

2025

Climate-Related Financial Disclosure Report

Task Force on Climate-related Financial Disclosures (TCFD)

Strengthen climate transparency,
enhance financial resilience



Financial Impact



INTEGRITY

Prudent & transparent
Integrity & Sustainability



INNOVATION

Innovative Thinking
Drive transformation



PROACTIVENESS

Attentive Service
Pursuit of excellence



EMPATHY

Teamwork
Co-creating value



Governance

Board oversight and management
Climate governance and oversight mechanisms



Strategy

Assessment of climate-related risks, opportunities, and operational and financial impacts



Risk Management

Climate risk identification and assessment
Integration into enterprise risk management



Metrics & Targets

Climate performance indicator management
Carbon reduction targets and progress tracking



This report has been prepared with reference to the TCFD Recommendations and IFRS Sustainability Disclosure Standards (IFRS S1 and IFRS S2) to enhance the completeness, comparability, and decision-usefulness of climate-related disclosures.



Sustainable



Climate Resilience



Value Creation

2025

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Strengthen climate transparency,
enhance financial resilience

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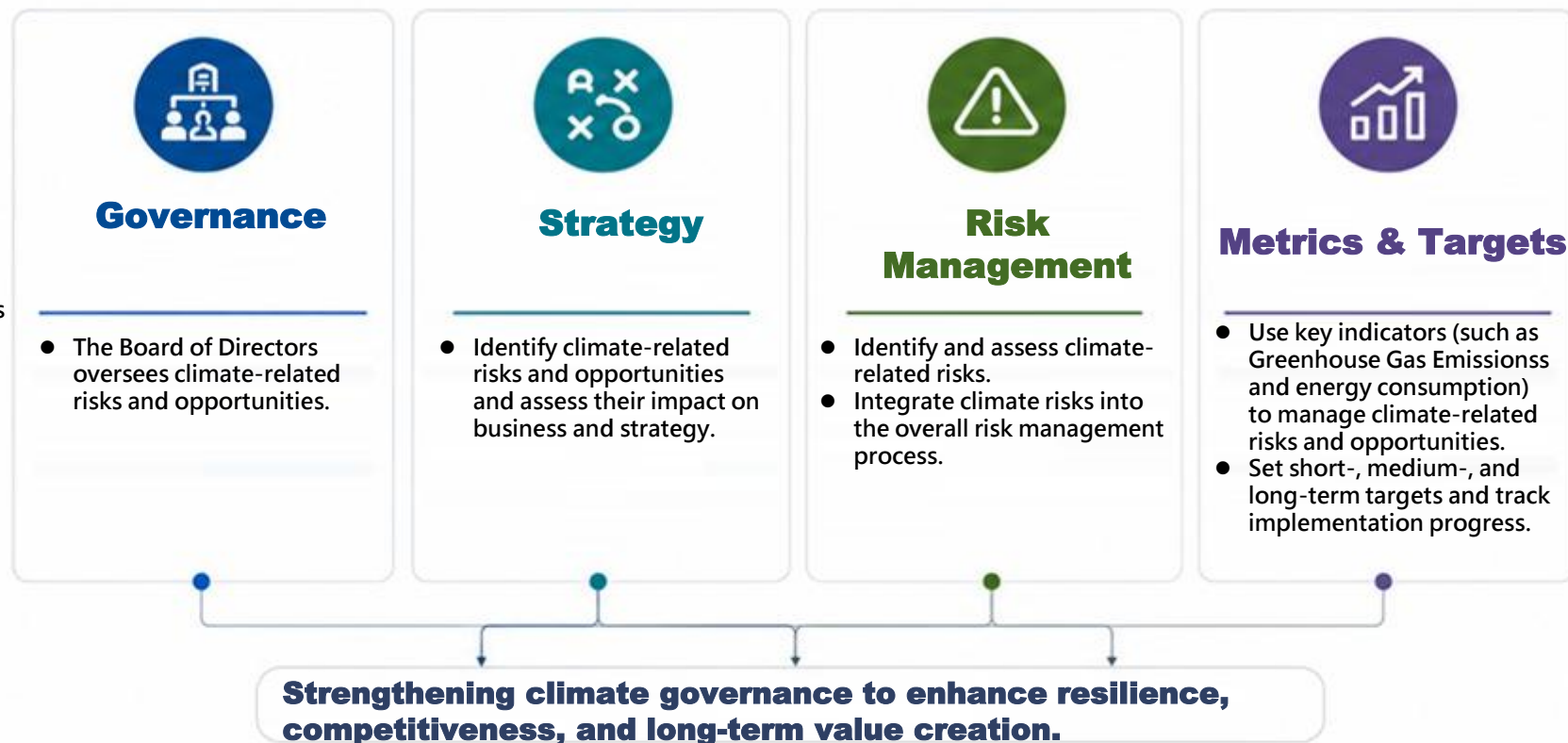
TCFD Chapter Structure

In accordance with the TCFD framework, the Company systematically discloses climate-related risks and opportunities across four core pillars: [Governance](#), [Strategy](#), [Risk Management](#), and [Metrics & Targets](#).

The Company also aligns with the IFRS S1 and S2 disclosure requirements to enhance the transparency and decision-usefulness of climate-related information.



Core Pillars



Basic Information



INTEGRITY



INNOVATION



PROACTIVE



EMPATHY

Chapter Overview

This chapter is prepared in accordance with the TCFD framework and aligned with the disclosure requirements of IFRS S1 and S2.

It outlines the Company's approach to climate governance, strategy, risk management, and key Metrics & Targets.

This chapter also provides stakeholders with an understanding of the potential impacts of climate change on the Company's operations, financial performance, and long-term resilience, as well as the corresponding management strategies.



Governance

- Governance structure and oversight responsibilities
- Management roles and responsibilities
- Climate-related governance mechanisms



Strategy

- Identification of climate-related risks and opportunities
- Scenario analysis and impact assessment
- Strategic responses and resilience planning

TCFD Four Core Pillars



Risk Management

- Risk identification process
- Risk assessment methodology
- Risk mitigation and management measures



Metrics & Targets

- Key indicators (such as Greenhouse Gas Emissions and energy consumption)
- Targets (short-, medium-, and long-term)
- Progress tracking and performance evaluation



Why Climate Matter

Based on the Company's 2025 materiality analysis, climate change has been identified as a key sustainability issue with significant impacts on operations, financial performance, and stakeholder communication.



This chapter presents the Company's approach to climate governance, strategy, and risk management, as well as performance indicators for climate-related risks and opportunities.

It serves as the foundation for enhancing climate information transparency and strengthening low-carbon transition management.



Company Profile

Established in 1971, Orient Semiconductor Electronics Ltd. (OSE) provides IC packaging and testing services (IC), as well as electronics manufacturing services (EMS). Our main operations are divided into the IC and EMS groups, and we have been long dedicated to providing diverse service solutions with high added value. Our quality and performance are oriented towards our customers and services. We strive for world-class customer satisfaction and aim to be a reliable business partner to our customers, to grow and thrive together.



Company Profile



Orient Semiconