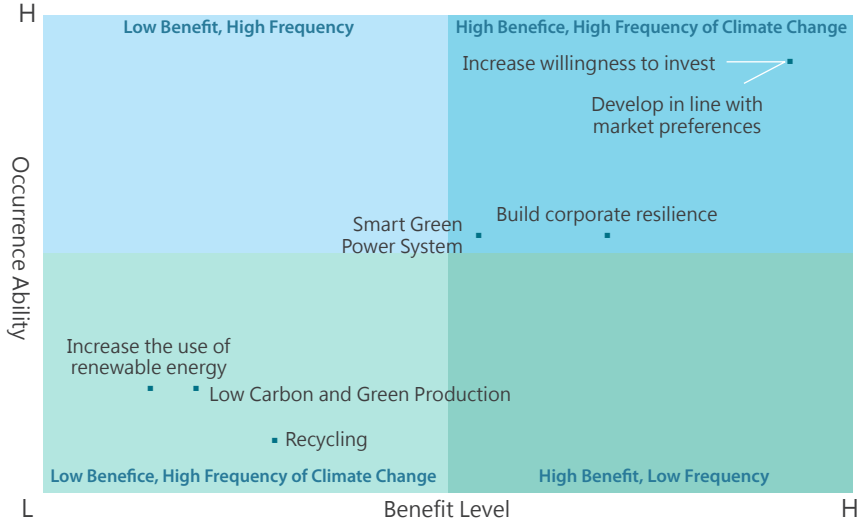
- HDRE Climate Risk Matrix



Climate opportunity matrix analysis results

Four major climate opportunities have been identified for 2022

- Climate Opportunity Matrix



- Opportunity project

Opportunity Category	Opportunity project	Potential operational and financial impact (description of opportunity benefits)
Resource efficiency	Low Carbon and Green Production	By utilizing more efficient production equipment, HDRE can reduce electricity and water consumption as well as waste generation during the assembly process, in order to reduce production costs.
Product and Service	Smart Green Power System	By offering green energy consulting, planning, and sales services, HDRE can assist customers in obtaining optimal electricity scheduling and stable green energy supply, which leads to increased profitability.
	Recycling	By decomposing solar panels into different materials and using these materials to produce new solar panels or other products, HDRE can achieve a more environmentally friendly and sustainable approach to solar power generation. This initiative can attract more customers to collaborate and provide opportunities to enhance profitability.
Market	Develop in line with market preferences	Market and customer demand for green energy management, electric vehicle charging stations, solar panels, and other related products is increasing due to factors such as government policies. This trend presents an opportunity for HDRE to enhance its profitability.
	Increase willingness to invest	The growing awareness of green energy and the increasing demand for it have generated greater interest among investors in the green energy industry. This has resulted in increased investment opportunities for companies like HDRE, leading to a more abundant source of funding.
Energy Source	Increase the use of renewable energy	In addition to supplying customers with renewable energy, HDRE implements green energy practices in its own facility construction and daily operations. By utilizing green electricity, the company aims to minimize its organizational carbon footprint and product carbon footprint. These efforts enhance product competitiveness and create opportunities for increased profitability.
Resilience	Build corporate resilience	HDRE actively monitors climate risks and opportunities to ensure the company's resilience in the face of disasters and maintain a keen awareness of climate-related opportunities.

4.1.3 Climate Risk Scenario Analysis

Taiwan's unique geography with its high mountains and steep slopes, combined with its highly variable climate, results in uneven distribution of rainfall and susceptibility to seasonal and regional water scarcity issues. Additionally, the typhoon and rainy seasons can lead to devastating floods. Furthermore, the increasingly stringent environmental regulations may result in carbon-related costs and emission controls, leading to rising costs for HDRE. Therefore, whether it is regarding "physical risks" or "transition risks," we approach their impacts with caution and manage them rigorously.

According to the matrix analysis of significant risks, the primary physical risk is "immediate typhoons or heavy rainfall," which may cause project delays, increased disaster prevention costs, damage to operational equipment, and supply chain disruptions. HDRE conducts climate risk assessments during the early stages of site development to ensure that the site is suitable for construction. Therefore, in this analysis of physical risks, we will focus on assessing the risk of flooding at office locations. The transition risks are categorized as market risk, reputation risk, and policy and regulatory risk. Market risk includes the "cost of changing market preferences," reputation risk involves "responding to supply chain climate requirements," and policy and regulatory risk refers to the "cost of carbon fees." Cross-departmental meetings discuss market and reputation risks. In this analysis of transition risks, we will primarily focus on evaluating HDRE's exposure under different scenarios from 2022 to 2050 and the potential consequences.

Physical risk: risk analysis of flooding of operating bases

We conducted scenario simulation analysis using the RCP8.5 scenario and utilized information from the National Science and Technology Center for Disaster Reduction (NCDR) - Climate Change Adaptation Platform to estimate the climate conditions at the end of this century (2075-2099). Based on the analysis results, we will develop management measures accordingly.

Using the TGOS (Taiwan Geospatial One-Stop) layer of climate change disaster risk map as the data basis, we categorized the risks into levels: levels 1-2 represent low risk, level 3 represents moderate risk, and levels 4-5 represent high risk. The disaster potential levels were also calculated: levels 0-25 indicate first-level risk, levels 26-50 indicate second-level risk, levels 51-75 indicate third-level risk, levels 76-100 indicate fourth-level risk, and levels 101-125 indicate fifth-level risk.

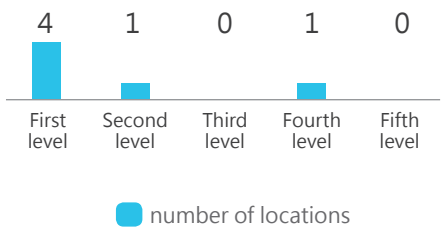
Among all the office locations in Taiwan, only the Kaohsiung office is categorized as fifth-level risk for potential flooding, while there is no statistical data available for the Penghu region.

・Flooding Potential Risk Level of HDRE Office

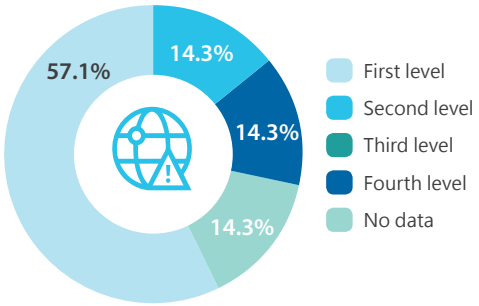
Name	Adress	Taiwan-wide risk	Regional risk
Taipei head office and office	F5, No. 35, Dexing West Road, Shilin District, Taipei City, Taiwan (R.O.C.) No.33, Dexing W. Rd., Shilin Dist., Taipei City, Taiwan (R.O.C.)	Second level	First level
Taipei Office	No.7, Dexing W. Rd., Shilin Dist., Taipei City, Taiwan (R.O.C.)	Second level	First level
Taichung Office	No.360, Sec. 2, Taiwan Blvd., North Dist., Taichung City, Taiwan (R.O.C.)	First level	First level
Tainan Xuejia Office	No.151, Heping Rd., Xuejia Dist., Tainan City, Taiwan (R.O.C.)	First level	First level
Tainan Jiali Office	No. 260-1, Jialixing, Jiali Dist., Tainan City, Taiwan (R.O.C.)	Second level	Second level
Kaohsiung Office	No. 56, Minsheng First Road, Xinxing District, Kaohsiung City, Taiwan (R.O.C.)	Fifth level	Fifth level
Penghu Office	No.21, Huimin Xincun, Magong City, Penghu County, Taiwan (R.O.C.)	No statistics	No statistics

Note: The overall risk and regional risk refer to different spatial scales. The overall risk presents the relative risk of all counties and cities in Taiwan, while the regional risk presents the relative risk within specific regions.

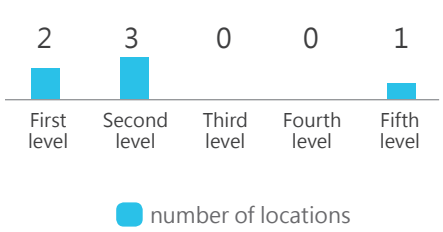
・[Regoin] Disaster Potential Level



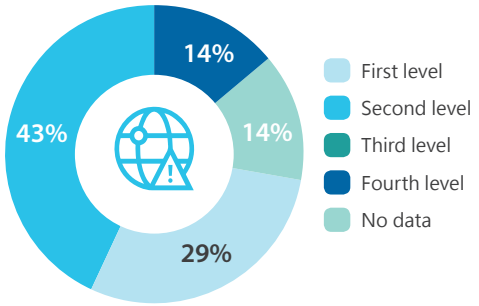
・Proportion of disaster potential level



・[Regoin] Disaster Potential Level



・Proportion of disaster potential level



・Scenario parameter

Index	Definition	Disaster type	Index selection
Hazard Level (H)	Climate Change Impacts on Climate Characteristics	Flood disaster	Probability of Experiencing "Rainfall Exceeding 600 mm Within 24 Hours" in the Baseline Period and Future Estimates.
		Slope disaster	Probability of Experiencing "Rainfall Exceeding 350 mm Within 24 Hours" in the Baseline Period and Future Estimates.
Vulnerability (V)	Extent to which the system is exposed to climate change hazards	Flood disaster	Analyzing the Flooding Index (Areas Prone to Flooding) Based on the Simulation of Quantitative Rainfall of 600 mm within 24 Hours.
		Slope disaster	Analyzing Vulnerability, Historical Landslide Index, Slope Index, and Geological Disaster Potential Based on Current Disaster Potential Data.
Exposure (E)	Objects that may be affected by the disaster	Flood disaster	Areas with higher population density are more directly impacted when a disaster occurs.

・Scenario setting

- We have followed the definition of future climate scenarios based on the "Representative Concentration Pathways" (RCPs) as outlined in the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report. Specifically, we have used RCP8.5 as the reference scenario for greenhouse gas emissions.
- RCP8.5 represents a high emission scenario where radiative forcing increases to 8.5 watts per square meter by the end of the century. In this scenario, carbon reduction policies remain unchanged, and countries make minimal efforts to mitigate greenhouse gas emissions. This leads to a sustained increase in atmospheric greenhouse gas concentrations, resulting in a projected temperature increase of nearly 4° C by the end of this century.

・Source

- The Ministry of Science and Technology's "Taiwan Climate Change Projection Information and Adaptation Knowledge Platform" (TCCIP).
- The National Science and Technology Center for Disaster Reduction has developed the "Climate Change Disaster Risk Adaptation Platform" (Dr.A).

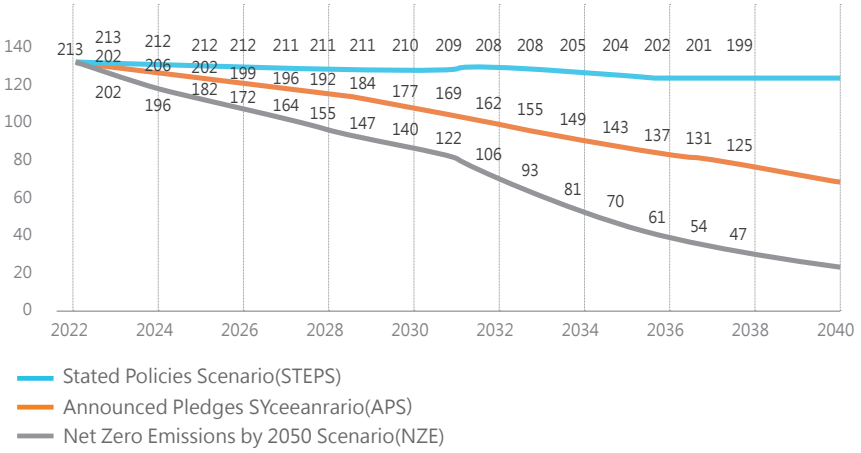
Transition Risk: Carbon Fee Risk Analysis

The Taiwanese government aims to achieve "net-zero emissions by 2050" and has passed the Climate Change Response Act in early 2023 through three readings. In the foreseeable future, carbon fees will be imposed on domestic emission sources. In 2022, HDRE's greenhouse gas emissions (Scope 1 + Scope 2) amounted to 212.699 metric tons (including all offices in Taiwan, with third-party verification expected in 2023). If the government imposes high carbon fees in the future, it will impact the company's operating costs and gross profit.

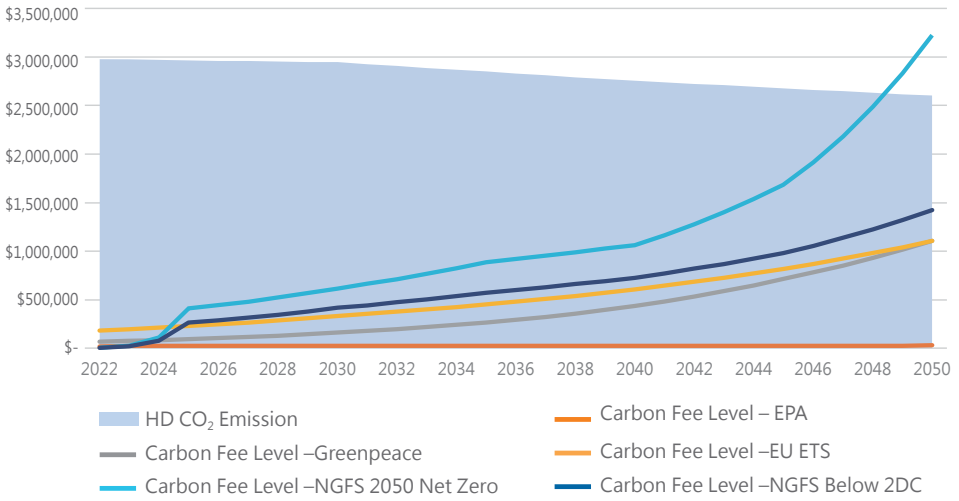
Therefore, we assess the potential exposure of HDRE from 2022 to 2050 under three carbon emission scenarios proposed by the International Energy Agency (IEA): Stated Policies Scenario (SPS), Announced Pledges Scenario (APS), and Net Zero Emissions by 2050 Scenario (NZE). We combine these scenarios with five projected levels of carbon pricing: "Environmental Protection Administration's suggested rate," "Estimated EU carbon tax rate," "Greenpeace proposed rate," "NGFS 2050 Net Zero," and "NGFS Below 2DC," to evaluate the extent of the company's exposure.

Carbon emission rate/year	EPA	Green Peace	EU ETS	NGFS_2050 Net Zero	NGFS_Below 2DC
Year	TWD/tCO_2e	TWD/tCO_2e	TWD/tCO_2e	TWD/tCO_2e	TWD/tCO_2e
2022	100.99	333.29	871.19	40.52	33.94
2023	101.98	370.27	939.33	147.08	112.76
2024	102.99	411.36	1012.79	533.81	374.59
2025	104.00	457.00	1092.00	1937.50	1244.36
2026	105.17	507.52	1178.70	2105.60	1365.34
2027	106.36	563.63	1272.28	2288.28	1498.08
2028	107.56	625.95	1373.29	2486.81	1643.73
2029	108.77	695.15	1482.32	2702.57	1803.54
2030	110.00	772.00	1600.00	2937.04	1978.89
2031	111.17	857.60	1708.00	3179.62	2122.82
2032	112.36	952.68	1823.29	3442.24	2277.21
2033	113.56	1058.31	1946.37	3726.55	2442.83
2034	114.77	1175.65	2077.75	4034.34	2620.50
2035	116.00	1306.00	2218.00	4367.55	2811.09
2036	116.98	1450.75	2367.92	4557.96	2967.13
2037	117.97	1611.55	2527.97	4756.68	3131.83
2038	118.97	1790.17	2698.84	4964.05	3305.67
2039	119.98	1988.59	2881.25	5180.47	3489.17
2040	121.00	2209.00	3076.00	5406.33	3682.84
2041	122.56	2453.66	3283.93	5960.32	3932.66
2042	124.14	2725.42	3505.90	6571.08	4199.41
2043	125.74	3027.28	3742.89	7244.43	4484.27
2044	127.36	3362.57	3995.89	7986.77	4788.44
2045	129.00	3735.00	4266.00	8805.19	5113.25
2046	130.56	4095.82	4555.38	10082.03	5539.43
2047	132.14	4491.50	4864.40	11544.02	6001.12
2048	133.74	4925.40	5194.38	13218.02	6501.30
2049	135.36	5401.22	5546.74	15134.76	7043.17
2050	137.00	5923.00	5923.00	17329.45	7630.20

・Scenario Evolution of HDRE's Carbon Emissions

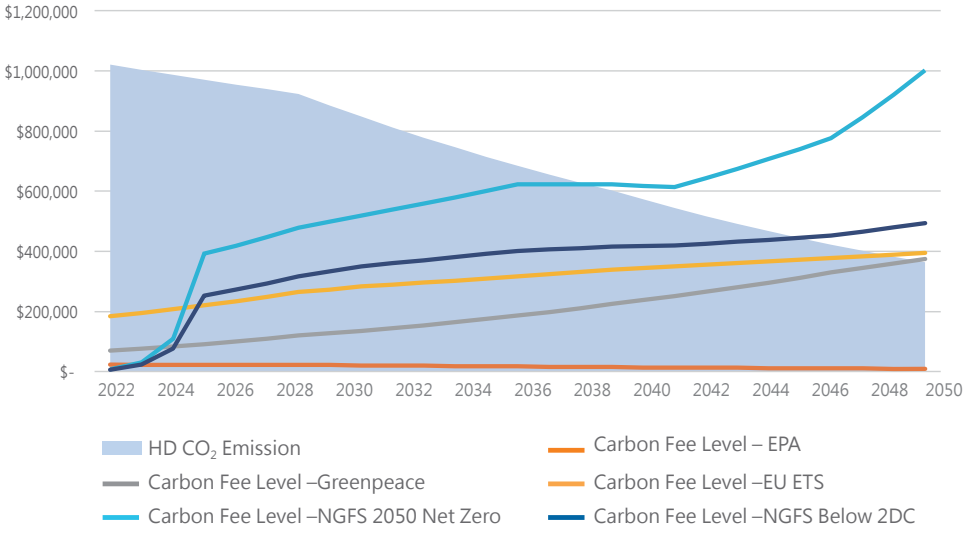


・Scenario analysis of HDRE's carbon fee (STEPS)

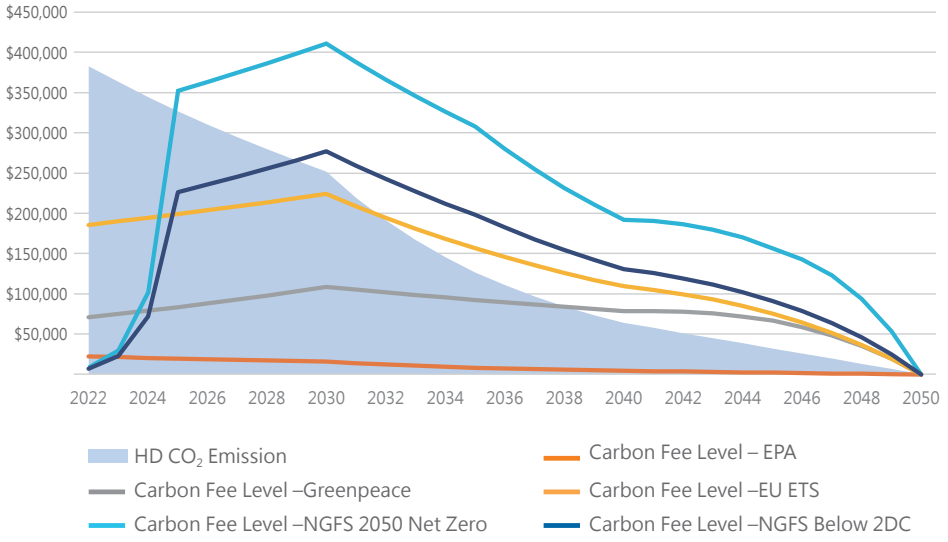


Scenario analysis of HDRE's carbon fee

・Scenario analysis of HDRE's carbon fee (APS)



・Scenario analysis of HDRE's carbon fee (NZE)



Carbon Scenario	Carbon Fee Scenario	Estimated year 2030	2040	2050
SPS	EPA Recommended Rates	$23,154	$23,816	$25,467
	Greenpeace suggested rates	$162,497	$434,795	$1,101,020
	Estimated rate of EU carbon tax	$336,782	$605,445	$1,101,020
	NGFS 2050 Net Zero suggested rates	$618,215	$1,064,120	$3,221,353
	NGFS Below 2DC suggested rates	$416,535	$724,889	$1,418,369
APS	EPA Recommended Rates	$19,423	$13,714	$9,374
	Greenpeace suggested rates	$136,318	$250,372	$405,265
	Estimated rate of EU carbon tax	$282,523	$348,639	$405,265
	NGFS 2050 Net Zero suggested rates	$518,614	$612,762	$1,185,719
	NGFS Below 2DC suggested rates	$349,427	$417,419	$522,075
NZE	EPA Recommended Rates	$15,375	$4,293	$0
	Greenpeace suggested rates	$107,905	$78,372	$0
	Estimated rate of EU carbon tax	$223,637	$109,132	$0
	NGFS 2050 Net Zero suggested rates	$410,520	$191,809	$0
	NGFS Below 2DC suggested rates	$276,596	$130,662	$0

According to the scenario analysis, under the three carbon emission scenarios and five carbon pricing scenarios, the highest amount of carbon fees is $3,221,353, which accounts for approximately 0.06% of HDRE's 2022 revenue ($5,052,656,000). This indicates that the impact on the company's operations is negligible. However, HDRE remains highly concerned about greenhouse gas emissions. The Taipei office already uses 100% green energy, and the goal for the Taichung office is to achieve a minimum green energy utilization rate of 70% by 2023. In the future, the company plans to expand the greenhouse gas inventory from office locations to project sites, aiming to reduce emissions in every stage of the product lifecycle through technological advancements. The objective is to provide customers with low-carbon and renewable energy solutions.

4.1.4 Climate Management Policy

The company discloses projects according to TCFD's recommendations, connects 6 major climate risks and 4 major climate opportunities that may affect the company's operations, strategies, and financial planning, and formulates corresponding management policies:

- **Physical Risk: Immediate - typhoon or heavy rainfall event**

Risk Project	Construction Project Delay
Impact on operations or finance	Abnormalities caused by extreme weather conditions such as typhoons and heavy rainfall and severe flooding at the construction site, resulting in transportation delays or personnel injuries, leading to project delays or increased operating costs.
Management Policies	1. Conduct climate risk assessment prior to site development, including factors such as wind speed, wind resistance, low-lying terrain, flood risk, unstable foundations, typhoons, rainy seasons, and high temperatures. 2. Reserve space for water accumulation and implement elevated supports or water-resistant structures in flood-prone areas during site planning. 3. Install multiple generators at the site to prevent operational disruptions in the event of power outages from the grid. 4. Implement standard operating procedures, self-inspections, and maintain construction logs. Strengthen progress tracking and update management schedules for each work shift. 5. Establish checkpoints for post-emergency event inspections to prevent the escalation of risks. 6. Ensure normal power generation at the site through real-time monitoring and routine maintenance. Prioritize maintenance activities before wind disaster to minimize the probability of flooding.

Risk Project	Increased Disaster Prevention Costs
Impact on operations or finance	To mitigate climate-related disasters, it is necessary to enhance the equipment's resilience to wind, heat, and flooding, which may lead to additional cost increases.
Management Policies	1. Incorporate climate conditions into site design considerations and optimize the equipment used in the facilities. Evaluate the installation methods and drainage plans based on past flooding incidents and the identification of the hundred-year flood line in flood-prone areas. 2. Implement anti-saline modules and supports in areas with high salinity. Enhance measures against salt spray during construction. 3. Consider both price and quality when procuring raw materials and use equipment that can withstand certain weather conditions in the site planning and design. 4. Obtain machinery insurance and business interruption insurance for all facilities to minimize the extent of potential losses.

Risk Project	Supply Chain Disruption
Impact on operations or finance	In the event that raw material suppliers are affected by climate-related disasters such as heavy rainfall causing flooding or droughts leading to wildfires, it can disrupt the normal supply of materials and result in supply chain disruptions for HDRE.
Management Policies	1. Monthly warehouse inventory control and inventory checks are conducted to ensure an adequate supply of stock. 2. Avoid relying solely on a single supplier to mitigate the risk of supply chain disruptions by diversifying the sources of supply.

‧ Physical Risk: Long-Term - Long-Term Climate Impacts

Risk Project	Rising Operating Costs
Impact on operations or finance	The weather fluctuates violently, and the existing risk assessment system cannot accurately predict, which increases the uncertainty of costs and increases the pressure on cost management.
Management Policies	1. Solarpro will be used during the project development phase to simulate 10 years of sunlight exposure and assess the power generation benefits. 2. Appropriate protective measures, such as lightning rods, improved drainage systems, and regular maintenance of the surrounding environment, will be installed based on the actual conditions.

‧ Transition Risks: Market Risk

Risk Project	Low-Carbon Competitiveness
Impact on operations or finance	Customers prefer purchasing low-carbon products and require that the overall supply chain of HDRE reduces the product carbon footprint. Therefore, HDRE will incur costs associated with demanding supply chain transformation, such as increased raw material costs and expenses related to guiding suppliers in their transformation efforts. Additionally, HDRE will invest in its own equipment and assets to meet market demands.
Management Policies	1. We continuously engage with our customers, paying close attention to and listening to their needs. We provide customized and diverse solutions to meet their demands. 2. We conduct regular customer satisfaction surveys to understand their thoughts and identify areas where HDRE can improve.

‧ Transition Risks: Reputational Risk

Risk Project	Responding to Stakeholders Climate Requirements
Impact on operations or finance	Customer expectations regarding our ability to assist businesses in low-carbon transformation and energy efficiency may impact stakeholders' (shareholders, customers, suppliers, etc.) perception of our company's image and reputation.
Management Policies	1. We regularly hold shareholders' meetings to communicate the current situation and future of HDRE, engaging with stakeholders in the process. 2. We publish periodic sustainability reports that highlight our commitment to climate change, low-carbon initiatives, and energy management, showcasing our dedication to these important issues.

· Climate Opportunity: Products and Services

Opportunity Project	Smart Green Power System
Potential operational and financial benefits	By offering green energy consultation, planning, and sales, we enable customers to optimize their electricity scheduling and access stable green energy, thereby enhancing profit opportunities.
Management Policies	1. We have established a subsidiary company, Star Exchange Co., Ltd., dedicated to green energy consulting and sales. Star Exchange Co., Ltd. focuses on providing customers with the green energy solutions they need. 2. We are committed to continuous development and improvement of our TITAN Smart Green Energy System. This innovative system leverages data collection and analysis to optimize power generation, energy storage, electricity sales, and distribution.

· Climate Opportunities: Markets

Opportunity Project	Develop in Line with Market Preferences
Potential operational and financial benefits	Due to factors such as government policies, the market and customers are experiencing an increased demand for green energy management, electric charging stations, solar panels, and other related products. This trend presents greater opportunities for profitability.
Management Policies	1. We will continue to monitor and collaborate with government policies to establish diverse renewable energy projects. 2. We will remain attentive to the electricity demand of corporate clients and the public in order to seize market opportunities.

Opportunity Project	Increase Willingness to Invest
Potential operational and financial benefits	The increasing awareness of green energy and the rising demand have led to a growing interest from investors in the renewable energy industry. This has resulted in a more abundant source of funding for HDRE, allowing for enhanced financial resources.
Management Policies	With the vision of "Living with Green Energy, accelerating a Net Zero Carbon Future," HDRE aims to explore the possibilities of various electricity applications and promote the widespread adoption of "Smarter Energy, Accessible Green" The company strives to become a smart green energy corporation, continuously advancing the development of the renewable energy industry.

· Climate Opportunity: Resilience

Opportunity Project	Build Corporate Resilience
Potential operational and financial benefits	Actively monitor climate risks and opportunities to ensure the company's resilience in the face of disasters and maintain sensitivity to climate opportunities.
Management Policies	Utilize TCFD (Task Force on Climate-related Financial Disclosures) climate-related financial disclosures to identify and understand climate risks and opportunities. Actively manage significant risks and opportunities, mitigate and adapt to climate risks, and capitalize on climate opportunities.

2023 target

1. In response to the Taiwanese government's "2050 Net Zero Emissions" policy, we commit to using 100% green energy in our Taipei office starting in 2023. Additionally, we will ensure that at least 70% of the energy used in our Taichung office comes from renewable sources.
2. We are dedicated to implementing and promoting the requirements of the management systems in all operational areas, including project sites, to ensure a safe and healthy working environment for our personnel.
3. We will actively pursue ISO 14064-1 certification for both our Taipei and Taichung offices.
4. We will continue to increase our purchase (general affair) of ReTissue, a recycled sanitary paper product, aiming to reach a procurement volume of 100 cases. Through this initiative, we could support the planting of at least 1,000 trees.
5. We plan to purchase an electric utility vehicle in the first quarter of 2023. This acquisition marks the beginning of an ongoing process to replace conventional company vehicles with electric ones.

Medium- and long-term goals

1. We will regularly report climate-related issues, such as climate risks and greenhouse gas inventory status, in our board meetings.
2. We will continue to drive the adoption of 100% self-consumed green energy in our office locations and aim to expand this achievement to more sites. By 2025, our Taipei headquarters will achieve net-zero emissions, and by 2030, all our office locations will reach net-zero emissions.
3. We will strive for ISO 14064-1 certification for all our office locations.
4. We will expand our localization and green procurement efforts, prioritizing local supply chains. By working with local suppliers, we can improve service efficiency, reduce lead times, minimize transportation distances for raw materials, and decrease carbon emissions. Furthermore, this approach supports local job creation and fosters social and economic development.
5. 100% using electric passenger vehicles and commercial vehicles.
6. In line with the "Obsolete Electricity Consuming Equipment Replacement" program, we will gradually replace outdated lighting fixtures with energy-efficient LED lighting in our offices. Our offices will be using LED lightning generally in the future.

4.2 Energy Policy and Management

Green Energy Policy

1. We will establish sustainable development goals for our company and ensure their implementation and regular performance reviews.
2. We will drive the promotion of a circular economy, providing sustainable and clean energy sources to effectively enhance environmental performance and reduce environmental impacts.
3. We will encourage the participation of all employees in activities related to quality control, environmental and occupational health and safety, health promotion, and energy efficiency, and continuously optimize these areas.
4. We support environmentally friendly product design and green procurement practices.
5. We are dedicated to the research and development of intelligent monitoring and green technologies.
6. We aim to minimize ecological destruction and enforce environmental and occupational health and safety measures.
7. We strive for the sustainable development of our company, the environment, and society.

4.2.1 Greenhouse Gas Inspection

By conducting a greenhouse gas inventory of our own emissions, companies can gain insights into their emissions and take necessary measures to improve and work towards achieving net-zero carbon emissions. Since 2021, HDRE has obtained ISO 14064-1 certification and has been implementing greenhouse gas inventories in its all offices. Third party verification has been obtained according to the British Standards Institution (BSI) ISO 14064-1:2018. In the future, we will expand the scope of greenhouse gas inventories to include our project sites and seek ISO 14064-1 certification for those sites as well.

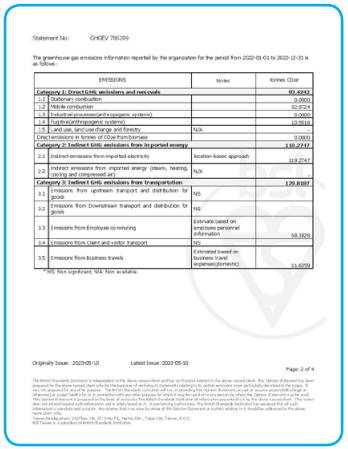
HDRE has implemented various measures to reduce its environmental footprint, including paperless operations, replacing energy-consuming equipment, upgrading to energy-efficient air conditioners and electric vehicles, promoting the use of public transportation among employees, and installing smart meters in our office spaces to enhance electricity monitoring and management. In 2022, our Taipei headquarters achieved 100% usage of green electricity for self-consumption.

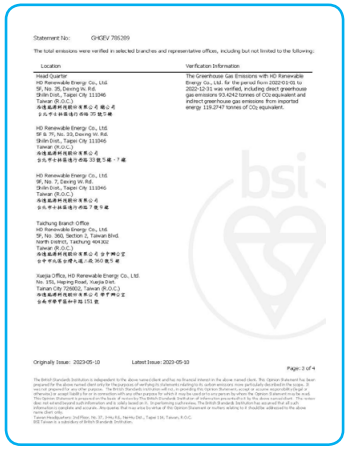
Unit: metric tons CO_2e

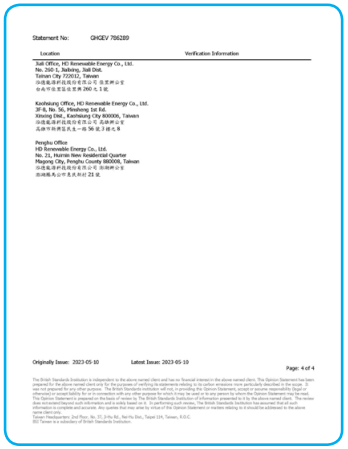
Year	2021	2022
Scope 1	147.4101	93.4242
Scope 2	110.9375	119.2747
Scope 3	97.6581	129.8187
Total emissions	356.006	342.518

- ISO 14064-1:2018 Greenhouse Gas Inventory Verification


bsi.
Opinion Statement
Greenhouse Gas Emissions
Verification Opinion Statement
...making excellence a habit.





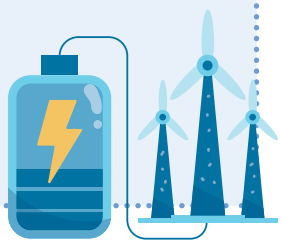


4.2.2 Energy Resource Use

Energy policy

The "Sustainable Development Office" of HDRE is the leading department for the energy policy, and it uses the energy management regulations and the sustainable policy of "Improvement of Environmental Energy Performance" established by the Company as the highest directives for the energy management. In addition, meetings are convened periodically to review the energy achievement status. In order to achieve the five goals below, we estimate to introduce ISO 50001 Energy Management System in five years and improve energy performances by establishing the system and process.

- Improve company internal energy management and energy use efficiency
- Comply with energy management related regulatory requirements
- Invest in energy resources properly, and prevent waste of energy
- Plan energy resource use efficiency, and realize low carbon operation
- Ensure thorough completion of energy saving indicators



‧ Total Energy Consumption in 2022

Category	95 unleaded petrol	92 unleaded petrol	Super diesel	Electricity	Renewable Energy
Energy usage (L, KWH)	14,108.44	4,965	14,042.18	263,382	29,050
Heat value (GJ)	460.43	162.03	493.52	947.71	104.53
Total heat value (GJ)			2168.227		
Grid Power Percentage			43.71%		
Percentage of Renewable Energy			4.82%		

Note 1: The heat values for various fuels are referenced from the Bureau of Energy's Greenhouse Gas Emission Coefficient Management Table 6.0.4 version. Electricity: 860 kcal/kWh,Gasoline: 7,800 kcal/L,Diesel: 8,400 kcal/L,1 kcal = 4.184 kJ, 1 GJ = 1,000,000 kJ.

Note 2: The percentage of electricity from the grid is calculated as the electricity consumption (GJ) divided by the total heat value (GJ).

Note 3: The percentage of renewable energy is calculated as the renewable energy consumption (GJ) divided by the total heat value (GJ).

Note 4: The company's internal boundaries cover: Taipei headquarters and office, Taichung office, Tainan office, Xuejia office, Jiali office, Kaohsiung office, and Penghu office.

Water Consumption Status

The water usage of HDRE can be divided into internal office operations and external site operations. Internally, we primarily use water for general domestic purposes, while externally water is used for photovoltaic (PV) sites. The aquaculture water for the fishery and electricity symbiosis field is sourced from nearby drainage channels and collected rainwater in our own reservoirs.

In 2022, we completed the data collection of water resources for offices and warehouses. However, the current data collection is limited and does not include water usage for site construction and operation and maintenance. In the future, we will continue to expand our data collection to include all sites. The total water consumption for HDRE in 2022 was 2,694 cubic meters, which includes all office locations.

Solar panels contribute to the development of renewable energy and water conservation. However, during the subsequent maintenance phase, water is used to clean the solar panels. The cleaning methods vary depending on the type of site. Currently, manual cleaning is the primary method, but we plan to introduce automated cleaning equipment in the future to reduce the use of workforce and water resources.

・HDRE Field Water Consumption Status

Water Consumption Item	Water Consumption Type	Remarks
Cleaning solar panels (Ground type, roof type)	Clean water	Each field is cleaned quarterly depending upon the weather condition. Clean water and tools are used to clean the modules. The main purpose of cleaning is to physically remove dust, such that water stain or dirt problem can be eliminated. After cleaning is complete, it is drained off directly.
Fishery and electricity symbiosis field	Clean water	The wastewater from the aquaculture is directed into our own reservoirs, where the water quality is treated and improved. It is then recycled for reuse, and no wastewater is discharged.
Water resources inventory	Planning in process	HDRE's subsidiary, Star Aquaculture Co., Ltd., plans to implement a water management system in 2023 to monitor water usage in real-time.

Water Resource Utilization Policy

HDRE recognizes the importance of water resource management and has developed a water resource utilization policy. The company has set directions for water resource development and has implemented water-saving initiatives based on the four directions:

- Enhance water resource recycle and reuse, and use equipment adopting water saving design for photovoltaic fields
- Expected to Introduce the water resource recycling system for fishery and electricity symbiosis fields, and install rainwater collection and module cleaning and reuse of wastewater
- Continue to implement new technologies for fishery cultivation water resource recycle and reuse
- Implement automatic water-saving cleaning equipment for water consumption of fields in the future

・HDRE saving and carbon reduction measures

Execution Plan		Description
Select green energy equipment with energy saving		Selected highly efficient and eco-friendly machine model complying with the government regulations. • Installation of smart meters in the Taipei and Taichung offices, with the Taipei office achieving 100% usage of green energy in 2022 and the Taichung office aiming for at least 70% green energy usage in 2023, both for self-consumption purposes. • Promotion of policies for the electrification of government vehicles, use of LED lighting fixtures, and adoption of new energy-efficient air conditioning systems.
Living environmental protection and good habit		• Promoted all employees' spontaneous use of eco-friendly tableware. • Avoid the use of disposable beverage cups, utensils, and containers for gatherings and food orders. For example, limit drink orders to bulk containers or encourage the use of reusable eco-friendly cups. • Installed heating equipment, such as microwave and electric pot to facilitate employees bringing their own lunch boxes for meal heating, to increase employees' will to use eco-friendly tableware.
Reduce waste and save energy, implement recycle and reuse	Field construction	• Changed to use steel molds for repetitive use for the construction to reduce material purchase and waste. It can replace the purchase of mold and material in every site operation in the past. • Due to the difference locations of every site, the related facilities/equipment need to be adjusted for next field's recycled use, such as container office, toilet installation, safety fence and pallets, etc.
	Internal of the Company	• Implemented paperless and electronic administrative operation. • Every 20th of the month is "Meat-Free Day" at HDRE, where lunch is served without meat to promote a low-carbon and healthy lifestyle. • Every 30th of the month is "On-Time Clock-Out Day" at HDRE, where all lights are switched off at 7:00 PM.

Energy Saving and Carbon Reduction Measures

In 2022, HDRE completed the office greenhouse gas inspection operation, and through the data management, we can understand the Company's internal carbon emission status. To implement the environmental energy policy, we focus on the three main execution plans of "Replacement of old power consumption equipment", "Good habits for living and environment protection", "Waste reduction, energy saving, recycle and reuse". In addition, we continue to set up different energy saving and carbon reduction goals for each department, and the specific actions include selection of low-carbon and eco-friendly equipment, encourage employees to prepare their own eco-friendly tableware to reduce disposal tableware, waste recycle and reuse plans, etc. Accordingly, through active implementation of carbon reduction measures, energy saving efficiency can be increased to achieve the objective of environmental sustainability.

Since the operation of the Company, we have carefully reviewed and seized opportunities that may reduce carbon emissions, improve greening of environment, and prevent negative impacts on all aspects. We continue to invest in the environmental protection and use eco-friendly products in priority. In addition, we also plan to include the environmental education in the required course of education and training of HDRE. Accordingly, we plan the minimum training hours for employees annually and encourage employees to implement knowledge learned in practice. In 2022, HDRE was not subject to any penalty imposed by the government agency due to major violations.

4.2.3 Waste Management

The scope of wastes generated by HDRE mainly refers to the activities associated with the office, construction of photovoltaic fields and field maintenance. We perform waste management according to the waste management related regulatory requirements completely and implement three main strategies: reduction of waste, proper treatment, and recycle and reuse. In addition, we also consider the characteristics and volume of different types of wastes to adopt different actions or treatment methods, thereby reducing impact of operation on the environment.

Waste Management Strategy	Description of Action
Reduce Waste	• During the procurement process, select reusable and eco-friendly materials (for example: reusable steel molds can be used for fields, and eco-friendly LED light tubes can be used for office areas). • Implement "Paperless" policy for the office areas, and change to use electronic approval system, to reduce waste due to use of papers.
Proper Treatment	• Identify the field waste type and entrust qualified waste disposal contractor to perform most suitable recycle method. • Offices are installed with resource recycle zone, and general living wastes are classified properly.
Recycle and Reuse	• Wastes are classified, and if there are reusable materials, they are uniformly placed at the warehouse for repetitive use. Once their life cycle ends, disposal contractor then performs proper treatment.

Waste Treatment Process

According to the scope of business, waste can be divided into: photovoltaic field wastes (business waste) and living waste of office areas (general waste). The treatment methods of such wastes comply with the Waste Disposal Act, and the most appropriate recycle method is adopted for each type of waste.

Selection of waste suppliers

The selection of vendors is carried out in accordance with the regulations of the Environmental Protection Administration of the Executive Yuan regarding the management of waste disposal facilities. Once their qualifications are confirmed, the subsequent contract is signed. Prior to the signing, a basic data evaluation and an environmental, health, and safety questionnaire survey are conducted in accordance with the supplier and contractor management procedures to ensure the eligibility and compliance of waste disposal contractors.

Waste Vendor Management

The company has established a regular evaluation procedure for suppliers and contractors and plans to conduct an annual assessment of waste disposal vendors to ensure the effectiveness of waste management.

Field Wastes

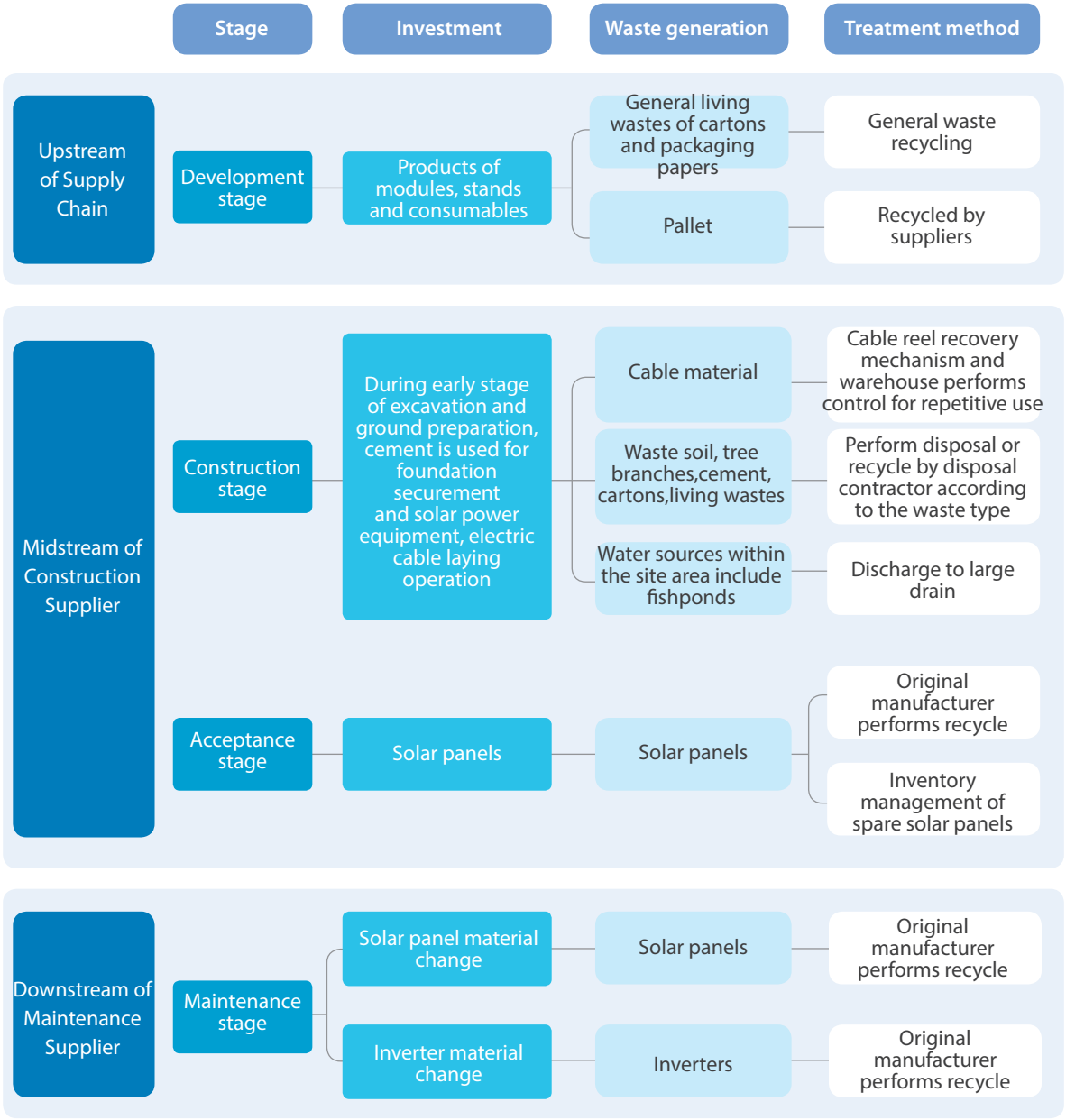
The main treatment process can be divided into disposal and waste reuse. For waste disposal, the evaluation, assessment, and review of suppliers are performed according to the government laws and regulations, and qualified waste disposal contractor is entrusted and requested to provide the waste disposal documents, to ensure the status and treatment adopted for the wastes. For reuse of wastes, reusable steel molds and cable reels are used during the purchase of raw materials, to reduce generation of wastes. When a solar photovoltaic module reaches its end-of-life cycle, it is disposed by the "waste solar photovoltaic panel treatment institution".

Living Wastes of Office Buildings

Waste and recycle areas are set in the offices of HDRE and wastes are subsequently classified at the building recycle zone. The waste will be treated by qualified disposal contractors which are appointed by the building's management.

Field	Entrust qualified waste disposal contractor for disposal and recycling	Request for submission of waste disposal document, in order to ensure waste handling status and treatment.
	Usable materials (such as cables and steel molds) recovered for storage at the warehouse for repetitive use	When a solar photovoltaic module reaches its end of life cycle, it is disposed by the "waste solar photovoltaic panel treatment institution".
Office	Install recycle zone for classification and treatment	Building management entrusts qualified disposal contractor to perform placement and treatment.

・Operation waste treatment process flow chart



・2022 Waste Management and Achievement

Confirm legal compliance of waste disposal contractor

100% Compliance

Complete waste disposal contractor compliance review and contract signing

Construction activity with waste reduction, and use of steel molds

100% Compliance

Increase reuse rate of construction materials and steel molds

・Waste Treatment Short/Medium/Long Term Plan

Category	Short / Medium Term	Long Term
Agricultural waste resourcezation	Initiate biochar test plan	Biochar commercialization
Construction activity with waste reduction	Change molds to steel molds, fence, pallet recycle and reuse	Continue implementation
Operation management informatization	Implement electronic administrative operation	Continue implementation

4.3 Ecological Diversity Protection

Promoting local prosperity and coexisting with the ecology have always been a development goal that HDRE is committed to. Through the development of various sites across Taiwan, we adhere to the principle of non-destructive ecology while adding value to the land, providing residents with a more diverse lifestyle and opportunities. In 2022, HDRE initiated the development of the Qigu project in Tainan. From assessment and communication to the promotion of diverse ecological coexistence, HDRE not only emphasizes commercial operations but also values the inheritance of sustainability, aiming to achieve a vision of shared prosperity and well-being for the corporate, society, and the ecology.

Material Topic: Ecological Diversity

Actual and potential positive impacts (opportunities) on the economy, environment, and population

While developing solar energy projects, collaborating with local environmental and animal protection groups to plan ecologically preserved areas with no development can help maintain biodiversity. This approach can enhance trust within the local community and instill confidence in investors. Taking the population changes of the Black-faced Spoonbill as an example, according to the "2022 Global Synchronized Census of Black-faced Spoonbills," the global population of Black-faced Spoonbills continues to increase, with a continuous growth in the number of wintering individuals in Taiwan. Their distribution has also become more widespread compared to previous years, with the highest number of wintering individuals observed in Tainan. Furthermore, the population has been steadily growing each year.

Actual and potential negative impacts (risks) on the economy, environment, and population

If there is a significant deterioration in the local ecology or a decline in biodiversity after the solar energy project development, it can easily become a subject of blame, resulting in a negative corporate image, and hindering further business development.

Resources invested in 2022

As an example of the Black-faced Spoonbill population, in April 2023, the results of the global synchronized census were announced, revealing a new historical record with a total of 6,603 individuals wintering worldwide. Taiwan, being the most important wintering site globally, has achieved a significant milestone this year. Through the efforts of the Forestry Bureau and the Chinese Wild Bird Federation, Taiwan recorded a record-breaking 4,228 Black-faced Spoonbills, accounting for 64% of the global population. Over 90% of the Black-faced Spoonbill population in Taiwan is distributed in areas such as Tainan, Chiayi, and Kaohsiung. Clearly, the development of solar energy projects has not had a negative impact on the sensitive conservation of these migratory birds. HDRE will continue to adhere to ecological and environmental conservation principles in the development of future solar energy projects, minimizing any potential impact on the local ecology.

Strategy and Goal

Company Policy and Commitment to Biodiversity

HDRE firmly believes in the importance of preserving biodiversity. This commitment not only reflects our significant corporate social responsibility but also our dedication to the environment and sustainability. We actively respond to the United Nations' Sustainable Development Goals by taking concrete actions to protect terrestrial ecosystems and preserve biodiversity, ensuring the balance of the ecological sphere.

Principles: HDRE upholds the belief in harmonious coexistence between humans and nature, practicing biodiversity and sustainable development. We continuously strive to raise awareness of biodiversity among our employees, shareholders, customers, and suppliers. During our business operations, we avoid engaging in activities within critical biodiversity areas. If we operate in proximity to such areas, we take measures to minimize any potential impact. We also strive to avoid or minimize the release of pollutants into the air, water, and soil.

Short-, medium- and long-term goals

1. We conduct surveys on the biodiversity development around our main project sites and establish a sensitive biodiversity map.
2. We expand the native aquatic species in aquaculture to promote the restoration of the natural fish population.
3. Based on the results of biodiversity surveys, we collaborate with agricultural experts to enhance the diversity of insects and plants in the surrounding ecosystem.
4. Maintain customer satisfaction over 90%.

4.3.1 Environmental and Social Assessment

Environmental and Social Assessment

Most of the domestic fishery and electricity symbiosis type of solar photovoltaic field developments are located at the southwest coastal areas. Since such areas have rich aquatic birds and ecological resources, it is necessary to consider ecological balance during the field development. All stages of the field development from site selection, planning and construction operation can bring benefits and cause impacts on the environment. Accordingly, it is necessary to determine possible aspects and impact level during the installation of the photovoltaic equipment, and plan early with response strategies in order to prevent possible impacts.

To achieve the goal of ecological balance, we autonomously entrust environmental experts to perform in-depth assessments of environmental and social inspections, water and soil assessment and ecological investigation, etc. before the development of each field.

Environmental and Social Inspection

- For different conditions, such as sunlight exposure / tree shielding / low ground with typhoon flooding, etc., simulation software is used to perform simulation assessment, to achieve precise assessment result.
- Consulting firms and environmental organizations are commissioned to conduct environmental and social assessments. Developer engagement with landowners and fish farmers is strengthened through interviews, enhancing credibility.

Water and Soil Assessment

- Regular quarterly water and soil quality testing is conducted.

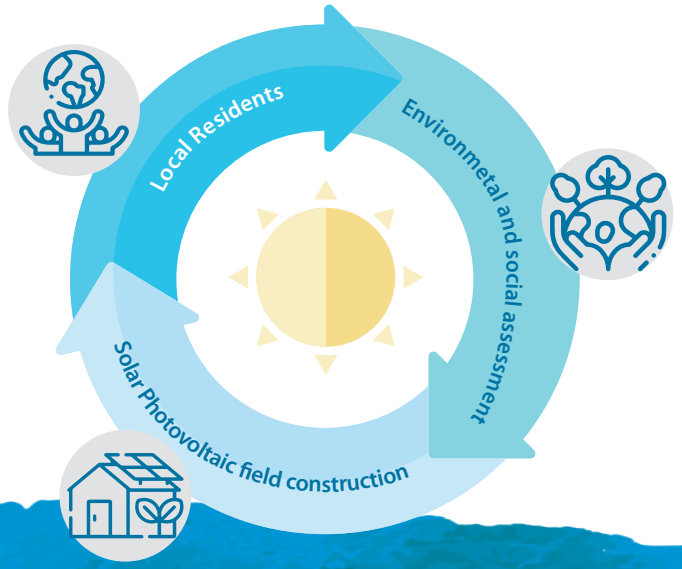
Ecological Investigation

- External ecology consultants are hired to perform investigation and monitoring.

Execution Outcome

Balancing green energy and ecological prosperity while respecting the wishes of residents and safeguarding the rights of fishermen has always been a crucial concern for us, especially in the planning of solar photovoltaic projects. To address this, we engage environmental organizations to facilitate coordination and conduct environmental and social assessments as the initial step of communication. This approach enables us to better understand the perspectives and concerns of the local community regarding solar photovoltaic projects. By identifying potential local risks and proactively addressing them through early negotiations, we aim to foster positive relationships with the local community throughout the project planning phase, ensuring a harmonious coexistence.

For example: During the planning of the construction route, the local traffic and religious culture (such as temple activities) are considered. After discussion and negotiation with the residents, the construction route impact is understood, following which the field design is outputted according to the communication result. In addition, during the development period, we also attend temple activities and provide donation of relief supplies and goods in order maintain proper relationship with the local community. In addition, since 2018, we have also reserved the "Wild Goose and Duck Ecological Protection Zone" at Tainan Qigu field during the installation of the photovoltaic field, and constructed the "Net Zero Carbon Emissions Demonstrative Zone" at Yulin Gukeng. In the future, we will continue to promote field protection and geological recovery and engage with relevant organizations to implement land sustainable development through joint efforts.



Tainan Qigu Fishery and Electricity Symbiosis • Wild Goose and Duck Ecological Protection Zone

- First project with "operator's self-submission of environmental and social inspections response solution mechanism" in Taiwan
- Fishery and electricity symbiosis field approved by the Council of Agriculture, fishery photovoltaic zone

Yulin Gukeng Net Zero Carbon Emissions Demonstrative Zone • Waste bamboo recycle

- Approval of the Council of Agriculture was obtained in 2022
- First photovoltaic project responding to the government's net zero carbon emissions path
- First solar power project combined with biofuel

Solar Photovoltaic Field Development Land • Local Co-prosperity

- Field construction route not affecting religious and folk activities
- Donate local agricultural special products, attend religious and folk activities or donate relief supplies
- Ensure each local development project employing a certain percentage of local residents

Wild Goose and Duck Ecological Protection Zone

Qigu field with 60 hectares of waste fish farm reserved for wild goose and duck ecological protection zone

Place	Qigu, Tainan
Area	57.74 hectares
Period	2018~2021
Relevant participating units	Taiwan Environment and Planning Association Central Environmental Ltd.
Executive Description	1. This case is in Qigu, Tainan. During the development, fish farm abandoned or occupied by others for cultivation for a long period of time was found to have reuse value. Environmental monitoring was performed during the early stage to determine the local ecosystem and species, to assess whether the land was suitable for development. 2. For the fish farm, it was found that goose and duck ecosystem and native mangrove zone had been developed at the abandoned area. To protect the existing environmental ecology, we decided to reserve the area without development, and discussed possible ecological disturbances with environmental consultants for strategies.

Waste Bamboo Recycle

Yulin Gukeng Net Zero Carbon Emissions Demonstrative Zone: Waste bamboo recycling

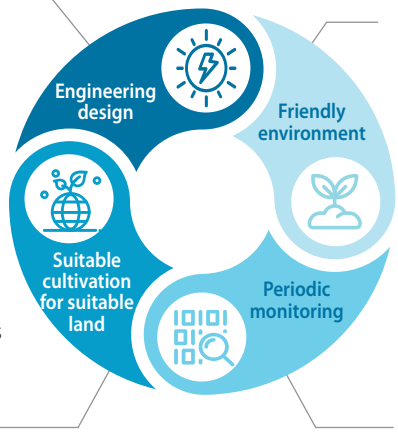
Place	Gukeng, Yulin
Area	25.35 hectares
Period	2020~Present (Development in process)
Relevant participating units	Taiwan Sugar Corporation Sinotech Engineering Consultant Ltd. People Nudge Platform
Executive Description	Yulin Gukeng is a place of rich natural landscape and agricultural development, and it is also one of the key organic agricultural development cities. Through public tender, HDRE obtained an abandoned cultivation farm released by Taiwan Sugar Corporation at Gukeng. Through geological drilling and soil test, we further determined that the field was a gravel land which is not suitable for cultivation. Based on the consideration that a lot of farmers were concerned about the development of this project, it was important for us to find the balance between the green energy policy and the agricultural development. We convened several local explanatory seminars and entrusted public group to organize community workshop, to understand the expectation and worries of the community residents. We also continue to correct the field design during the development process, to additionally install recreational space, green energy environmental education site, ecological detention basin, environmental facility walkway and bicycle lane to satisfy the community needs and to reach consensus with local farmers. In view of the global emphasis on climate change, this project responses to the government policy vision of 2050 Net Zero Carbon Emissions, and we have actively included a net zero carbon emissions demonstrative zone in the project, thus establishing a demonstrative project for photovoltaic and agricultural material reuse.

Agricultural Materials Recycle and Reuse	Renewable Energy Net Zero Transformation	Landscape Recreation Education Demonstration
• One land with multiple purpose and Multiobjective planning • Agricultural residual material reuse • Agricultural recycle technology application	• Gukeng photovoltaic net zero cycle demonstration park • Activation of abandoned cultivation land of Taiwan Sugar Corporation • Net zero carbon emissions implementation	• Composite use of land for multiple values • Green energy/organic/low carbon promotion • Neighborhood community recreation space establishment

Eco-friendly Design

HDRE is committed to the construction of eco-friendly fields based on the philosophy of "Green Energy Ecosystem Co-existence and Co-prosperity", and the development considers environmental ecology and reduction of environmental impact as the priority. For the future construction of fields, we look forward to implementing the concept of sustainable environment in each photovoltaic field during the operation process. To implement such philosophy, presently, we are actively planning the "Eco-friendly Design" and environmental and social inspections are assessed in depth, in order to plan appropriate cultivation field type according to the water area, fish farm terrain, etc., thereby identifying different photovoltaic field environment condition and demands. Accordingly, corresponding eco-friendly design can be adopted, such as: installation of migrating bird eco-protection zone, reserved fishery suspension period, prohibition of use of chemical agents for module cleaning operation, etc. In the future, we will continue to strengthen biodiversity protection actions, in order to preserve original ecosystem as much as possible, thus heading toward 100% green energy ecosphere and implementing ecological and environmental protection.

- We review and propose corresponding strategies for environmental and social issues outlined in the official announcement section. In cases where the development zone includes important areas for biological activities or habitats, we adopt a leasing but non-development approach as a means of habitat creation and compensation measures.
- We select suitable species based on the local conditions and assess the market conditions of the species for planning purposes, in order to facilitate sustainable aquaculture operations.



- Prohibit use of chemical agents for module cleaning operation
- We ensure proper cleaning of our engineering equipment and the environment.
- We conduct regular ecological monitoring before, during, and after the construction phase as well as during the operational period.
- We perform quarterly water and soil assessments to evaluate their quality and condition.

4.3.2 Ri Yun site in Qigu, Tainan

Ri-Yun site (fishery and electricity symbiosis) in Qigu, Tainan that was developed by HDRE is a fishery-solar coexistence project approved by the Tainan City Government, the Energy Bureau of the Executive Yuan, and the Council of Agriculture. It is also the first self-conducted environmental and social impact assessment project of its kind in Taiwan. Non-governmental organizations were involved in conducting interviews with various stakeholders and identifying ecological and social issues.

Fishery and electricity symbiosis inevitably has an impact on the environment and the local community. Balancing green energy development, ecological well-being, respecting public opinions, and safeguarding the rights of fishermen have always been a top priority for HDRE. Therefore, we have engaged environmental organizations to conduct environmental and social impact assessments and facilitate communication with stakeholders. This allows HDRE to fully understand the community's perspectives and concerns regarding solar energy projects. We have organized explanatory meetings to facilitate dialogue, address concerns, and incorporate the feedback from stakeholders into the project planning. Our goal is to establish a renewable energy project that benefits all parties involved, while ensuring biodiversity conservation and supporting the aquaculture industry, which would be a win-win-win scenario.

· Ri Yun site in Qigu, Tainan

Based on ecological surveys and self-conducted environmental and social impact assessments, abandoned fishponds have evolved into habitats for geese and ducks. To preserve the existing ecological environment, HDRE has decided to retain these areas as a 6-hectare ecological conservation zone, specifically for the habitat of migratory birds such as the Black-faced Spoonbill. In terms of vegetation, the original mangrove belt has also been preserved, and two Kaohsiung seagrasses and one black mangrove have been transplanted and preserved within the project site. HDRE considers the three aspects of food sources, habitat preservation, and living habits of organisms, and collaborates with environmental consultants to develop corresponding strategies to address potential ecological disturbances.

HDRE is actively planning the "Eco-friendly Design" and environmental and social inspections is assessed in depth, to plan appropriate cultivation field type according to the water area, fish farm terrain, etc., thereby identifying different photovoltaic field environment condition and demands. Accordingly, corresponding eco-friendly design can be adopted, such as installation of migrating bird eco-protection zone, reserved fishery suspension period, prohibition of use of chemical agents for module cleaning operation, etc. In the future, we will continue to strengthen biodiversity protection actions, in order to preserve original ecosystem as much as possible, thus heading toward 100% green energy ecosphere and implementing ecological and environmental protection.

Future plan

Due to the active development of solar energy projects in Qigu district in Tainan in recent years, HDRE believes in the importance of integrating solar energy and the environment. As a result, the company has sponsored and joined the Environmental Planning Association of the Tainan Salt Field Wetland Restoration Alliance. Through organizational coordination and wetland conservation efforts, the goal is to achieve sustainable coexistence between humans and wildlife.

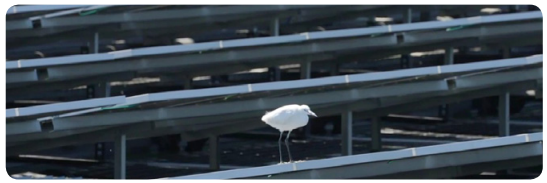
Protecting the salt field wetlands not only serves to preserve natural carbon sinks but also enhances the functionality for migratory birds and strengthens the wetland ecological network, thus conserving endangered bird species and wetland wildlife. The wetland restoration plan proposed by the alliance is expected to span at least three years, and HDRE plans to provide continuous sponsorship and support for the project.

4.3.3 Promoting ecological awareness among colleagues

In 2022, HDRE organized an employee ecological tour called "Tainan Qigu Ecological Journey," taking employees out of the office to visit the Tainan Qigu solar power plant for an ecological tour. They embarked on the "Longhai Explorer" to leisurely explore the lagoon, getting to know the local geography, fisheries, and mangroves. They also had professors from the Department of Ecology at Tainan University and experienced ecological tour guides to provide on-site guidance. 91% of participating employees expressed that the activity was rewarding overall, with 55% stating that the tour content was rich and interesting.

HDRE plans to conduct employee ecological tours every six months, aiming to enhance employees' ecological awareness through direct engagement with the environment and integrate the principles of ecological conservation into their daily operations.

・The Qigu Ecological Journey



Future plan

In 2023, HDRE will continue organizing ecological tours focusing on the Qigu region in Tainan. These tours will be planned to coincide with the migratory bird seasons, with one tour in spring and another in winter. Employees from various departments will have the opportunity to participate.

In the medium to long term, HDRE plans to expand these tours to include other HDRE project sites. Cross-departmental ecological tours will be organized, allowing more employees from HDRE to participate. This initiative aims to enhance the collective appreciation for environmental conservation within the company. By gaining a deeper understanding of the company's environmental conservation efforts, employees will develop a stronger sense of identification with HDRE's business operations.

05

Sustainable Talent
Happy Workplace

Core Vision and Commitment

HDRE considers its employees as one of the most valuable assets of the company. In the evaluation of major issues conducted in 2022, three major issues were identified by integrating the perspectives of internal and external stakeholders, which are highly relevant to the employees. These issues include talent retention and attraction, talent development and growth, and occupational safety and health.

By integrating talent planning with the company's strategic objectives, HDRE aims to create a corporate culture that fosters innovation, passion, boldness, ambition, and sustainability leadership. The company strives to create a workplace that offers employees opportunities for comprehensive career development and embraces diversity and inclusion, thereby establishing a stable talent pool within HDRE.

- **2022 Results and Performance**

1. The total number of training hours is **2,448 hours** and a total of **47 professional certificates** have been obtained.
2. The number invested in employee health care reached **NT$ 432,120**.
3. **0** industrial safety accidents occurred.
4. The total cost of employee benefits amounts to **NT$ 21,165,726**.
5. In 2022 , the number of newly recruited employees expanded to **91**, accounting for **59.09%** of the total number of employees at the end of the year.

5.1 Human Resource Management

Material Topic: Talent Attraction and Retention

The actual and potential positive impacts (opportunities) on the economy, environment, and society

Recruiting and retaining talent with competitive benefits and compensation, and regularly review and adjust our salary and benefits system to attract outstanding individuals to make a positive economic impact.

The actual and potential negative impacts (risks) on the economy, environment, and society

Employee turnover can indeed have a negative impact on the development of a company and hinder overall economic growth.

Resources invested in 2022

The number of new recruits in 2022 increased by 33 compared to the previous year.

Strategic Goals

The company's policy and commitment to talent attraction and retention

To attract and retain talented individuals and encourage performance among employees, HDRE has established a competitive salary framework and regularly updates its compensation and benefits system. The company continuously cultivate its long-term human capital through internal management and incentive programs.

Short-term goals (1 year)

Continuously attract talent that meets the company's growth needs.

Medium to Long-term goals (3-5 years)

Provide compensation and rewards that are superior to the industry standards and create a work environment that encourages employees to unleash their full potential.

5.1.1 Employee Overview

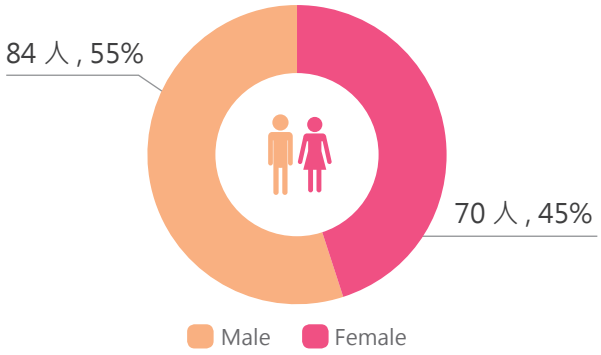
Workforce Structure Overview

Workforce Structure

HDRE values the development and uniqueness of every employee, and treats them equally regardless of gender, race, age, marital status, or family situation. We are committed to promoting a friendly and inclusive workplace and continuously enhancing employee benefits and mechanisms, surpassing the requirements of labor laws to create a happier and more harmonious work environment.

As of the end of 2022, HDRE had a total of 154 full-time employees. Among them, there were 70 female employees and 84 male employees, resulting in a gender ratio of 120.

・Gender ratio

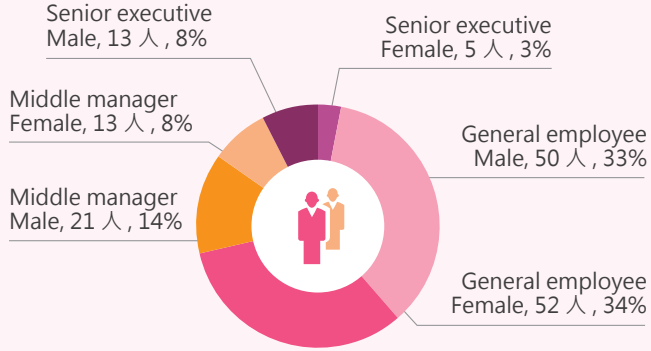


Note: Gender ratio = Number of male employees / Number of female employees * 100.

・2022 Supervisory and non-supervisory positions

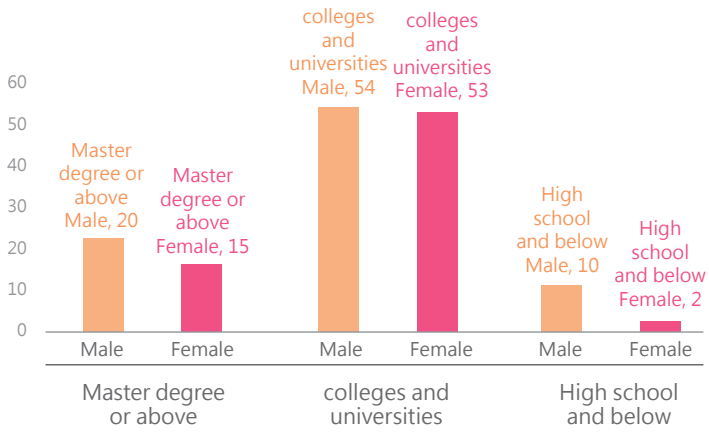
HDRE has a total of 52 managerial positions, accounting for 33.8% of the workforce. The gender ratio among managers is 34:18, with 34 being male and 18 being female. The percentage of female managers, which stands at 34.6%, is significantly higher than the 28.9% recorded in the previous year. Overall, female employees make up 45.5% of the total workforce, reflecting a 3% increase compared to the previous year. We strive for balanced development among employees and provide a fair and competitive workplace where gender does not create disparities in positions and remuneration. Our active efforts contribute to fostering a friendly environment of workplace equality.

・Distribution of Supervisory and non-supervisory



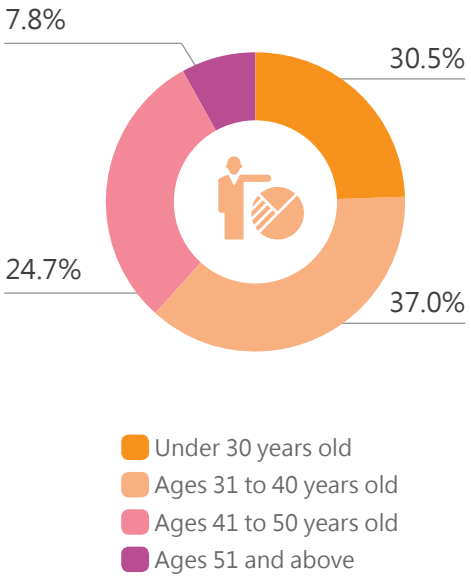
In terms of educational background, the employee structure in 2022 was as follows: 69.5% hold a college degree, while 22.7% have a master's degree or higher. The proportion of employees with a college degree or above stands at 92.21%, highlighting HDRE's emphasis on recruiting highly educated individuals. This composition of talent, with nearly 90% holding at least a college degree, facilitates the integration of research and development capabilities and knowledge-driven resources, contributing to the overall success of the company.

・Educational distribution of men and women



In terms of age structure, the employee composition in 2022 was as follows: employees below the age of 40 accounted for 67.53%. This indicates that HDRE has a relatively young workforce. We are committed to providing a platform for young individuals and do not use age as a criterion for selection. As long as employees have the ability, they can be part of HDRE regardless of their age.

- **Employee age distribution**



Employee Composition

In 2022, HDRE had a total of 152 full-time employees and 2 part-time employees. All female employees were engaged as full-time workers, while among male employees, 97.6% were full-time and 2.4% were part-time. Additionally, there were 6 non-contract workers.

Category	2022	Gender	Sum		Taipei	Taichung	Tainan	Kaohsiung	Penghu	Hualien
Number of employees	Number of employees	Female	70		26	34	7	1	1	1
		Male	84		33	21	24	1	5	0
contractual	Full-time	Female	70	100.0%	26	34	7	1	1	1
		Male	82	97.6%	33	21	24	1	3	0
	Part-time	Female	0	0.0%	0	0	0	0	0	0
		Male	2	2.4%	0	0	0	0	2	0
	Contractor	Female	0	0.0%	0	0	0	0	0	0
		Male	0	0.0%	0	0	0	0	0	0
	non-guaranteed hours (temporary contract, standby staff)	Female	0	0.0%	0	0	0	0	0	0
		Male	0	0.0%	0	0	0	0	0	0

Category	2022	2022 headcount	Taipei	Taichung	Tainan	Kaohsiung	Penghu	Hualien
non-contractual	non-employee worker		3	1	0	0	2	0

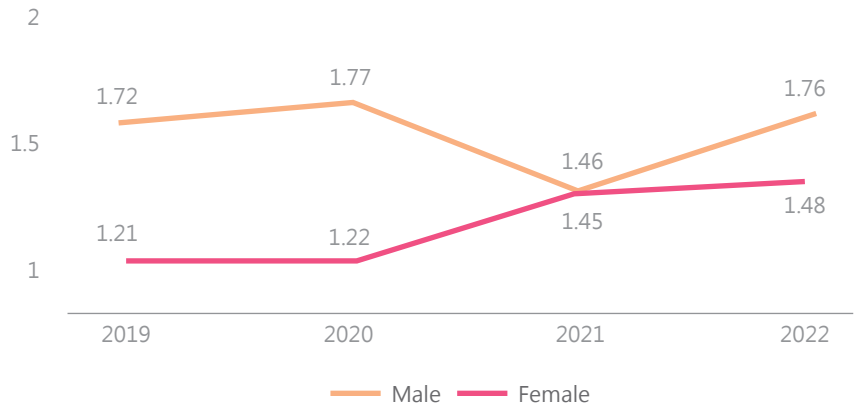
Note: Non-contract workers include security personnel, cleaning personnel, construction contractors, intermediary dispatched employees, apprentices, subcontractors, volunteers, etc.

Average seniority and age of employees

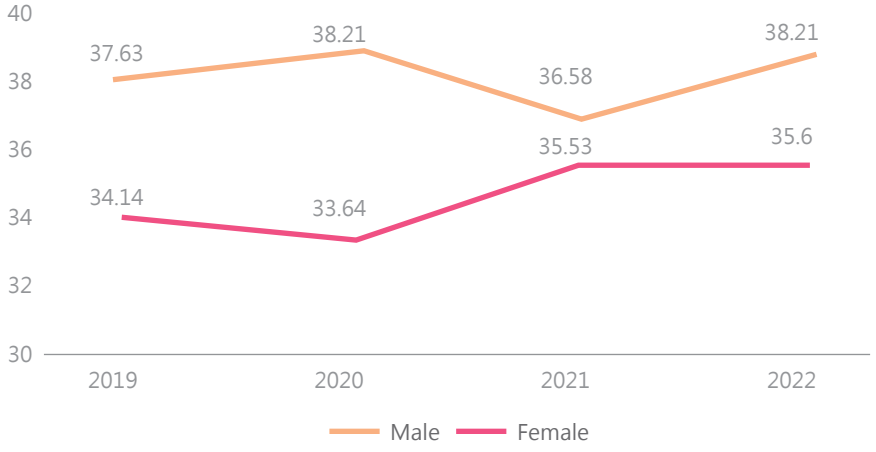
In 2022, HDRE witnessed an overall increase in the average employee tenure, with male employees seeing an increase from 1.46 years to 1.76 years, while female employees experienced a slight increase from 1.45 years to 1.48 years. These figures demonstrate our efforts in employee retention. Additionally, the average employee age also showed a similar growth pattern to tenure. The average age of male employees increased from 36.58 years to 38.21 years, while the average age of female employees rose from 35.53 years to 35.6 years.

Average seniority and age of employees in 2020			Average seniority and age of employees in 2021			Average seniority and age of employees in 2022		
Average seniority (year)	Male	1.77	Average seniority (year)	Male	1.46	Average seniority (year)	Male	1.76
	Female	1.22		Female	1.45		Female	1.48
	Total	1.54		Total	1.46		Total	1.63
Average age (years)	Male	38.21	Average age (years)	Male	36.58	Average age (years)	Male	38.21
	Female	33.64		Female	35.53		Female	35.6
	Total	36.27		Total	36.14		Total	37.02

· Average seniority of employees



· Average age of employees



Talent Attraction and Retention

New /Resigned Employee Distribution

Since 2020, due to business expansion, HDRE has continuously increased its recruitment needs. In 2022, the number of new employees was 91, accounting for 59.09% of the total number of employees at the end of the year. Additionally, the employee turnover rate was 27.27% of the total number of employees at the end of the year. We are committed to ensuring the stable growth of talent in HDRE and continuously expanding our talent recruitment.

All employees of HDRE are protected by labor contracts, and the regulations regarding employee resignation and notice periods follow the Labor Standards Act. We conduct interviews with departing employees and their immediate supervisors to understand the main reasons for their departure. We timely revise the salary and benefits system and continue to utilize internal management systems and incentive programs to reduce the turnover rate. Additionally, to protect local employment opportunities, we prioritize hiring local residents for solar photovoltaic system installation, module cleaning, and operation during both the construction and maintenance phases. In the future, we will continue to enhance the visibility of HDRE sustainable brand and actively recruit through diverse channels to attract and recruit professionals with expertise in green energy, thus enhancing the competitiveness of the company and our colleagues.

・Composition of new employees in 2022

In 2022, HDRE recruited a total of 91 new employees from 6 counties and cities across Taiwan, reflecting the spirit of diversity and inclusiveness in our recruitment efforts. The highest number of new hires was in the Taipei area, followed by Taichung. Furthermore, in terms of age distribution, the majority of recruits fell within the 31-40 age range, followed by those under 30 years old. In terms of gender, the recruitment numbers for males were relatively evenly distributed across different age groups, while females were predominantly recruited from age brackets below 40.

Area	Total	Gender		Male				Female			
		Male	Female	Under 30 years old	Ages 31 to 40 years old	Ages 41 to 50 years old	Ages 51 and above	Under 30 years old	Ages 31 to 40 years old	Ages 41 to 50 years old	Ages 51 and above
Taipei	45	23	22	3	6	11	3	7	9	6	0
Taichung	23	8	15	3	3	2	0	7	8	0	0
Kaohsiung	1	1	0	1	0	0	0	0	0	0	0
Penghu	6	4	2	3	0	0	1	1	1	0	0
Tainan	15	13	2	3	3	2	5	2	0	0	0
Hualien	1	0	1	0	0	0	0	0	1	0	0
Total	91	49	42	13	12	15	9	17	19	6	0

・Composition of Resigned Employee in 2022:

Area	Total	Gender		Male				Female			
		Male	Female	Under 30 years old	Ages 31 to 40 years old	Ages 41 to 50 years old	Ages 51 and above	Under 30 years old	Ages 31 to 40 years old	Ages 41 to 50 years old	Ages 51 and above
Taipei	13	9	4	0	3	6	0	3	0	1	0
Taichung	13	5	8	3	0	2	0	4	3	1	0
Kaohsiung	1	0	1	0	0	0	0	0	1	0	0
Penghu	2	1	1	1	0	0	0	0	1	0	0
Tainan	13	11	2	3	3	2	3	2	0	0	0
Total	42	26	16	7	6	10	3	9	5	2	0

5.1.2 Salary, Welfare and Employee Care

Competitive Salary and Welfare

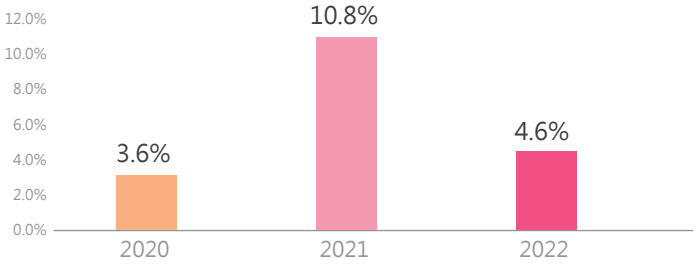
HDRE actively recruits exceptional talents to join us in realizing the vision of "Living with Green Energy, Accelerating a Net-Zero Carbon Future." In order to achieve this goal, we provide salaries and benefits that surpass industry standards. Additionally, we offer employee stock options, profit sharing, performance bonuses, and year-end bonuses based on operational performance, in order to enhance competitiveness in the workplace with comprehensive and generous compensation.

We also promises not to discriminate or provide differential treatment to employees based on factors such as age, gender, race, religion, nationality, and others. Our compensation is determined based on the comprehensive market salary levels, domestic economic trends, and company's operational performances to maintain overall competitiveness in terms of compensation.

Trends in employee salary adjustments

Over the past three years, HDRE has gradually adjusted the overall salary levels of its employees. The salary adjustment rate increased from 3.6% in 2020 to 4.6% in 2022. Over the past three years, HDRE employees have experienced a salary increase of over 27.7%. Each employee is a crucial partner of HDRE. We share the company's business performance with our employees, and the company's success is fully reflected in their overall compensation. This approach aims to create a balance that benefits both the company and the employees.

- Employee salary adjustments



Ratio of executive to non-executive pay for Male and Female in 2022

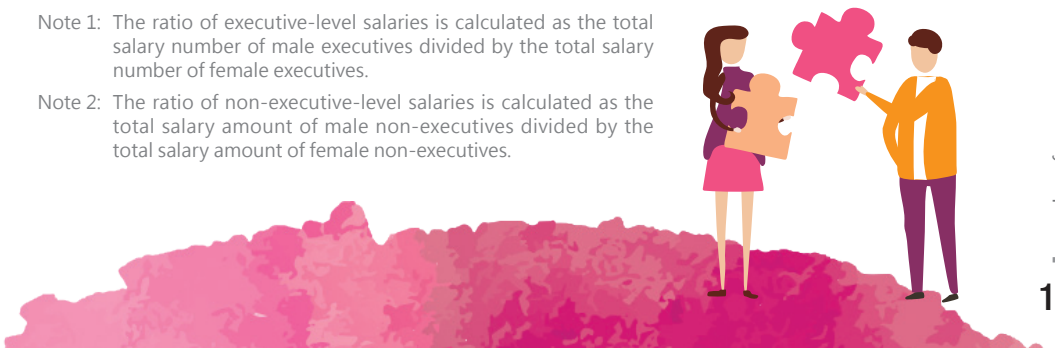
In the year 2022, HDRE exhibited the following gender pay disparities: for non-executive positions, the male-to-female pay ratio was 11:9, while for executive positions, it was 3:2. Regardless of whether it was an executive or non-executive position, overall, male employees received higher salaries than female employees at HDRE.

This can be attributed to the fact that male employees had, on average, a longer tenure at the company compared to female employees. The average tenure of male employees at HDRE was 8% longer than that of female employees, resulting in higher average salaries for male employees compared to female employees.

Gender	Male	Female
Average executive salaries	134,953	87,756
Median executive salaries	102,000	67,000
Total of executive-level salaries	4,588,400	1,579,600
Gender pay ratio for executive-level salaries	2.9:1	
Average non-executive-level salaries	49,512	40,577
Median non-executive-level salaries	50,200	40,000
Total of non-executive-level salaries	2,475,600	2,110,000
Gender pay ratio for non-executive-level salaries	1.17:1	

Note 1: The ratio of executive-level salaries is calculated as the total salary number of male executives divided by the total salary number of female executives.

Note 2: The ratio of non-executive-level salaries is calculated as the total salary amount of male non-executives divided by the total salary amount of female non-executives.



Salary level of non-executive employees

Over the past three years, the overall salary level of non-managerial employees at HDRE has increased from 38,074 in 2020 to 45,100 in 2022, representing an average salary increase of 18.5%. We are committed to enhancing employee salary competitiveness and striving for a more equitable compensation structure, as we move towards a mutually beneficial and happy workplace.

- Median salary of non-executive employees in last three years (NT$)

Year	Median salary of non-executive full-time employees
2022	45,100
2021	38,062
2020	38,074

Annual Total Compensation Ratio

In terms of the annual compensation ratio, the highest individual annual total compensation at HDRE is 8.44 times higher than the median annual total compensation of all other employees. Furthermore, the percentage increase in the highest individual annual compensation is 10.23 times higher than the median percentage increase in annual compensation for other employees.

Salary item	Amount
Annual total compensation of the highest paid individual in the organization	4,950,945
Median annual total compensation for all employees (excluding the highest paid individual)	586,915
Annual Total Compensation Ratio	8.44
Annual Total Compensation Percentage Increase for the Organization's Highest Paid Individual	72.6%
Percentage increase in median total compensation for all employees (excluding the highest paid individual)	7.6%
Annual Total Salary Compensation Change Ratio	9.55

Note 1: The formula for the Annual Total Compensation Ratio is calculated as the annual total compensation of the highest-paid individual in the organization divided by the median annual total compensation of all employees (excluding the highest-paid individual).

Note 2: The formula for the Annual Total Compensation Variation Rate is calculated as the percentage increase in the annual total compensation of the highest-paid individual in the organization divided by the percentage increase in the median total compensation of all employees (excluding the highest-paid individual).

Welfare Policy Superior to Regulatory Requirements

HDRE is committed to creating a happy workplace by caring for the physical and mental well-being of employees and enriching their work lives. Our goal is to meet the needs of employees through a diverse and comprehensive employee welfare system, strengthen the labor-management partnership, and enhance employee job satisfaction and dedication. In addition to the employee welfare system, we also prioritize the healthcare of our colleagues' physical and mental health.

As a company covered under the new labor retirement system, we contribute 6% of each employee's monthly salary to their personal account at the Labor Insurance Bureau, in accordance with the Labor Retirement Pension Act. This allows us to provide diverse and enriching employee benefits that meet the needs of our colleagues at different stages of life.

In the fiscal year 2022, HDRE has reached a record high investment in employee welfare funds, totaling NT$21,165,726. Recognizing employees as partners, the company actively invests in enhancing their workplace experience, aiming to create a happy and fulfilling work environment together.

The total employee welfare fund in 2022 was NT$ 21,165,726

Economy
- Birthday bonus
- Meal allowance
- Meal subsidy
- Marriage and funeral subsidy
- Innovation fund

Safeguards
- Annual health examination and labor insurance
- Group insurance

Entertainment
- Incentive trips
- Festival and holoday activities
- Year-end party
- Staff dinner parties of each department

Facility
- Breastfeeding room
- Employee recreation zone
- Multifunction office and environment beneficial to physical and mental health

Development
- External training and development subsidy of NT$2,000 per time (annually)

5.1.3 Human Rights and Communication

Human Rights Policy

Comply with international human rights regulations

Respecting human rights is one of the core values of HDRE. HDRE is committed to following the principles set forth in the Universal Declaration of Human Rights, the United Nations Global Compact, the UN Guiding Principles on Business and Human Rights, the International Labour Organization's Declaration on Fundamental Principles and Rights at Work, as well as relevant laws and regulations in the locations where it operates. HDRE establishes and updates human rights policies based on principles of protection, respect, and remedy, taking actions consistent with the principles of the Responsible Business Alliance Code of Conduct, demonstrating its commitment to human rights issues.

Since its establishment in 2016, HDRE has been dedicated to upholding the principles of the Universal Declaration of Human Rights, the UN Guiding Principles on Business and Human Rights, and the ILO Declaration on Fundamental Principles and Rights at Work, ensuring the basic rights and interests of its employees, contractors, and interns. HDRE also ensures that child labor is not employed and works to prevent incidents of forced or compulsory labor. Some of the actions taken include:

- Anti-discrimination
- Respect labor voluntary nature
- Freedom of Association and Speech
- Compliance with the Labor Standards Act
- No Harsh Treatment and Harassment

Comply with domestic human rights laws

Items	Measures
 Three Policy against Discrimination	• Discrimination against workers based on race, color, age, gender, sexual orientation, ethnicity, disability, religious beliefs, political affiliation, union membership, nationality, or marital status is prohibited in recruitment, promotion, rewards, training opportunities, job assignments, wages, benefits, disciplinary actions, termination, and retirement. • Requiring pregnancy testing or discriminating against pregnant workers is prohibited, unless local laws or regulations require specific measures for pregnant workers. • Requiring workers or prospective workers to undergo discriminatory drug testing is prohibited, unless mandated by local laws or regulations or necessary for ensuring workplace safety.
 No workplace bullying/ sexual harassment	Language violence, sexual harassment, physical violence, and mental violence: We strictly prohibit the aforementioned behaviors, including sexual harassment, physical punishment, psychological coercion, bodily harm, or verbal abuse, as they are inappropriate and may be illegal.
 Respect for labor voluntary nature and freedom of association/speech	• Workers have the freedom to leave their positions or terminate their employment relationship through proper notice or prearranged procedures. They cannot be required to surrender any government-issued identification documents, passports, or work permits as a condition of employment. It is also prohibited to demand any form of recruitment fees from employees. • The employment of child labor under the age of 15 is strictly prohibited, and employees under the age of 18 cannot be assigned to work during nighttime or overtime shifts.
 Comply with the Labor Standards Act and related labor laws	• We abide by the Labor Standards Act, Labor Pension Act, and Gender Equality in Employment Act to safeguard individual employment relationships. • We adhere to the three labor laws: Trade Union Act, Labor-Management Dispute Resolution Act, and Collective Agreement Act to protect collective labor relationships. We also comply with the Occupational Safety and Health Act, Labor Inspection Act, and Occupational Accidents Compensation Act to ensure employment safety and a conducive working environment. • We provide wages and benefits that meet the minimum standards set by relevant laws. Overtime pay is provided for employees who work beyond regular working hours. We also send salary breakdowns to employees before monthly salary disbursement to ensure transparency in remuneration and benefits. • Workers have the right to freedom of association, the right to form and join labor organizations, seek representation, and engage in collective bargaining. Discrimination against workers based on their membership in a labor union is strictly prohibited during recruitment. It is also prohibited to terminate or discriminate against workers based on their union membership or participation in union activities outside working hours (or during working hours).

Inclusive and Diverse Workplace

HDRE adheres to the regulations and cultural norms of the locations where we operate and complies with relevant international human rights standards. We do not discriminate or provide differential treatment based on race, class, language, ideology, religion, political affiliation, birthplace, gender, sexual orientation, age, marital status, appearance, disability, or any other factors. We value diversity and our personnel employment policy is primarily based on job requirements, individual expertise, and developmental potential.

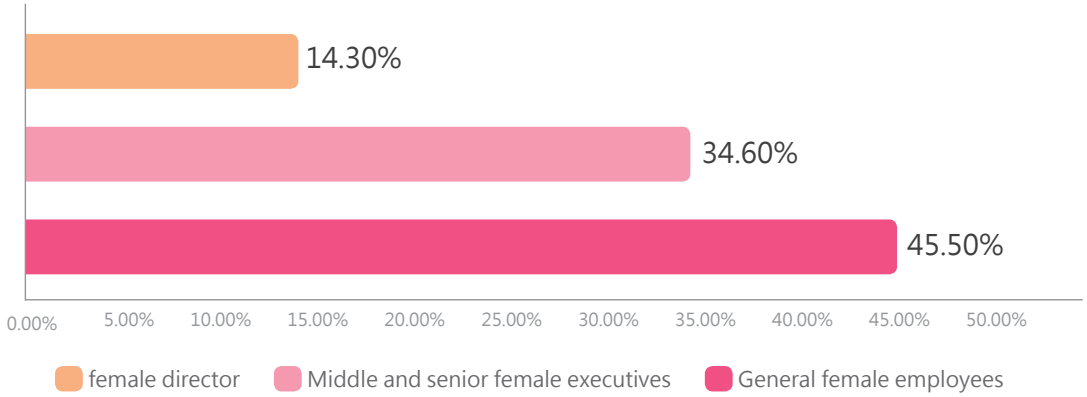
In 2022, our company maintained the employment of a staff member with disabilities without making any new hires. We actively care for colleagues from different ethnic backgrounds and with diverse employment needs. Moving forward, we are committed to enhancing workplace rights for individuals from various backgrounds to promote workforce diversity at HDRE..

We regularly review the professional capabilities of our existing talent and optimize talent development to ensure balanced growth for all employees. Additionally, we engage in job redesign for employees with different professional backgrounds, ensuring that every team member's role contributes to the company's growth and improvement.

Gender-friendly

The human rights policy of HDRE ensures that gender or sexual orientation will not be a basis for differential treatment in promotion, compensation, or behavior. We strive to provide equal opportunities for all genders, enabling every employee to reach their full potential. In terms of gender representation, in 2022, female employees accounted for 45.5% of the total workforce at HDRE. Among senior executives, the proportion of women was 34.6%. Additionally, the Board of Directors consists of 7 members, including 1 female director. Moving forward, we aim to achieve a target of 25% female representation on the board, further enhancing gender equality within the Board.

- Distribution of female employees



Promote Maternity Workplace Care

To create a family-friendly workplace environment and support employees in childcare, HDRE has established dedicated lactation rooms in the office area. These rooms are equipped with amenities such as comfortable chairs, tables, curtains for privacy, power outlets, a specialized refrigerator for storing breast milk, hand sanitizer, covered trash bins, telephone, and storage cabinets. These facilities are provided for female employees who require lactation breaks.
In response to government policies, we have implemented a comprehensive parental leave system, including maternity leave, paternity leave, family care leave, and pre-delivery leave. In 2022, there were two female employees who applied for parental leave without pay. Both the rate of resuming work after parental leave and the retention rate reached 100%.

In 2022, we conducted workplace environment and operational hazard assessments for six employees focusing on maternal health protection. Here are the details:

1. The results of the hazard assessments showed no significant risks, allowing the employees to maintain their current positions without the need for job reassignment.
2. We provided guidance on precautionary measures during pregnancy, including COVID-19 education, prevention of varicose veins, and instructions on proper breathing techniques to avoid excessive ventilation. These health education recommendations were aimed at ensuring the well-being of pregnant employees.
3. If any pregnant employee had abnormal health check-up results, we provided health education specifically addressing the identified abnormalities. We advised regular follow-up visits to the clinic for monitoring and emphasized the importance of adhering to medical advice for regular prenatal check-ups.
4. We offered guidance on feeding complementary foods and provided consultation on the types of food and childhood vaccinations.

In 2022, the total number of employees eligible for parental leave, classified by gender, was 1 males and 6 females. The actual number of employees who utilized parental leave was 1 males and 3 females.

Reinstatement rate	Male	Number of people who should return to work after parental leave in fiscal 2022	0
		Actual number of people applying for reinstatement after parental leave in fiscal 2022	0
		Reinstatement rate	0
	Female	Number of people who should return to work after parental leave in fiscal 2022	2
		Actual number of people applying for reinstatement after parental leave in fiscal 2022	2
		Reinstatement rate	100%
Leave retention rate	Male	The number of people returning to work in 2021	0
		The number of people who have returned to work for one year in 2021	0
		Retention rate	0
	Female	The number of people returning to work in 2021	2
		The number of people who have returned to work for one year in 2021	1
		Retention rate	50%

Employee Care and Communication Channel

HDRE is committed to establishing transparent and open labor-management relations and communication channels, ensuring the protection of employee rights. We have diverse channels for workplace communication and grievances. We handle complaints with cautious confidentiality and adhere to a prompt resolution approach. We take appropriate measures to minimize the impact on both labor and management in response to all incidents.

In terms of communication channels, we regularly hold labor-management meetings, welfare committee meetings, staff representative forums, and maintain an employee suggestion mailbox. These initiatives aim to maintain harmonious labor-management relations and uphold the principles of equality and fairness in employee participation. In 2022, our company held four labor-management meetings, and there were no significant labor disputes.

Workplace Violence and Sexual Harassment Complaint

We are committed to implementing the principles of respecting human rights. In addition to the stipulation of human rights policy, we also include the principles and measures of equality, anti-discrimination and communication channels in the management regulations related to the employee management system. Furthermore, we also organize education and training periodically.

We pledge to create a workplace that is free from bullying and harassment. We incorporate prevention of sexual harassment into our new employee training materials and conduct annual education and training sessions for new and existing staff members. In case of any sexual harassment incident, employees may file compliant through either the dedicated sexual harassment complaint hotline or the designated e-mail address. Moreover, sexual harassment incidents and complaint cases submitted are statically analyzed in a report at the end of each year to facilitate the tracking and control of such cases. No complaints were received regarding workplace violence, discrimination, or sexual harassment in 2022.

HDRE Workplace Violence and Sexual Harassment Consultation and Complaint Channel

HDRE holds all employees responsible for ensuring a work environment free from workplace violence and sexual harassment. Anyone may call the complaint hotline. Once a complaint is received, investigation will be conducted in a confidential manner.

Complaint Hotline

Human Resource Administrative Department:
+886-4-2255-8858 # 301
Audit Department: +886-4-2255-8858 # 220

Complaint E-mail

equality@hdrenewables.com

5.2 Deep-rooted Talent Cultivation

Material Topic: Talent Attraction and Retention

The actual and potential positive impacts (opportunities) on the economy, environment, and society

We provide training and development resources to enhance employees' professional skills and adaptability to their work. By doing so, we aim to further strengthen their work efficiency and technical capabilities.

The actual and potential negative impacts (risks) on the economy, environment, and society

Recruiting and retaining talent with competitive benefits and compensation, and regularly review and adjust our salary and benefits system to attract outstanding individuals to make a positive economic impact.

Resources invested in 2022

1. In 2022, a total of 2,448 hours were dedicated to in-service and new employee education and training, including both internal and external courses and professional certification programs.
2. We encourage and support employees in obtaining professional certifications. As of March 31, 2023, a total of 47 professional certifications in occupational safety and health, engineering, and mechanical and electrical fields have been obtained.

Strategic Goals

The company's policies and commitments regarding talent cultivation and development

We provide training and development resources to enhance employees' professional skills and adaptability to their work. By doing so, we aim to further strengthen their work efficiency and technical capabilities.

Short-term goals (1 year)

1. Complete routine training for new employees.
2. Complete internal training within the department.
3. Promote external educational training.

Medium to Long-term goals (3-5 years)

Establish an educational training roadmap that includes training for new employees, departmental specialization, and future trends, aiming to enhance talent professionalism and promote diversified development.

5.2.1 Diverse Educational Training and Talent Development

HDRE has established a comprehensive training system and framework to cultivate diverse professionals. We utilize various learning resources and tools to enhance employees' self-directed learning awareness. We continuously develop training plans based on the needs of each unit and individual performance requirements. This enables us to enhance employees' knowledge, job performance, and deepen their understanding of different professional areas, thereby promoting cross-unit collaboration and synergy.

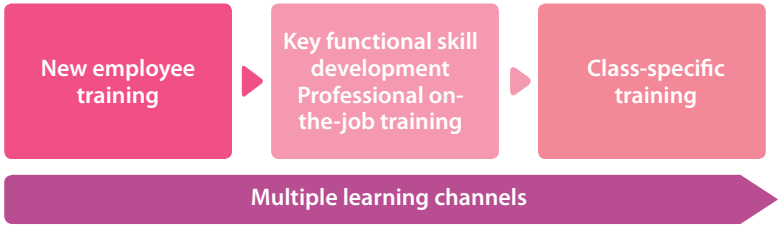
We highly value the cultivation of industry talents who possess both theoretical knowledge and practical skills. These exceptional talents are the source of talent that HDRE requires. In the future, we will continue to deepen our industry-academia collaboration, creating opportunities for young students to learn about green energy and gain professional knowledge. This not only assists them in their future career planning but also allows us to attract outstanding potential talents and enrich the company's innovation capacity while strengthening our professional expertise.

Complete Education and Training System

In order to enhance the integrity of employee training, we have introduced the "Job Description Manual" for each unit, which is supplemented by training provided by unit supervisors or designated senior employees. This ensures the completeness and professionalism of personnel training and contributes to effective workforce utilization, talent development, and competency assessment.

We consistently encourage employees to engage in various forms of learning activities based on the company's growth direction, organizational needs, and individual performance requirements. This continuous improvement of work efficiency helps gather more energy for the company's growth and contributes to the advancement of society. Additionally, we provide subsidies for employee education and training, set minimum mandatory environmental training hours and sessions per year, and offer comprehensive training courses tailored to the needs of different talents. These courses cover professional skills, management, occupational safety, and training for new employees. We design experiential activities, case studies, group discussions, and video appreciation based on the nature of different courses, making learning more enriching and lively.

Our company conducts various environmental, health, safety, and quality training programs, starting from new employee safety and health education training courses (mandatory and basic knowledge of management systems) to specialized courses (hot work, working at heights, electrical safety, contractor operation management, quality, etc.). We also provide training on employee health management topics and education for contractors before they enter the worksite.



‧ Internal training course

Learning target	Course category	Course content	Number of classes	Number of trainees
Professional Training	Introduction to ISO9001 and 45001 provisions, hazard identification and internal audit	ISO related specifications and instructions	1	30
	Modular equipment	Understand equipment procurement issues	1	6
	PLM system operation	System operation interface teaching	1	5
	PLM development training	System Development Teaching	1	4
Newcomers	Health Management Promotion Course	Regulatory requirements	62	162
	Safety and health education and training for new recruits	Regulatory requirements	55	101
	Accident investigation and corrective prevention management	Statutory requirements are optional if not related to the position	61	159
	Undertake outsourcing management education and training	Statutory requirements are optional if not related to the position	26	66
	Undertake outsourcing management education and training	Statutory requirements are optional if not related to the position	16	54
General employee	ERP import	Learning system import assignments and regulations	5	27
	Group Consensus Camp	Establish team understanding, improve communication skills, and communicate with office staff	1	81
	Mandatory three-year on-the-job occupational health and safety education and training	Regulatory requirements	11	11

・External training courses

Course category	Course content	number of classes	Number of trainees
111 new tax policies such as various income withholding declarations and tax collection laws	Learn about related tax declarations	1	2
K2 Value Concept and Cost Awareness	Cultivation and Development of Institutionalized Ability of Cost Awareness and Value Concept	1	1
ISO14064&1406 greenhouse gas management and carbon footprint management lead auditor	Carbon footprint management system introduction and construction, inventory, verification	1	1
Clam breeding prevention and management practical technical training course	Friendly farming management technology and intelligent farming management application technology	1	1
Advanced Elective Course for Healthy Breeding and Safety Management of Fisheries Laboratory	Global organic farming trends, current situation and development of fishery and electricity symbiosis, safety management system of excellent aquaculture farms	1	1
Analysis of Common Lack of Internal Control Management in Enterprises and Practical Cases	Key points and practice of enterprise internal audit and internal control inspection	1	1
Climate Change Response Manager and International Training Course	International Trends, Laws, Technology and Practice Exercises	1	1
New energy and energy storage integration, grid connection and auxiliary services	Energy Storage System Practice	1	1
Self-Assessment Practice	Internal control, self-assessment, overall planning, and implementation	1	1
Fire manager retraining	Cultivate fire management talents in various places and participate in fire safety protection work	1	1
Stationary Crane Operator	Lifting mechanism, operation and precautions	1	1
Roof operations supervisor	Personnel involved in the management and supervision of rooftop workplaces	1	1
Safety and health education and training for first responders	first responder course	1	1
Crane operator and rigger	Crane operator and rigger	1	2
Safety and health education and training for open-pit excavation supervisors	Open-pit excavation knowledge, related machinery and equipment and safe operation knowledge	2	16

Education and Training Outcome

HDRE has always been dedicated and committed to talent development. We strive to create a continuous and diverse learning environment and gradually enhance the competence of our employees through five major training systems: Key Function Development, New Employee Training, Hierarchical Training, Professional Training, and Project Training. We aim to closely link employee development with company growth. Continuing the concept of "Learning By Doing," we design experiential activities, case studies, group discussions, and video appreciation based on the nature of different courses, making learning more enriching and lively.

In 2022, our investment in education and training amounted to NT$283,450, a 55% increase compared to NT$182,900 in 2021. This represents an additional investment of NT$100,000 from the previous year.

・2022 Staff Education and Training Statistics

Item	Male		Female		Total	
	Number of instances	Total hours	Number of instances	Total hours	Number of instances	Total hours
General employee	270	950	219	679	489	1629
Per capita (hour)	3.5		3.1		3.3	
Mid-level supervisor	106	291.5	57	149	163	440.5
Per capita (hour)	2.75		2.6		2.7	
Senior-level executive	63	190.5	29	85	92	275.5
Per capita (hour)	3.0		2.9		3.0	

Performance Evaluation and Development

According to our company's business strategy and sustainable development goals, HDRE sets annual work objectives. We utilize a performance management mechanism that involves setting goals at the beginning of the year, monitoring progress throughout the year, and evaluating performance at the end of the year. These evaluations serve as the basis for promotions and performance bonuses. The year-end and performance bonuses are determined by the Chairman and the Board of Directors based on the annual operational performance and individual job performance.

In 2022, performance evaluations were conducted twice, once in the first half of the year and once in the second half. The assessment periods were in June and December, and they covered job functions and knowledge. The overall employee evaluation in 2022 accounted for 82.6% of the total, with 113 employees evaluated in the first half, accounting for 67.3%, and 153 evaluations conducted in the second half, accounting for 98%. We link rewards to performance evaluation results and conduct regular assessments for employees at different levels. For those who demonstrate excellent performance, we provide tailored development opportunities based on their expertise and career plans. We offer timely promotions or rotation opportunities to encourage colleagues to grow alongside the company's development.

5.3 Friendly Workplace Realization

Material Topic: Occupational Safety and Health

The actual and potential positive impacts (opportunities) on the economy, environment, and society

HDRE deeply recognizes that employees are the most valuable assets of the company. Therefore, we are committed to creating a safe and secure working environment, strengthening hazard prevention, and promoting the physical and mental well-being of our employees. Our goal is to ensure that all employees, as well as our suppliers and contractors, can work with peace of mind.

The actual and potential negative impacts (risks) on the economy, environment, and society

When potential risks occur in the workplace, such as work-related injuries or occupational accidents, they may attract the attention of labor inspection authorities. In severe cases, it may result in a negative image and have impacts such as investor withdrawal.

Resources invested in 2022

1. Established compliant and standardized operating procedures to reduce the likelihood of accidents among personnel.
2. Employed on-site occupational health nurses to implement health management measures and conducting regular employee health check-up activities.
3. Implemented supervisory personnel, safety protective equipment, and self-inspection checklists in the operational areas of the work site.
4. Established an emergency response mechanism to mitigate the severity of accidents and minimize losses in case of unexpected situations.

Strategic Goals

The company's policies and commitments to occupational safety and health

1. We are committed to establishing a safe and secure work environment, enhancing hazard prevention, and promoting the physical and mental well-being of our employees. We strive to provide and create an excellent workplace and environment.
2. We prioritize employee health by conducting regular health checks and providing on-site healthcare services and health education seminars.
3. We offer subsidies and appropriate training programs and encourage employees to actively participate in training and development opportunities.

Short-term goals (1 year)

1. Set up a dedicated area for environmental health and safety announcements, initially focusing on internal announcement systems. We plan to discuss the structure and layout with the IT department and commence the planning in 2023.
2. By continuously accumulating injury-free work hours on a monthly basis, we anticipate that we will be able to obtain the Zero Accident Hour Award in the second half of 2023.
3. Develop annual occupational health and safety KPIs, distinguishing positive (opportunity) performance from negative (risk) losses. Implementation will begin in 2023, with regular reviews.
4. Organize ongoing emergency response activities, such as AED+CPR drills and firefighting exercises for the emergency response team.

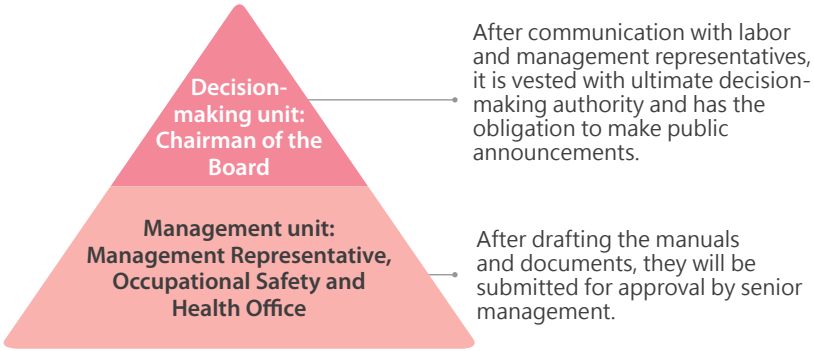
Medium to Long-term goals (3-5 years)

1. Establish an internal electronic environmental health and safety management platform to integrate education and training, licenses, documents, and internal announcements.
2. Obtain ISO 45001 management system certification for similar work sites.
3. Provide guidance to subsidiary companies in implementing and completing management system verification.
4. Assist contractors in developing their occupational health and safety risk assessment capabilities.

5.3.1 Occupational Safety and Health Management Measures

HDRE is committed to creating a high-quality, safe, and stable working environment. We have established a professional safety and health organization and implemented a safety and health audit system. Our goal is to enhance the safety and health awareness of all employees and systematically improve our occupational safety and health management performance through three main aspects: regulatory compliance, employee participation, and creating a zero-accident environment. We will actively implement occupational health and safety management verification in each office and project site. Additionally, we will continue to organize various activities related to environmental and occupational health and safety to encourage employee participation and raise awareness of occupational hazard prevention and their importance.

- **The units responsible for occupational health and safety at HDRE are:**

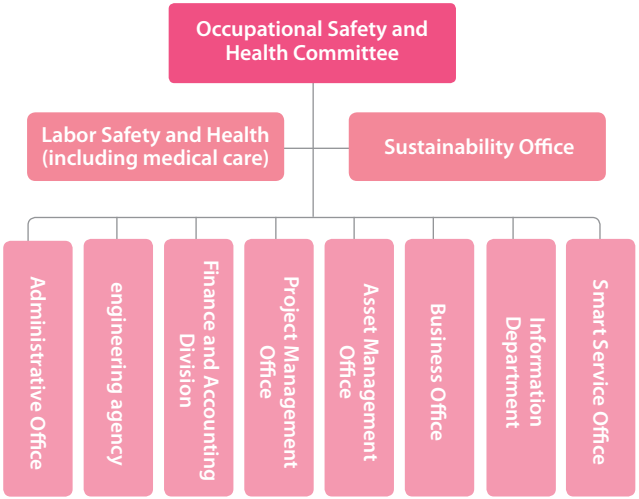


Establish Occupational Safety and Health Committee

To enhance occupational safety and health management and promote workplace safety, HDRE established a dedicated occupational safety and health unit and formed the "Occupational Safety and Health Committee" since 2021. The committee consists of 10 members, including 5 worker representatives, increasing the worker representation from 38% to 50%. The Occupational Safety and Health Committee holds quarterly meetings, conducting discussions on various topics such as changes in the workforce, implementation of employee health management, ISO management systems, and upcoming tasks for the next quarter.

The committee is committed to ensuring the realization of employee occupational safety. In addition to complying with the fundamental labor regulations, we focus on maintaining hygiene and safety in the work environment, raising awareness among employees regarding safety and health, and reducing the likelihood of occupational accidents. We regularly conduct disaster statistics, investigations, and incident analyses, implementing effective management in occupational health and safety. Our utmost goal is to prioritize the health and safety of our employees and strive towards a safe workplace.

- **Organizational Chart of Occupational Safety**



Occupational Safety and Health Education and Training

In 2022, the total training hours of occupational safety education and training reached 1,845 hours, with a total of 998 participants. The courses consisted of 10 topics, including general knowledge and specialized subjects, covering areas such as basic knowledge, health management, emergency response, accident investigation, fire drills, special operations, and management systems. To strengthen and ensure the safety of personnel operations, HDRE actively cultivates and trains risk assessment specialists to assess the risk and hazard levels of operational tasks. Based on these assessments, we develop safety and health management plans and conduct cost evaluations, including improvements in machinery equipment protection, evaluations of the purchase of safety protection equipment, regular safety inspections of machinery equipment, and implementation of occupational safety and health education and training for personnel.

To enhance our capabilities in occupational safety and health management system administration, we have planned the implementation of an online management system for occupational health certifications starting in 2022. This system will effectively manage regular notifications and administration of education and training. We aim to complete its development and launch it for official use in 2023. Furthermore, in 2022, HDRE has consistently obtained and implemented the ISO 45001 certification for occupational safety and health management systems. We continue to extend environmental, safety, and health as well as quality management practices to our work sites, gradually fostering understanding among our colleagues and encouraging their cooperation. Obtaining system certification remains a key objective for us.

General Knowledge Course

Relevant educational and training materials will be provided to new employees upon their arrival. The content of these materials will primarily follow the fundamentals of occupational safety based on regulations.

Course Type	Basic Knowledge	Basic Knowledge	Health Management
Topic	General safety and health education and training	On-the-job safety and health education and training for general employees (employees with at least 3 years of service)	Healthy food and diet (employees with at least 3 years of service)
Course Content	• Company Introduction • Occupational safety and health education and training • Foundational knowledge of Management systems • Fire and emergency response	• Policy &safety and health KPI • Safety and health trends • Occupational safety and health management system • Workplace health, safety, and epidemic prevention management • Occupational accidents and rights	• National survey on nutritional and health status • Updated dietary guidelines • We need sugar, but we don't need to consume sugar • Understand "sugar" and "carbohydrate" • Potential harm caused by sugar • World Health Organization (WHO) recommendations on sugar intake • My healthy meal
Actual Outcome	Number of trainees: 198 Number of training hour: 3hr Total: 594hr	Number of trainees: 52 Number of training hour: 3hr Total: 156hr	Number of trainees: 251 Number of training hour: 1hr Total: 251hr

Course Type	Health and Emergency Response	Accident Investigation	Fire Drill
Topic	Love knows no barriers, it's right by your side	Accident investigation and corrective and preventive action management	Participate in the fire drill training program in the building
Course Content	• Emergency and Rescue Instructions • CPR+AED Defibrillator Operation Tutorial • Simple Wound Dressing Practice	• Policy and KPI • Purpose of accident investigation • Related procedural documents	• Fire control and response • AED operation demonstration and drills • Evacuation and escape instructions
Actual Outcome	Number of trainees: 66 Number of training hour: 1hr Total: 66hr	Number of trainees: 283 Number of training hour: 1hr Total: 283hr	Number of trainees: 6 Number of training hour: 2hr Total: 12hr

Professional Courses

For staff of the on-site engineering department and quality control team, specialized courses will be offered specifically. Employees in these departments are required to complete the assigned course within specified deadline.

Course Type	Special operation	Special operation	Management system	Management system
Topic	Contracting and outsourcing management procedure	Confined space, hot work, electrical and overhead operation management procedure	ISO 45001 article content introduction and hazard identification	ISO 45001 Internal Auditor Training
Course Content	• Department responsibilities • Construction permit application • Operation management and other matters management	• Introduction to accident case studies • Safety and health regulations explanation • Hazard prevention strategies and other matter management	• Article content introduction • Regulatory identification and risk assessment • Team discussion and drill	• Internal audit method • Team discussion and drill
Actual Outcome	Number of trainees: 41 Number of training hour: 1hr Total: 41hr	Number of trainees: 41 Number of training hour: 1hr Total: 41hr	Number of trainees: 30 Number of training hour: 6hr Total: 180hr	Number of trainees: 30 Number of training hour: 6hr Total: 180hr

5.3.2 Improve Safety and Health Environment, Prevent Occupational Accident

Accident Prevention Management Measures

At HDRE, we consider our employees as our most valuable assets, and we place great importance on ensuring a safe and healthy working environment for all our satff. To implement occupational health and safety policies and create a "zero-accident" work environment, we develop an annual Occupational Health and Safety Management Plan and Occupational Health and Safety Management Regulations. We review each item in the plan and implement comprehensive occupational health and safety management measures.

In addition to regularly updating our digital monitoring equipment systems, our engineering department enhances hardware safety measures at the work sites, ensuring improved safety maintenance. In 2022, there were no cases of work-related injuries, occupational diseases, or fatalities. We have integrated the incident-free working hours of HDRE employees and contractors, totaling 538,176 hours in the current year, which represents a growth of 328% compared to the previous year.

- **HDRE Occupational injury data in 2022**

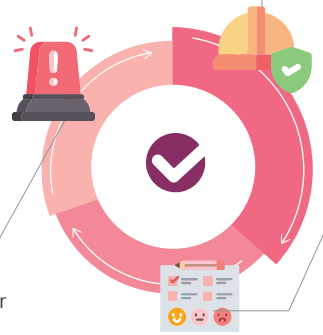
	Employee type	HDRE staff	Contractor	Total
Head office	Incident Rate (IR) (Number of lost work incidents/ total work hours) *200,000	0	0	0
	Occupational Disease Rate (ODR)= (Total number of occupational diseases/ total work hours) *200,000	0	0	0
	Lost Day Rate (LDR)= (Total number of lost workdays / total work hours) *200,000	0	0	0
	Absence Rate (AR)= (1) total hours of sick leave +(2) personal leave / total work hours *100%	0	0	0
	Functional Rate (FR)= (Number of lost work cases *106)/ total work hours	0	0	0
	Severity Rate (SR)= (Number of lost workdays *106)/ total work hours	0	0	0
	The Serious Occupational Injury Rate= (Number of serious occupational injuries / total work hours) *200,000	0	0	0
	Recordable Occupational Injury Rate= (Number of recordable occupational injuries in 2022 / total work hours) *200,000	0	0	0

Work Improvement Measures

To strengthen occupational health and safety management in the workplace, we adhere to a rigorous approach in controlling and managing any safety and health-related incidents. If any non-compliance with occupational health and safety standards is identified, we require relevant department colleagues to document the reasons on a "Corrective Action Request Form." In the event of an accident, the causes are documented on an "Accident Investigation Form." The unit or department responsible for the accident is required to complete the accident investigation form, conducting a thorough investigation, review, and planning within one week of the incident. They propose improvement measures and handling procedures to correct the non-compliance and prevent its recurrence.

Investigation Deployment

When there are issues or incidents that do not comply with occupational safety and health standards, the responsible unit shall deploy investigation actively on the personnel, facility or equipment, operation method, workplace or other aspects.



Prevention Mechanism

1. Eliminate hazards.
2. Replace processes, operations, materials or equipment with relatively lower hazards.
3. Adopt engineering control and work restructuring.
4. Adopt administrative control, including training.
5. Use appropriate and sufficient personal protective equipment.

Improvement Follow-up

Notify the responsible unit for non-compliance. For any error in the data, the Labor Safety and Heath Office may return the case to and request for correction. The inspector shall response to the request and make corrections within three days.

5.3.3 Health Promotion and Employee Care

Employee Health Protection

To properly care for the health of our employees, we not only provide an annual subsidy of 2,000 yuan for health check-ups but also offer four major employee care programs to enhance the workplace care for our staff.

In 2022, as part of our efforts to prevent occupational hazards, we conducted musculoskeletal surveys for 123 colleagues. Among them, 5 individuals were identified as being in a high-risk group after assessment. Subsequently, they received personalized ergonomics education and guidance through consultations with our nursing staff.

Regarding our maternal health program, we provided 13 female colleagues with health risk assessments and conducted on-site consultations with our nursing staff. Among them, 5 were pregnant, and 8 had recently given birth. Additionally, we have enhanced our support for maternal colleagues by setting up nursing rooms in our new building to cater to their needs.

In terms of assessing excessive workloads, we conducted a survey on the workloads of 123 colleagues. Among them, 5 individuals had higher scores indicating a significant workload. As a follow-up measure, we have arranged for our nursing staff to provide preventive education and conduct consultations on managing excessive workloads for these employees.

Finally, in terms of preventing workplace violence, HDRE emphasizes the spirit of preventing workplace violence from top to bottom. The senior management has signed the "Written Certification for Prevention of Workplace Violence" document, and the relevant regulations and laws have been announced in public spaces. As a follow-up measure, we will conduct risk assessments for illegal infringements targeting business units, projects, engineering teams, and supervisors who frequently interact with stakeholders within the company.

・Four Main Plans

Ergonomic Hazard Prevention Plan

- Based on the ergonomic musculoskeletal survey, we primarily conducted the survey among employees who have been with us for at least one year. As of February 8, 2023, a total of 123 employees have completed the musculoskeletal surveys.
- Employees with self-assessment score of 3 or above are required to undergo health management for high-risk ergonomic factors. A total of 5 employees met this criterion, and we will arrange for nurses to provide with ergonomic health education and conduct individual consultations.

Preventive Plan for Abnormal Workload and Disease

- To provide employee health protection and care, in addition to the establishment of preventive plan for preventing disease caused by excessive workloads, we have conducted a survey using the Work-related Overload Scale among our workforce. A total of 123 employees participated in the survey, and the results revealed that 5 employees scored higher in terms of work-related overload. Subsequently, nurses will be arranged to provide preventive health education and conduct interviews on work-related overload concerns.
- To care for the physical and mental well-being of our employees, we have hired counseling psychologists specifically to address cases related to high workloads. They will be given priority in arranging counseling sessions for support and the discussions during these sessions will be documented.
- Based on the outcomes of these sessions, we will prioritize planning relevant assessment workshops and providing employees with information about the resources available for psychological counseling. The aim is to alleviate employees' physical and mental stress and promote their overall health care.

Workplace Maternal Health Protection Plan

- To properly protect the health of employees, we have also established the maternal health protection plan.
- As part of this plan, we have conducted maternal health risk assessments for a total of 5 pregnant employees and 8 employees who have recently given birth. Our on-site nurses have conducted interviews with these individuals.
- Lactation rooms have been set up in the new office buildings (Asia-Pacific Cloud Office and Hongpu Building Office), providing a comfortable space for employees to breastfeed. This initiative aims to enhance the sense of belonging and ensuring compliance with relevant regulations among the workforces.

Preventive Plan for Preventing Illegal Acts in Workplace

- Senior management will sign the "Written Declaration for Preventing Workplace Violence" document, which includes provisions for sexual harassment, and the signed commitment will be posted and displayed in the office area. Subsequently, a risk assessment for unlawful infringement will be conducted for business units, projects, and engineering units, as well as for supervisors who frequently interact with stakeholders within the company.
- Risk assessments for unlawful infringements have been conducted for business units, projects, and engineering teams that frequently interact with stakeholders. An annual check and evaluation of preventive measures against workplace unlawful infringements have also been carried out, and currently, all risks are deemed acceptable.
- Additionally, in accordance with the amended "Guidelines for Preventing Illegal Infringement on Job Duties" announced by the Ministry of Labor on August 17, 2022, the process flowchart, attached forms, and declaration statement have been adjusted. The measures necessary for the prevention of stalking and harassment have been incorporated into this process.
- The inclusion of the term "stalking and harassment" has been acknowledged by senior management, who have completed the signing of the declaration statement and made it publicly known.

Occupational Health Service Plan

Employee occupational health services and programs are one of the major focuses of attention at HDRE. They aim to enhance the well-being of their employees in the workplace. The 2022 Occupational Health Service Program allocated a total of 149,120 dollars, including visits from nurses and professional doctors to provide medical consultations at the company, the provision of self-health monitoring equipment for employees, and the implementation of measures and adjustments to address workplace health risks.

In addressing the psychological well-being of employees, in 2022, HDRE arranged for occupational therapists to conduct "Prevention of Workplace Violence" seminars, which were attended by a total of 23 participants. When employees experience physical or mental discomfort or are affected by work-related stress that impacts their lives, we provide guidance for colleagues to fill out the "Work Overload Assessment Questionnaire." For those with higher scores indicating work overload, we arrange for them to have consultations with health service nurses to understand the severity of the risk factors and provide advice and documentation for future health monitoring.

Additionally, if any colleagues are experiencing emotional distress, we arrange interviews and care sessions with health service nurses and provide resources such as psychological therapy institutions and government platforms. Follow-up is conducted accordingly. In response to the issue of an aging workforce, HDRE aims to strengthen the safety and health of middle-aged and older workers. We conducted work fitness assessments for 4 individuals in this age group. Assessments were based on their current work environment and workload, and all results indicated their suitability for their roles.

In terms of employees' physical health, in 2022, HDRE provided a subsidy of NT$2,000 for each employee to undergo physical health examinations, totaling NT$283,000. This welfare benefit exceeds legal requirements and allows colleagues to understand their own health status. The subsidy for health examinations has been increasing each year to ensure the monitoring and well-being of employees. In 2022, the health examination subsidy budget was increased by an additional NT$500 per person compared to the previous year. The examination items were also expanded to include gout, pancreatic function, rheumatoid arthritis, ultrasound examinations, and bone density tests.

2022 Counseling Services

1. We provide empathetic listening, professional assessment, and analysis for employees facing challenges in the workplace and personal life. We offer basic mental health education and stress relief techniques, along with suggestions for seeking formal psychological counseling in the future. We also provide a list of resources for psychological counseling, encouraging employees to seek help when needed.
2. We help employees recognize and understand their emotional coping patterns by employing empathetic speculation techniques. We guide them to connect with their own emotions and learn how to navigate them.
3. Through the counseling process, we observe and discuss employees' patterns of interpersonal interaction, aiming to enhance their self-awareness and understanding of their own behavior.
4. We acknowledge and affirm the unique strengths and qualities of each individual case, while also encouraging employees to pay attention to and express their true inner needs.
5. We guide employees in examining how their internal cognitive beliefs and assumptions can influence their coping strategies when faced with external pressures. We help them differentiate between emotional experiences and rational thoughts, and encourage them to accept and address their emotional needs.

Professional nurse | Field stationing frequency: 4 times per month

Execution Effectiveness

- Health examination/physical examination abnormality follow-up management: 54 people-time.
- Maternal health care: 8 people-time.
- Ergonomic musculoskeletal survey for employees on-board for one full year: 88 people; health management for individuals at high-risk ergonomic: 21 people-time.
- Annual overload survey: 118 people; health management for high-risk overload: 9 people-time.
- Unlawful infringement risk assessment: 8 persons-time.
- In the 111th fiscal year, interviews were arranged for colleagues who were diagnosed, with a total of 66 interviews conducted to provide health education and guidance on post-effects.
- IMedium and high age group health care: 4 persons-time.
- IHigh health risk personnel notification: 10 people.
- IProvided a total of 10 health care education presentations irregularly to enhance the health management awareness of employees.

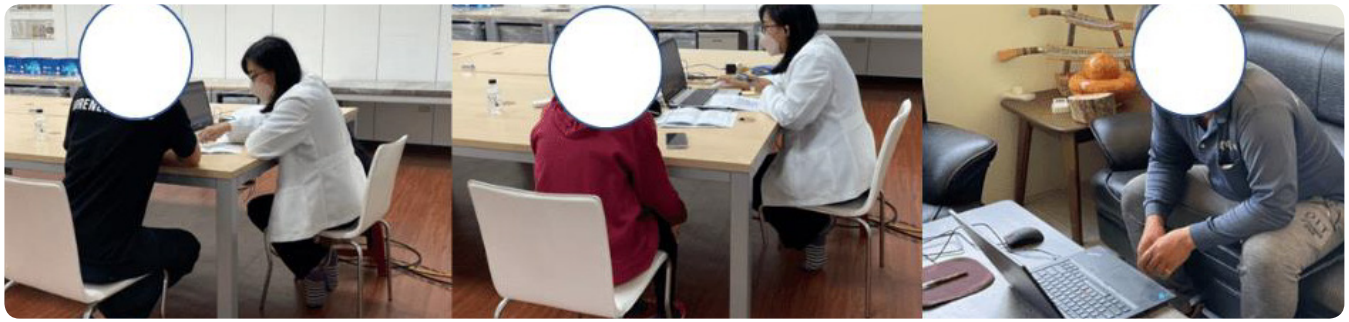
Employees' Opinion and Feedback

- The effectiveness of the consultations is high, and it can assist employees to understand their health examination reports and how to follow-up further.
- Employees actively schedule monthly on-site health services and express immense benefits from the health education information and medical resources provided by the nurses. They also feel that the company places significant emphasis on employee health.

Professional physician | **Field stationing frequency: Once per quarter**

Execution Effectiveness

- Through the examination form, assistance is provided to improve the lifestyle habits of individuals at high risk of ergonomic hazards, and health education to effectively reduce discomfort scores related to musculoskeletal issues is implemented.
- For employees of high overload risk, psychological support, clinical health education, job corresponding consultation are provided, and referral resources are also provided.



Self-Health Monitoring | **Installation of first aid kit and sphygmomanometer**

Execution Effectiveness

- Preliminary evaluation was provided to employees for self-health monitoring and emergency condition, and employees indicated that such assessment could be used for health follow-up and management.

Taipei Office

Taichung Office

Tainan Office

・Occupational Safety and Health Risk and Opportunity Topic Control Measures

Impact	Health Risk Issue	Control Measures	Actual Outcome
High Risk	Disease Control Covid-19 (Severe Pneumonia with Novel Pathogens)	1. Establish major disaster and epidemic response management measures 2. Implementing a flexible adjustment approach based on epidemic prevention measures, such as flexible work-from-home arrangements, home isolation for confirmed cases, and self-managed health monitoring during remote work.	1. Followed the procedures in case of emergency situations to reduce employee anxiety and tension. 2. Management personnel conducted temperature measurements and monitoring, and the result was used for personnel health conditions follow-up and statistics. 3. Minimized personnel exposure to risks and reduced the infection rate in office operations. 4. Provided a flexible and healthy working environment.
	Office environment and drinking water monitoring	1. Office management of carbon dioxide levels and lighting conditions. 2. Engage qualified organizations to conduct drinking water monitoring. 3. Implement and track improvements for non-compliant issues.	1. Ensured monitoring standards comply with regulations. 2. Provided adequate lighting and a comfortable working environment. 3. Implemented periodic monitoring and follow-up to prevent occurrence of nonconforming incidents.
	Maternal Health and Protection	1. Incorporate the implementation plan into the management program. 2. Conduct maternal health risk assessment and establish lactation room planning and setup. 3. Conduct on-site nurse interviews assessments.	1. Completed maternal health risk assessment. 2. Completed the setup of lactation room. 3. Implementation started on 22/01 and ensured compliance. 4. Enhanced employees' identification and compliance with the company.
Medium Risk	Ergonomic hazard prevention	1. Establish relevant management procedures. 2. Conduct ergonomic hazard investigations. 3. Install appropriate improvement tools.	1. Established ergonomic hazard prevention plan. 2. Completed ergonomic hazard assessment for employees and included it in the on-site nursing interviews. 3. Provided employees with computer stands in order to alleviate the shoulder and neck pain caused by computer operation.
	Preventing unlawful infringements	1. Develop relevant management procedures. 2. Draft a written declaration for the prevention of workplace violence, to be announced after being approved by senior management. 3. Implement hazard identification and risk assessment forms for the prevention of workplace unlawful infringements.	1. Completed the development of the prevention plan for unlawful infringements. 2. Senior management signed and announced the written declaration for the prevention of workplace violence, highlighting the commitment and determination of HDRE. 3. Completed hazard identification and risk assessment forms for the prevention of workplace unlawful infringements in the northern, central, and southern regions, assessing them to be within acceptable safety levels. 4. Implemented the annual workplace unlawful infringement prevention workplace environment inspection record form.
	Workplace health and safety	1. Establish dedicated personnel for safety and health management. 2. Assess the arrangement of on-site health professional nurse to implement employee health management and monitoring. 3. Organize annual health examination for employees. 4. Implement safety and health management measures for contractors.	1. Completed the establishment of safety and health dedicated unit and the reporting of government personnel on 21/08. 2. Completed and implemented the assessment of on-site health nurses. 3. Executed employee health examination and provided subsidy to a total of 119 employees on 21/11. 4. Safety management for operations in two areas was implemented, involving a total of 530 contractors.
Opportunity	Occupational Safety and Health management system planning and implementation	1. Assess the implementation of management system. 2. Establish education and training procedures for employees. 3. Record and manage the verifications of external institution. 4. Assess and manage subcontractors' capabilities for new business projects.	1. Integrated with ISO 9001 management system and completed the establishment of 130 sets of documents and relevant execution records. 2. Completed verification and obtained management system certificate on 22/07. 3. Inspected and reviewed the effectiveness of the management system periodically.

Achievements in Promoting a Happy Workplace

HDRE has made significant efforts to strengthen four major aspects: "diverse workplace inclusion," "gender equality," "maternal health protection," and "workplace safety." In terms of human rights policies and measures, we have conducted more comprehensive reviews and planning to lead our employees towards a more diverse and equal workplace. This includes promoting new employee education and daily advocacy to emphasize the importance of respecting human rights among our colleagues. Additionally, we have reviewed and required our suppliers and business partners to ensure that they do not violate basic human rights in any of their direct or indirect operational activities, aiming to safeguard the fair and dignified treatment of all stakeholders related to our company to the best of our abilities. In 2022, there were no major complaints reported at HDRE.

Diverse Workplace Inclusion

Description	Actual Action	2022 Execution Result
We regularly review the existing professional competencies of our talent and design positions tailored to employees with diverse professional backgrounds and multicultural experiences.	1 We engage in job redesign for employees with different professional backgrounds to ensure that each colleague's role contributes to the company's growth and their own professional development. 2. We actively recruit employees with diverse professional and cultural backgrounds during the hiring process.	Employed one employee with disability in 2022.

Gende Equality

Description	Actual Action	2022 Execution Result
mplement education and awareness program on sexual harassment prevention for new employees.	Set up sexual harassment consultation and complaint channels.	There were no sexual harassment incidents in 2022.

Maternal Health and Protection

Description	Actual Action	2022 Execution Result
Build a maternity-safe and supportive workplace environment and system to reduce the overall burden on employees from pregnancy to postpartum.	• Incorporate the implementation plan into the management program. • Conduct maternal health risk assessment and plan the establishment of lactation rooms. We are planning to establish a lactation room in the new office building, Hongpu Building, in 2023. • Conduct field nurse interview assessment. • We are planning to implement childcare measures and intend to engage "Ho Chia Jen Industrial Co., Ltd." to provide corporate childcare services in 2023.	1. We have conducted maternal health protection workplace environment and operational hazard assessments for six individuals. 2. The installation of a lactation room has been completed at the Asia Pacific Cloud Center in the new office building.

Workplace Safety

Description	Actual Action	2022 Execution Result
Promote all employees to participate in quality control, environmental safety and health, health promotion and energy efficiency-related activities activities, and continuously strive for improvement.	• Evaluate the implementation of occupational safety and health management system. • Provide personnel educational training and develop procedural documents. • Execute record management and verification of external institutions. • Set up 4 AED devices.	1. Completed the establishment of 130 sets of documents and relevant execution records. 2. Obtained the management system. certification after verification on 21/09. 3. Inspected and reviewed the effectiveness of the management system periodically.

06

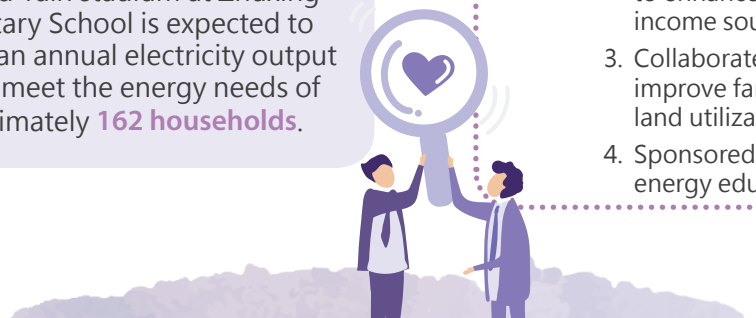
Sustainable Feedback and Mutual Prosperity

Core Vision and Commitment

Adhering to the philosophy of "taking from society, giving back to society," we are committed to practicing social responsibility through knowledge sharing and active engagement in society. HDRE upholds the principle of "Creating sustainable co-prosperity, Practicing Care and Rooted Education", and focuses on the four main issues of "energy education, public welfare contribution, local symbiosis, ecological conservation, aligning with the United Nations Sustainable Development Goals (SDGs). We implement ESG diverse actions to assist remote area development and promote social equality opportunities for vulnerable groups.

・2022 Results and Performance

1. Public Welfare Contribution Amounts up to **7,357,116** NT dollar.
2. Sponsorship of Formosa 3D Movie Car: Bringing 3D Movies and Green Energy Education to 121 Touring Locations in 2022, Reaching a Total Audience of **14,991.**
3. The construction of the solar-powered wind-and-rain stadium at Zhuxing Elementary School is expected to generate an annual electricity output that can meet the energy needs of approximately **162 households**.



6.1 Mutual Prosperity in Society

We plan to allocate the annual photovoltaic revenue to the public welfare budget, which will be used for community feedback services and connect all subsidiaries across Taiwan to encourage employee participation in activities. In addition, we also actively response to various social engagement activities and involve internal and external volunteers to implement social care thoroughly. Through diverse approaches such as educational promotion, local cooperation, and health promotion activities, we aim to give back to the society and to achieve sustainable operation jointly.

Material Topic: Local community

The actual and potential positive impacts (opportunities) on the economy, environment, and population

The development of the project site combines the local community, ecology, and environment, providing more job opportunities for residents and retaining the local youth population.

The actual and potential negative impacts (risks) on the economy, environment, and population

Failure to communicate effectively with the local community may create a negative impression of HDRE among stakeholders, leading to frequent operational disruptions or damage to the company's reputation.

Resources invested in 2022

1. The investment in social welfare amounted to 7,357,116 NT dollar.
2. Collaborated with agricultural land tenants to enhance land value and create additional income sources for local elderly landowners.
3. Collaborated with aquaculture farmers to improve farming efficiency and enhance land utilization value.
4. Sponsored a 3D movie car to promote energy education.

Strategic Goals

Company policies and commitments to the local community

Achieve a triple win in environmental ecology, fishermen livelihood, and green energy generation by conducting an Environmental and Social Impact Assessment to carefully assess the benefits and impacts, while respecting the wishes of the local community and safeguarding the rights of fishermen.

Short-term goals (1 year)

Collaborate with environmental organizations to promote energy education in schools near the project site.

Medium to Long-term goals (3-5 years)

Continuously promote energy education, public welfare contributions, local coexistence, and ecological conservation.

6.1.1 Outcome of Mutual Prosperity in Society

Mutual Prosperity in Society Development Blueprint

Enhancing the visibility of HDRE's sustainable brand to create mutual prosperity in sustainability

Energy Education

We plan to collaborate with environmental organizations to procure professional energy and environmental education materials. We will visit schools near our main project sites and provide energy and environmental education to foster community awareness and understanding of renewable energy. Our goal is to achieve a sense of social inclusion towards sustainability.

Public Welfare

We will continue our donations to various organizations such as the Formosa 3D Association, temples, sports organizations, government agencies, and vulnerable groups.

Local Co-existen

1. Mutual assistance in agricultural land leasing among farmers in Pingtung.
2. Exchange of knowledge and experiences in fish pond farming in Tainan.

Ecological Conservation

1. Establishment of Qigu wild goose and duck ecological protection zone.
2. Establishment of Yulin Gukeng net zero carbon emissions demonstrative zone.

Promote Energy Education

HDRE has collaborated with the Formosa 3D Association, a non-profit organization, to promote energy education. Through the association's touring exhibitions, we aim to provide children in remote areas with diverse perspectives on life values. Building upon this foundation, we integrate the concept of sustainability and power the 3D touring vehicle with solar energy, allowing it to operate autonomously during the exhibitions. This not only exposes children to the practical application of sustainable energy but also fosters a more tangible understanding of the importance of sustainable energy sources. In addition to showcasing 3D films through the Formosa 3D Association, our collaboration enables us to educate children on how to love Taiwan and its land in a sustainable manner. This goes beyond movies and extends to teaching children how to use energy in a sustainable way. For more information, please refer to section "6.2 Energy Promotion Education."

Looking ahead, we have plans to expand our partnerships with environmental organizations. By collaborating with schools near HDRE's project sites, we aim to engage in energy and environmental education. This initiative serves a dual purpose: promoting students' awareness of sustainability and renewable energy while deepening our understanding of the local community and establishing positive relationships。

Committed to Participating in Public Welfare Activities

HDRE is leaving no stone unturned when it comes to social welfare. The company has made sustainable development its core value, and in recent years, it has made extensive contributions to various areas of social welfare, including religious organizations, government agencies, disadvantaged groups, and sports, demonstrating HDRE's commitment to mutual prosperity in society. Among them, our investment in energy education has reached new heights. We have dedicated our efforts to energy education in rural areas, expanding the horizons of children. Our investment has soared from NT$160,000 last year to NT$6 million in 2022. Moving forward, we will continue to invest in philanthropic actions, ensuring that every dollar spent yields maximum impact. We aim to expand this influence continuously, devoting our utmost efforts to the positive development of society.

· HDRE 2022 Donation Details

Category	Donation Recipient	Donation Amount
Sponsored temples for event organization	Fo Guang Shan Temple	1,000,000
	Jianshan Hsianji Temple Management Committee	120,000
Energy education promotion	Formosa 3D Association	6,237,116
Total	7,357,116	

Local Coexistence

Farmer Land Lease Mutual Assistance

In recent years, abnormal climate patterns have had a significant impact not only globally but also on the agricultural sector in Taiwan. For farmers, crop yields are directly affected by the climate. As the effects of extreme weather on farmers become increasingly apparent, we have devoted into the local communities, aiming to bring about meaningful change through collaboration.

By fostering care, interaction, and open communication with village and community leaders, we introduce new solutions to address climate-related issues. Through leasing portions of farmland for the establishment of solar power plants, we ensure that farmers can maintain their traditional way of life while engaging in cooperative arrangements that provide them with a stable rental income. This additional income serves as a supplement during times of poor agricultural yields. Local coexistence is a core value that is highly valued by HDRE. We aim to foster community and industry collaboration through the process of co-producing fishing rods, enabling local communities to keep pace with industry advancements.

Local Story

In Neipu Township, Pingtung, there is an elderly landlord who used to make a living by growing betel nuts. Next to his house, there was a large betel nut plantation, and he also cultivated guava at the same time. However, as the betel nut industry gradually declined, the second generation of his family no longer wanted to engage in farming and instead pursued opportunities in big cities. This left the elderly landlord in great distress, as his children were no longer by his side, and his aging body did not allow him to continue farming to sustain his livelihood.

Later on, the old landowner learned from others that by partnering with HDRE, he could not only generate stable income for his retirement life but also save money for the next generation. Accordingly, he decided to lease his land to HDRE for the construction of a solar photovoltaic field. Presently, every time when HDRD visits the field for maintenance, the old landowner always shows his hospitality and offers self-grew guava as gifts to our staff.

In the process of developing the project sites, HDRD also looks forward to assisting the residents by providing new development opportunity and stimulating the local economy. Meanwhile, we do not forget the emotional attachment that the elderly landlord has towards his land. HDRE strives to establish a foundation of trust and foster a good relationship with the local community.

Cooperation with Tainan Fishery Cultivation Industry

In the Beimen District of Tainan, where fishing and aquaculture are predominant, long-term subsidence issues have plagued the region. Additionally, the outmigration of young people has posed a significant challenge to the continuity of traditional industries. While fishing and aquaculture remain important local industries, many landowners are elderly and can no longer afford the labor-intensive tasks involved in aquaculture.

In response to these challenges, HDRE provides localized solutions to address social issues. We actively seek consensus with aquaculture farmers and integrate land through leasing or purchasing arrangements. By establishing fishery-electric symbiosis, we alleviate the livelihood difficulties faced by aquaculture farmers who are unable to continue their operations. Moreover, upon the completion of these projects, we prioritize employing the original aquaculture farmers and local residents, aiming to stimulate the local economy and resolve the issue of unemployment.

Local Story

There is a landowner in the coastal area of Tainan who has relied on aquaculture for generations to make a living. However, due to environmental change and land subsidence in recent years, they had to give up their family's long-standing memories of hard work and growth on this land.

Until the contact was established between the landowner and HDRE, the landowner gained an understanding of the integration between aquaculture and the photovoltaic industry. This not only provided an opportunity for the ancestral land to be revitalized but also contributed to Taiwan's energy transition.

HDRE actively engages in cooperation with the local industries and landowners to promote land reuse and energy transformation. Currently, there are two projects underway in Tainan. During the construction process, special attention is given to raising the embankments and improving the drainage system to prevent future seawater intrusion. We look forward to developing a friendly living environment and to create a mutually beneficial and sustainable future.

Protect and Maintain Biodiversity

HDRE takes into account the opinion of various stakeholders throughout the entire process, from site selection and planning to construction and operation. In addition to financial considerations, we place great importance on the environmental and social impacts of our projects. We thoroughly assess the potential benefits and consequences of our development activities. Our approach encompasses ecological harmony, public sentiment, and the rights of fishermen. When designing solar power facilities, we dedicate ourselves to preserving the original land usage and honoring the recommendations of local communities and environmental advocacy groups. We actively preserve ecologically sensitive areas identified in environmental and social impact reports. Our commitment to the preservation of the ecosystem means that we pledge not to exploit designated areas, ensuring the maintenance of biodiversity. Our aim is to conduct our business operations without causing harm or disruption to the local environment while simultaneously fostering a sense of community and inclusive development. ; Please refer to "6.3 Promoting coexistence of ecosystems" for details.

6.2 Promote Energy Education

Taiwan's stark urban-rural divide has prompted both the government and non-profit organizations to actively address the significant disparities in educational resources. With a steadfast commitment to this cause, HDRE is leveraging its industry expertise to narrow the gap. By focusing educational resources on renewable energy and sustainability, we are collaborating with schools, environmental groups, and foundations to jointly plan and promote renewable energy education.

6.2.1 Focus on Energy Education

Formosa 3D movie vehicle traveled to all regions in Taiwan, and encouraged more than 3,000 school at remote areas

HDRE has partnered with the non-profit organization, Formosa Taiwan 3D Association, to launch a rural education program initiated by the director of "Formosa Taiwan 3D," Chu Chuanlee. With 3D filming techniques, the program showcases the beauty of Taiwan's nature and screens it on a mobile movie vehicle. Over the past year, it has successfully reached remote elementary schools across Taiwan, impacting an average of one student per kilometer. Formosa Taiwan has been on the road, inspiring the vision and dreams of the next generation. To date, the movie vehicle has visited nearly 3,000 schools, over 210 institutions for the vulnerable groups, and has traveled a total distance of over 260,000 kilometers, inspiring more than 260,000 students. With an average impact of one child per kilometer traveled.

Throughout the process of promoting this concept, the movie vehicle has faced challenges with unstable and insufficient power supply. HDRE has utilized its expertise to address this issue by installing solar panels on the rooftop of the movie vehicle and equipping it with energy storage devices. This innovation has resulted in the creation of Asia's first 3D mobile solar-powered movie vehicle, allowing the movie vehicle to be self-sufficient in terms of power supply as it travels across Taiwan.

In 2022, Formosa Taiwan conducted 121 screenings of 3D movies and green energy education in rural areas, with a total of 14,991 viewers.

HDRE and Formosa 3D Movie Vehicle

"Beauty is a force! I want to document more and better things for Taiwan," said director Chu Chuanlee. He spent 10 years capturing the most beautiful people, events, and objects that have existed in Taiwan, from Orchid Island to the Central Mountain Range, from small towns and rural areas to bustling cities, and from natural landscapes to traditional craftsmanship. Since February 2014, Formosa Taiwan 3D Movie Vehicle has been tirelessly promoting rural education, bringing positive energy to children, and helping them discover the true goodness and beauty of Taiwan.

Formosa Taiwan brought laughter to children in rural areas and touched the hearts of HDRE, officially becoming their philanthropic partner. Chairman of HDRE, stated that due to occasional power instability and outdated outlets in rural areas, after connecting with Director Qu, they immediately provided solutions using HDRE's core technology. They installed solar panels on the rooftop and increased energy storage devices. As a result, after a full charge, the power is sufficient to screen at least two movies in a day. This eliminates the worries of Formosa Taiwan about power supply issues. Furthermore, the power can be generated and stored simultaneously, realizing a small-scale microgrid in action.

Solar-Powered Mobile Movie Vehicle Introduces Children to Green Energy

The unique 3D mobile movie vehicle, in collaboration with HDRE, introduces a fresh and exciting concept that goes beyond traditional filmmaking. It incorporates new visual content, such as the "Taiwan Superman" film series, capturing the inspiring stories of ordinary individuals who radiate extraordinary brilliance in society. Through these heartfelt narratives, the movie theater showcases the remarkable significance of each person's life to the next generation of children.

Furthermore, we have integrated scientific knowledge into the mix, presenting energy education in a tangible way through the 3D movie vehicle experience. After watching the films, children's attention is directed back to the movie vehicle itself, where they learn that using green energy is not an unattainable goal but rather a part of their everyday lives. The aim is to cultivate a sense of sustainability and promote environmentally friendly lifestyles among the younger generation.






Successfully Constructed Wind and Rain Resistant Stadiums in Two Schools

Construct all-weather stadium at remote area of Miaoli County and promote energy education

Recognizing that the basketball court at Pantau Elementary School in Miaoli County has been in use for many years and is outdated with no shelter from rain, unfavorable weather conditions hinder leisure activities for the public and impede sports activities for students. To provide a better basketball court and align with the government's green energy policies, HDRE invested in the transformation of the court into a solar-powered photovoltaic facility.

Despite encountering challenges such as escalated pandemic situations and design changes during the construction period, we successfully completed the project through patient communication, coordination, and strict monitoring of engineering quality. The transformed facility now serves as an indoor activity space, generates green energy, and promotes energy education, effectively resolving the issue of insufficient indoor sports spaces.

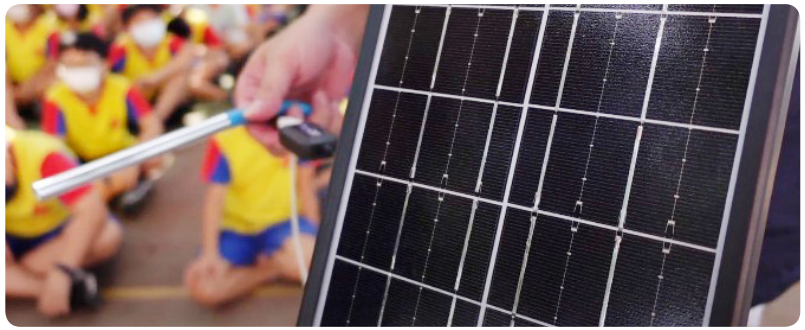
- **Total Installation Capacity at Pantau Elementary School 794.31kW**

Roof	Stadium	Parking Lot
420.09 kW	320.76 kW	53.46 kW


Solar Photovoltaic Stadium of Pantau Elementary School, Miaoli County

After the installation of solar panels, we encouraged our internal staff to enter the campus and serve as energy education instructors to further promote energy education. Through hands-on demonstrations using small solar panels, we aimed to help students realize the connection between energy and themselves. This initiative inspired children to contemplate the relationship between their daily lives, environmental conservation, and energy usage. In total, we reached over 200 students from Pantau Elementary School.

By guiding them, we helped students understand how to improve energy efficiency and reduce unnecessary waste while promoting economic development. In the future, we will continue to promote energy education by tailoring educational themes on renewable energy based on the different educational levels of the students. Our goal is to lead students in understanding renewable energy and its various applications in everyday life.



Promoting Energy Education Among Students: Teaching Energy Utilization

Creating a solar-powered photovoltaic stadium at Zhuxing Elementary School in Miaoli County

Taking into consideration the limited indoor space at Zhuxing Elementary School, HDRE has funded the construction of a solar photovoltaic stadium, effectively addressing three major issues: indoor space constraints, self-sustaining solar power generation, and revitalizing the school grounds. This initiative not only provides the school with additional indoor space but also increases physical activity for students while significantly reducing the school's expenses through self-generated electricity. The projected benefits of the photovoltaic stadium are impressive, estimated to provide annual electricity consumption for 162 households, generating approximately 580,000 kilowatt-hours per year, and reducing carbon emissions by 319 metric tons.

Furthermore, the initiative of bringing green energy into schools has further raised children's awareness and knowledge of renewable energy. By showcasing tangible examples, sustainable energy has become ingrained in the daily lives of these young learners, fostering the development of sustainable concepts and everyday knowledge. This initiative is driving the advancement of energy education, starting from an early age.

- **Total Installation Capacity at Zhuxing Elementary School 495 kW**

Roof
227.7 kW

Stadium
213.84 kW

Parking Lot
53.46 kW

Solar-Powered Photovoltaic Stadium at Zhuxing Elementary School, Miaoli County

Appendix 1: GRI content index with reference

· GRI Statement

Statement of use	HDRE has reported the information cited in this GRI content index for the period 2022.1.1-2022.12.31 with reference to the GRI Standards.
GRI 1 used	GRI 1：Foundation 2021
Applicable GRI Sector Standard(s)	none

· GRI 2: General Disclosures 2021

Category	Index	Disclosure Requirements	Section or omission explanation	Page number
The organization and its reporting practices	GRI 2-1	Organizational details	1.1 About HD Renewable Energy (HDRE)	P.6
	GRI 2-2	Entities included in the organization's sustainability reporting	About This Report	P.1
	GRI 2-3	Reporting period, frequency and contact point	About This Report	P.1
	GRI 2-4	Restatements of information	none	-
	GRI 2-5	External assurance	Appendix 5: Assurance Report of Independent Auditors	P.135
Activities and workers	GRI 2-6	Activities, value chain and other business relationships	1.1.2 Industry Value Chain	P.12
	GRI 2-7	Employees	5.1.1 Employee Overview	P.99
	GRI 2-8	Workers who are not employees	5.1.1 Employee Overview	P.99
Governance	GRI 2-9	Governance structure and composition	2.1.1 Governance Structure 2.1.3 Sustainable Development	P.29 P.33
	GRI 2-10	Nomination and selection of the highest governance body	2.1.2 Board of Directors	P.30
	GRI 2-11	Chair of the highest governance body	2.1.2 Board of Directors	P.30
	GRI 2-12	Role of the highest governance body in overseeing the management of impacts	2.4.1 Risk Management Mechanism	P.41
	GRI 2-13	Delegation of responsibility for managing impacts	2.4.1 Risk Management Mechanism	P.41
	GRI 2-14	Role of the highest governance body in sustainability reporting	About This Report	P.1
	GRI 2-15	Conflicts of interest	2.1.2 Board of Directors	P.30
	GRI 2-16	Communication of critical concerns	2.4.1 Risk Management Mechanism	P.41
	GRI 2-17	Collective knowledge of the highest governance body	2.1.2 Board of Directors	P.30
	GRI 2-18	Evaluation of the performance of the highest governance body	2.1.2 Board of Directors	P.30
	GRI 2-19	Remuneration policies	2.1.2 Board of Directors Refer to the annual report for detailed information on the remuneration of directors, supervisors, general manager, vice general manager, etc. for the most recent fiscal year	P.30
	GRI 2-20	Process to determine remuneration	2.1.2 Board of Directors	P.30
	GRI 2-21	Annual total compensation ratio	5.1.2 Salary, Welfare and Employee Care	P.103

Category	Index	Disclosure Requirements	Section or omission explanation	Page number
Strategy, policies and practices	GRI 2-22	Statement on sustainable development strategy	Message from the Management	P.3
	GRI 2-23	Policy commitments	2.1.3 Sustainable Development 5.1.3 Human Rights and Communication	P.33 P.105
	GRI 2-24	Embedding policy commitments	Refer to the Material Topic and Strategic Goals	-
	GRI 2-25	Processes to remediate negative impacts	Refer to the Material Topic and Strategic Goals	-
	GRI 2-26	Mechanisms for seeking advice and raising concerns	2.3.1 Corporate Integrity	P.38
	GRI 2-27	Compliance with laws and regulations	2.3.2 Legal Compliance	P.40
	GRI 2-28	Membership associations	2.2.3 External Organization Participation	P.37
Stakeholder engagement	GRI 2-29	Approach to stakeholder engagement	1.2.2 Key Stakeholders	P.15
	GRI 2-30	Collective bargaining agreements	No labor union, no collective agreement	-

・GRI 3: Material Topics 2021

Index	Disclosure Requirements	Section or omission explanation	Page number
GRI 3-1	Process to determine material topics	1.3.1 Material Process Analysis	P.19
GRI 3-2	List of material topics	1.3.2 Material Topics Analysis and Matrix	P.20
GRI 3-3	Management of material topics	Refer to the Material Topic and Strategic Goals	-

・GRI Specific Topic

Category	Index		Disclosure Requirements	Section or omission explanation	Material Topics	Page number
Economy	GRI 201：Economic Performance 2016	201-1	Direct economic value generated and distributed	2.2.2 Financial Performance		P.35
		201-2	Financial implications and other risks and opportunities due to climate change	4.1.2 Identifying climate risks and opportunities		P.77
		201-4	Financial assistance received from government	2.2.2 Financial Performance		P.35
	GRI 204：Procurement Practices 2016	204-1	Proportion of spending on local suppliers	3.3.2 Source Tracking Management and Procurement Policy		P.68
	GRI 205：Anti-corruption 2016	205-1	Operations assessed for risks related to corruption	2.3.1 Corporate Integrity	Corporate Integrity & Legal Compliance	P.38
		205-2	Communication and training about anti-corruption policies and procedures	2.3.1 Corporate Integrity		P.38
		205-3	Confirmed incidents of corruption and actions taken	No corruption incidents occurred		-
	GRI 206：Anti-competitive Behavior 2016	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	2.3.2 Legal Compliance		P.40

‧ GRI Specific Topic

Category	Index	Disclosure Requirements	Section or omission explanation	Material Topics	Page number
Environment	GRI 302：Energy 2016	302-1 Energy consumption within the organization	4.2.2 Energy Policy and Management		P.88
		302-3 Energy intensity	Appendix 3: Greenhouse Gas Inventory and Verification		P.133
		302-4 Reduction of energy consumption	4.2.2 Energy Policy and Management		P.88
	GRI 303：Water and Effluents 2018	303-3 Water withdrawal	Appendix 4: SASB Standards		P.134
		303-5 Water consumption	Appendix 4: SASB Standards		P.134
	GRI 304：Biodiversity 2016	304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	4.3.1 Environmental and Social Assessment	Biodiversity	P.93
		304-2 Significant impacts of activities, products and services on biodiversity	4.3.1 Environmental and Social Assessment		P.93
		304-3 Habitats protected or restored	4.3.1 Environmental and Social Assessment		P.93
	GRI 305：Emissions 2016	305-1 Direct (Scope 1) GHG emissions	4.2.1 Greenhouse Gas Inspection		P.87
		305-2 Energy indirect (Scope 2) GHG emissions	4.2.1 Greenhouse Gas Inspection		P.87
		305-3 Other indirect (Scope 3) GHG emissions	4.2.1 Greenhouse Gas Inspection		P.87
		305-4 GHG emissions intensity	Appendix 3: Greenhouse Gas Inventory and Verification		P.133
	GRI 306：Effluents and Waste 2016	306-1 Water discharge by quality and destination	4.2.3 Waste Management	Waste Management	P.90
		306-2 Waste by type and disposal method	4.2.3 Waste Management		P.90
	GRI 308：Supplier Environmental Assessment 2016	308-1 New suppliers that were screened using environmental criteria	3.3.3 Supplier Management & Quality Monitoring		P.70
		308-2 Negative environmental impacts in the supply chain and actions taken	3.3.3 Supplier Management & Quality Monitoring		P.70
Society	GRI 401：Employment 2016	401-1 New employee hires and employee turnover	5.1.1 Employee Overview	Talent retention and attraction	P.99
		401-2 Benefits provided to full-time employees that are not provided to temporary or parttime employees	5.1.2 Salary, Welfare and Employee Care		P.103
		401-3 Parental leave	5.1.3 Human Rights and Communication		P.105

Category	Index	Disclosure Requirements	Section or omission explanation	Material Topics	Page number
	GRI 403：Occupational Health and Safety 2018	403-1 Occupational health and safety management system	5.3.1 Occupational Safety and Health Management Measures	Occupational safety and health	P.113
		403-2 Hazard identification, risk assessment, and incident investigation	5.3.3 Health Promotion and Employee Care		P.116
		403-3 Occupational health services	5.3.3 Health Promotion and Employee Care		P.116
		403-4 Worker participation, consultation, and communication on occupational health and safety	5.3.1 Occupational Safety and Health Management Measures		P.113
		403-5 Worker training on occupational health and safety	5.3.1 Occupational Safety and Health Management Measures		P.113
		403-6 Promotion of worker health	5.3.3 Health Promotion and Employee Care		P.116
		403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	5.3.2 Improve Safety and Health Environment, Prevent Occupational Accident 5.3.3 Health Promotion and Employee		P.115 P.116
		403-8 Workers covered by an occupational health and safety management system	5.3.1 Occupational Safety and Health Management Measures		P.113
		403-9 Work-related injuries	5.3.2 Improve Safety and Health Environment, Prevent Occupational Accident		P.115
		403-10 Work-related ill health	5.3.2 Improve Safety and Health Environment, Prevent Occupational Accident		P.115
	GRI 404：Training and Education 2016	404-1 Average hours of training per year per employee	5.2.1 Diverse Educational Training and Talent Development	Talent development and training	P.109
		404-3 Percentage of employees receiving regular performance and career development reviews	5.2.1 Diverse Educational Training and Talent Development		P.109
	GRI 405：Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	2.1.2 Board of Directors 5.1.1Employee Overview	Talent retention and attractio	P.99
		405-2 Ratio of basic salary and remuneration of women to men	5.1.2 Salary, Welfare and Employee Care		P.103
	GRI 406：Non-discrimination 2016	406-1 Incidents of discrimination and corrective actions taken	5.1.3 Human Rights and Communication		P.105
	GRI 408：Child Labor 2016	408-1 Operations and suppliers at significant risk for incidents of child labor	5.1.3 Human Rights and Communication		P.105
	GRI 413：Local Communities 2016	413-1 Operations with local community engagement, impact assessments, and development programs	4.3.1 Environmental and Social Assessment	Local community	P.93
	GRI 414：Supplier Social Assessment 2016	414-1 New suppliers that were screened using social criteria	3.3.3 Supplier Management & Quality Monitoring		P.70
		414-2 Negative social impacts in the supply chain and actions taken	3.3.3 Supplier Management & Quality Monitoring		P.70
	GRI 417：Marketing and Labeling 2016	417-2 Incidents of non-compliance concerning product and service information and labeling	No occurrence of any violation of relevant regulations	Product quality and responsibility	-
		417-3 Incidents of non-compliance concerning marketing communications	No occurrence of any violation of relevant regulations		-
	GRI 418：Customer Privacy 2016	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	No incidents of infringing upon customer privacy or complaints of lost customer data		-

Appendix 2: Climate-related information

The four key frameworks of TCFD	Item	Implementation status	Page number
Governance	1. Clearly articulate the board of directors and management's oversight and governance of climate-related risks and opportunities.	4.1.1 Climate governance	P.77
Strategy Risk Management	2. Articulate how identified climate risks and opportunities impact the company's business, strategy, and finances (short-term, medium-term, long-term).	4.1.2 Identifying climate risks and opportunities	P.77
	3. Explain the financial impact of extreme weather events and transition actions.	4.1.3 Climate Risk Scenario Analysis	P.80
Metrics & Targets Governance Strategy Risk Management	4. Describe how the process of identifying, assessing, and managing climate risks is integrated into the overall risk management system.	4.1.1 Climate governance	P.77
	5. If utilizing scenario analysis to assess resilience against climate change risks, the description should include the scenario, parameters, assumptions, analysis factors, and the primary financial impacts.	4.1.3 Climate Risk Scenario Analysis	P.80
	6. If there is a transition plan in place to manage climate-related risks, provide a description of the plan's contents, as well as the indicators and objectives used for identifying and managing physical risks and transition risks.	4.1.4 Climate Management Policy	P.84
	7. If internal carbon pricing is used as a planning tool, the basis for price determination should be explained.	Not utilizing internal carbon pricing as a planning tool	-
Metrics & Targets	8. If climate-related targets are set, provide information on the covered activities, scope of greenhouse gas emissions, planning timeframe, annual progress towards achieving the targets, etc. If carbon offsets or Renewable Energy Certificates (RECs) are used to meet the targets, explain the sources and quantities of carbon offsets or the number of RECs used for emissions reduction.	4.1.4 Climate Management Policy	P.84
	9. Greenhouse Gas Inventory and Verification.	Appendix 3	

Appendix 3: Greenhouse Gas Inventory and Verification

Basic information		Implementation status	
	○ Companies with a capital of over 10 billion, steel industry, cement industry. ○ Companies with a capital of over 5 billion but less than 10 billion. ● Companies with a capital of less than 5 billion.		● Individual investigation of the parent company. ○ Investigation of consolidated financial statements subsidiary. ● Individual assurance of parent company. ○ Assurance of consolidated financial statements subsidiary.

Scope 1	Total emissions (metric tons CO_2e)	Intensity (metric tons CO_2e/thousand units)	Assurance institution	Description
Parent company	147.4101	0.003%	BSI	Refer to: 4.2.1 Greenhouse Gas Inspection
Subsidiary	-	-	-	
Other	-	-	-	
Total	147.4101	0.003%	BSI	
Scope 2	Total emissions (metric tons CO_2e)	Intensity (metric tons CO_2e/ thousand units)	Assurance institution	
Parent company	110.9375	0.002%	BSI	
Subsidiary	-	-	-	
Other	-	-	-	
Total	110.9375	0.002%	BSI	
Scope 3 (voluntary disclosure)	97.6581	0.002%	BSI	

Note: Intensity is calculated based on the revenue in 2022 as the denominator = 5,060,371 (in thousand New Taiwan Dollars).

Appendix 4: SASB Standards

Topic	Code	Accounting Metric	Description	Page number
Energy Management in Manufacturing	RR-ST-130a.1	Total energy consumed	4.2.2 Energy Policy and Management	P.88
	RR-ST-130a.1	Percentage grid electricity		
	RR-ST-130a.1	Percentage renewable		
Water Management in Manufacturing	RR-ST-140a.1	Total water withdrawn	2,694 m³ 4.2.2 Energy Policy and Management	
	RR-ST-140a.1	Total water consumed	2,694 m³	
	RR-ST-140a.1	Percentage of each in regions with High or Extremely High Baseline Water Stress	0% (Taiwan is not a high-water-stressed region.)	-
Hazardous Waste Management	RR-ST-150a.1	Amount of hazardous waste generated, percentage recycled	No hazardous waste generated in 2022.	-
	RR-ST-150a.1	Number and aggregate quantity of reportable		-
	TR-AP-150a.2	spills, quantity recovered	No hazardous substance spill incidents occurred in 2022.	-
	TR-AP-150a.2	Number and aggregate quantity of reportable		-
Ecological Impacts of Project Development	RR-ST-160a.1	spills, quantity recovered	No hazardous substance spill incidents occurred in 2022.	-
	RR-ST-160a.2	Description of efforts in solar energy system project development to address community and ecological impacts	4.3.1 Environmental and Social Assessment	P.93
Management of Energy Infrastructure Integration & Related Regulations	RR-ST-410a.1	Description of risks associated with integration of solar energy into existing energy infrastructure and discussion of efforts to manage those risks	2.4.1 Risk Management Mechanism 4.1.2 Identifying climate risks and opportunities	P.41 P.77
	RR-ST-410a.2	Description of risks and opportunities associated with energy policy and its impact on the integration of solar energy into existing energy infrastructure		
Product End-oflife Management	RR-ST-410b.1	Percentage of products sold that are recyclable or reusable	Not applicable.	-
	RR-ST-410b.2	Weight of end-of-life material recovered, percentage recycled	The total weight of recycled steel molds in 2022 was 19,250 kg (19.25 metric tons), calculated as 55 kg * 350 (sets).	-
	RR-ST-410b.3	Percentage of products by revenue that contain IEC 62474 declarable substances, arsenic compounds, antimony compounds, or beryllium compounds	Not applicable	-
	RR-ST-410b.4	Description of approach and strategies to design products for high-value recycling	Not applicable	-
Materials Sourcing	RR-ST-440a.1	Description of the management of risks associated with the use of critical materials	2.4.1 Risk Management Mechanism	P.41
	RR-ST-440a.2	Description of the management of environmental risks associated with the polysilicon supply chain	3.3.3 Supplier Management & Quality Monitoring	P.70
Activity Metrics	RR-ST-000.A	Total capacity of photovoltaic (PV) solar modules produced	Not applicable	-
	RR-ST-000.B	Total capacity of completed solar energy systems	357MW	-
	RR-ST-000.C	Total project development assets	NT$194,435,196	-

Appendix 5: Assurance Report of Independent Auditors

EY安永 Building a better working world

安永聯合會計師事務所
11012 台北市基隆路一段333號9樓
9F, No. 333, Sec. 1, Keelung Road
Taipei City, Taiwan, R.O.C.
Tel: 886 2 2757 8888
Fax: 886 2 2757 6050
www.ey.com/tw

會計師有限確信報告

泓德能源科技股份有限公司　公鑒

確信範圍

本會計師接受泓德能源科技股份有限公司（以下簡稱泓德能源）之委任，對2022年度永續報告書中所選定之永續績效資訊（以下稱「標的資訊」），執行財團法人中華民國會計研究發展基金會所發布之確信準則所定義之「有限確信案件」並出具報告。

標的資訊及其適用基準

有關泓德能源之標的資訊及其適用基準詳列於附件一。

管理階層責任

泓德能源管理階層之責任係依據適當之基準編製標的資訊，包括參考全球永續性報告協會(Global Reporting Initiatives, GRI)所發布之2021年GRI 準則(GRI Standards)，泓德能源管理階層應選擇所適用之基準，並對標的資訊在所有重大方面是否依據該適用基準報導負責，此責任包括建立及維持與標的資訊編製有關之內部控制、維持適當之記錄並作成相關之估計，以確保標的資訊未存有導因於舞弊或錯誤之重大不實表達。

本事務所責任

本會計師之責任係依據所取得之證據對標的資訊作成結論。

本會計師依照財團法人中華民國會計研究發展基金會所發布之確信準則3000號「非屬歷史性財務資訊查核或核閱之確信案件」之要求規劃並執行有限確信工作，以對標的資訊是否存有重大不實表達出具有限確信報告。本會計師依據專業判斷，包括對導因於舞弊或錯誤之重大不實表達風險之評估，以決定確信程序之性質、時間及範圍。

本會計師相信已取得足夠及適切之證據，以作為表示有限確信結論之基礎。

會計師之獨立性及品質管理

本會計師及所隸屬組織遵循會計師職業道德規範中有關獨立性及其他道德規範之規定，該規範之基本原則為正直、公正客觀、專業能力及專業上應有之注意、保密及專業行為。

本事務所遵循品質管理準則1號「會計師事務所之品質管理」，該品質管理準則規定組織設計、付諸實行及執行品質管理制度，包含與遵循職業道德規範、專業準則及適用之法令規範相關之政策或程序。

所執行程序之說明

有限確信案件中執行程序之性質及時間與適用於合理確信案件不同，其範圍亦較小，因此，有限確信案件中取得之確信程度明顯低於合理確信案件中取得者。本會計師所設計之程序係為取得有限確信並據此作成結論，並不提供合理確信必要之所有證據。

儘管本會計師於決定確信程序之性質及範圍時曾考量泓德能源內部控制之有效性，惟本確信案件並非對泓德能源內部控制之有效性表示意見。本會計師所執行之程序不包括測試控制或執行與檢查資訊科技(IT)系統內資料之彙總或計算相關之程序。

有限確信案件包括進行查詢，主要係對負責編製標的資訊及相關資訊之人員進行查詢，並應用分析及其他適當程序。

本會計師所執行之程序包括：

- 與泓德能源人員進行訪談，以瞭解泓德能源之業務與履行永續發展之整體情況，以及永續報導流程；
- 透過訪談、檢查相關文件，以瞭解泓德能源之主要利害關係人及利害關係人之期望與需求、雙方具體之溝通管道，以及泓德能源如何回應該等期望與需求；
- 與泓德能源依關人員進行訪談，以瞭解用以蒐集、整理及報導標的資訊之相關流程；
- 檢查計算標準是否已依據適用基準中概述的方法正確應用；
- 針對報告中所選定之永續績效資訊進行分析性程序；蒐集並評估其他支持證據資料及所取得之管理階層聲明；如必要時，則抽選樣本進行測試；
- 閱讀泓德能源之永續報告書，確認其與本會計師取得關於永續發展整體履行情況之瞭解一致。

先天限制

因永續報告中所包含之非財務資訊受到衡量不確定性之影響，選擇不同的衡量方式，可能導致績效衡量上之重大差異，且由於確信工作係採抽樣方式進行，任何內部控制均受有先天限制，故未必能查出所有業已存在之重大不實表達，無論是導因於舞弊或錯誤。

結論

依據所執行之程序及所取得之證據，本會計師未發現標的資訊有未依照適用基準編製而須作重大修正之情事。

其他事項

本確信報告出具後，泓德能源對任何確信標的或適用基準之變更，本會計師將不負就該等資訊重新執行確信工作之責任。

安永聯合會計師事務所

會計師：呂倩雯

民國一一二年六月二十八日

Appendix 5: Assurance Report of Independent Auditors

EY安永 Building a better working world

附件一：

編號	章節標題	內文標題	標的資訊	適用基準
1	CH2 永續治理·誠信透明	2.3.2 法規遵循	2022 年並未發生違反社會、經濟及環境之相關法規而遭受重大罰款和非金錢處罰之情事。 註：重大違規事件定義為重大不利之影響，指違反之後果，將對公司及/或子公司之運營、經營業績、狀況（包含業務、技術、法律、或財務狀況）、資產、負債產生嚴重影響的之損害、損失、費用、支出或責任。	GRI 2-27 法規遵循 報導組織應報告以下資訊： a. 報導報導期間發生的重大違反法規事件總數，並按以下方式細分： i. 被罰款的事件； ii. 非金錢制裁的事件； b. 報導在報導期間內支付違反法規罰款的總數和金額，並按以下方式細分： i. 在當次報導期間內發生違反法規行為事件的罰款； ii. 在先前的報導期間內發生違反法規行為事件的罰款； c. 描述重大違規事件； d. 描述組織如何判定重大違規事件。

EY安永 Building a better working world

編號	章節標題	內文標題	標的資訊	適用基準
2	CH5 永續人才·幸福職場	5.1.1 員工概況	2022 年新進員工數為 91 人，佔年底總員工數之 59.09%；此外，人員離職率則佔年底總員工數之 27.27%。 ● 2022 年新進員工組成	GRI 401-1 新進員工與離職員工 報導組織應報告以下資訊： a. 在報導期間內，按年齡層、性別及地區劃分新進員工的總數及比例。 b. 在報導期間內，按年齡層、性別及地區劃分離職員工的總數及比例。

地區	合計	性別		男				女			
		男	女	30 歲以下	31-40 歲	41-50 歲	51 歲以上	30 歲以下	31-40 歲	41-50 歲	51 歲以上
台北	45	23	22	3	6	11	3	7	9	6	0
台中	23	8	15	3	3	2		7	8	0	0
高雄	1	1	0	1	0	0	0	0	0	0	0
澎湖	6	4	2	3	0	0	1	1	1	0	0
台南	15	13	2	3	3	2	5	2	0	0	0
花蓮	1	0	1	0	0	0	0	0	1	0	0
合計	91	49	42	13	12	15	9	17	19	6	0

● 2022 年離職員工組成

地區	合計	性別		男				女			
		男	女	30 歲以下	31-40 歲	41-50 歲	51 歲以上	30 歲以下	31-40 歲	41-50 歲	51 歲以上
台北	13	9	4	0	3	6	0	3	0	1	0
台中	13	5	8	3	0	2	0	4	3	1	0
高雄	1	0	1	0	0	0	0	0	1	0	0
澎湖	2	1	1	1	0	0	0	0	1	0	0
台南	13	11	2	3	3	2	3	2	0	0	0
合計	42	26	16	7	6	10	3	9	5	2	0

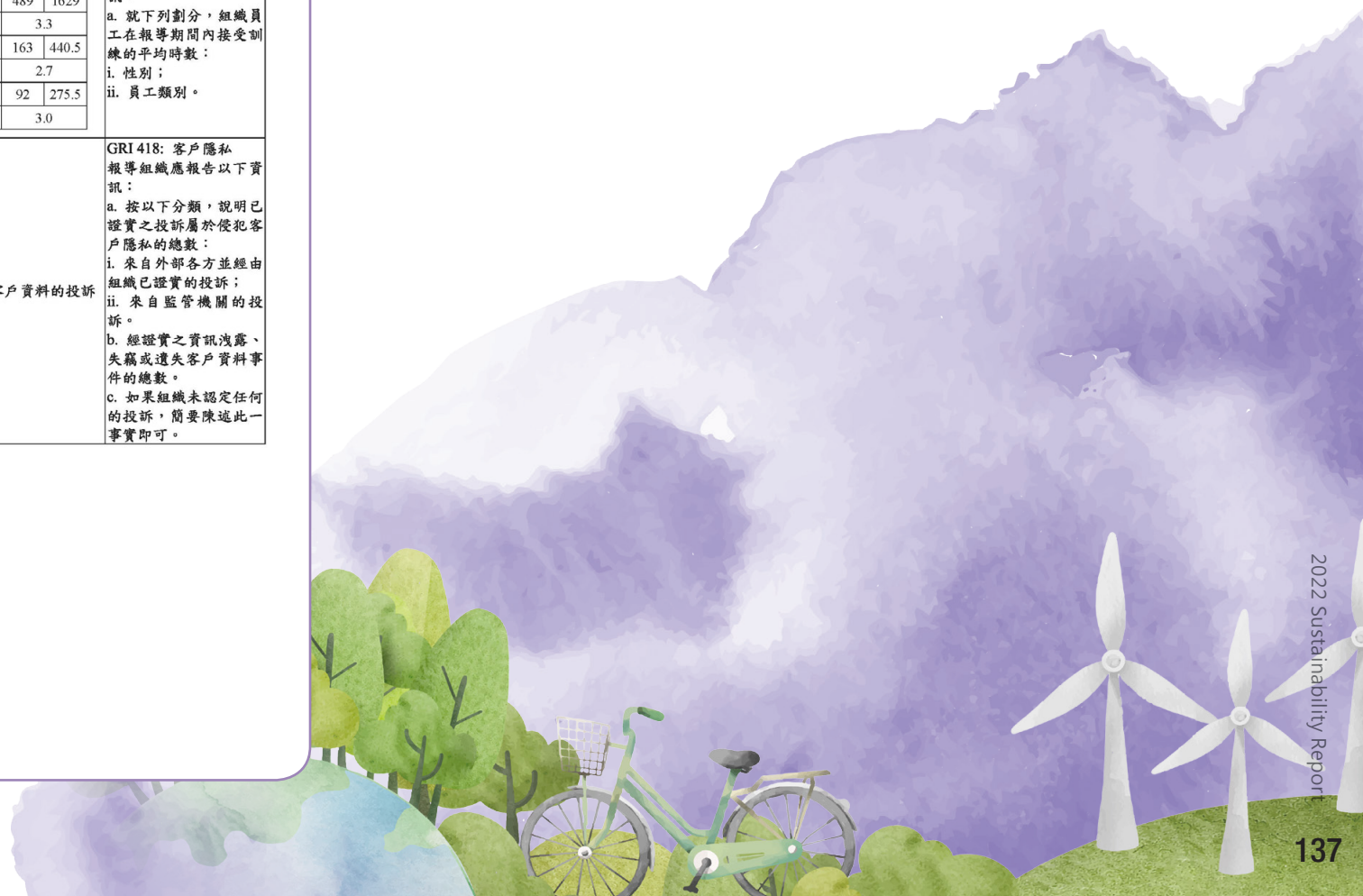
編號	章節標題	內文標題	標的資訊	適用基準
3	CH5 永續人才·幸福職場	5.1.3 人權與溝通	2022 年，按性別劃分，享有育嬰假的員工總數為男性 1 人、女性 6 人；實際使用育嬰假的員工總數為男性 1 人、女性 3 人。	GRI 401-3 育嬰假 報導組織應報告以下資訊： a. 按性別劃分，享有育嬰假的員工總數。 b. 按性別劃分，實際使用育嬰假的員工總數。 c. 按性別劃分，休完育嬰假後，在報導期間復職的員工總數。 d. 按性別劃分，休完育嬰假且復職後十二個月仍在職的員工總數。 e. 按性別劃分，休完育嬰假後復職和留任的員工比例。

獲假復職率	男	2022 年度育嬰假後應復職人數	0
		2022 年度育嬰假後實際申請復職人數	0
		復職率	0
	女	2022 年度育嬰假後應復職人數	2
		2022 年度育嬰假後實際申請復職人數	2
		復職率	100%
獲假留任率	男	2021 年度復職人數	0
		2021 年度復職滿一年人數	0
		留任率	0
	女	2021 年度復職人數	2
		2021 年度復職滿一年人數	1
		留任率	50%

Appendix 5: Assurance Report of Independent Auditors

EY 安永
Building a better working world

<table>
<tr><th>編號</th><th>章節標題</th><th>內文標題</th><th>標的資訊</th><th>適用基準</th></tr>
<tr><td>4</td><td>CH5 永續人才・幸福職場</td><td>5.2.1 多元教育訓練與人才發展</td><td>● 2022 員工教育訓練統計表
<table>
<tr><th rowspan="2">項目</th><th colspan="2">男性</th><th colspan="2">女性</th><th colspan="2">合計</th></tr>
<tr><th>人次</th><th>時數</th><th>人次</th><th>時數</th><th>人次</th><th>時數</th></tr>
<tr><td>一般同仁</td><td>270</td><td>950</td><td>219</td><td>679</td><td>489</td><td>1629</td></tr>
<tr><td>人均（小時）</td><td colspan="2">3.5</td><td colspan="2">3.1</td><td colspan="2">3.3</td></tr>
<tr><td>中階主管</td><td>106</td><td>291.5</td><td>57</td><td>149</td><td>163</td><td>440.5</td></tr>
<tr><td>人均（小時）</td><td colspan="2">2.75</td><td colspan="2">2.6</td><td colspan="2">2.7</td></tr>
<tr><td>高階主管</td><td>63</td><td>190.5</td><td>29</td><td>85</td><td>92</td><td>275.5</td></tr>
<tr><td>人均（小時）</td><td colspan="2">3.0</td><td colspan="2">2.9</td><td colspan="2">3.0</td></tr>
</table></td><td>GRI 404: 訓練與教育
報導組織應報告以下資訊：
a. 就下列劃分，組織員工在報導期間內接受訓練的平均時數：
i. 性別；
ii. 員工類別。</td></tr>
<tr><td>5</td><td>CH3 永續創新・綠色智能</td><td>3.3.4 客戶滿意</td><td>2022 年未有侵犯客戶隱私權之情事或遺失客戶資料的投訴</td><td>GRI 418: 客戶隱私
報導組織應報告以下資訊：
a. 按以下分類，說明已證實之投訴屬於侵犯客戶隱私的總數：
i. 來自外部各方並經由組織已證實的投訴；
ii. 來自監管機關的投訴。
b. 經證實之資訊洩露、失竊或遺失客戶資料事件的總數。
c. 如果組織未認定任何的投訴，簡要陳述此一事實即可。</td></tr>
</table>



HDRE

HD Renewable Energy Co., Ltd.

5F, No. 35, Dexing W. Rd., Shilin Dist., Taipei City
+886-2-2832-8057

Smarter Energy, Accessible Green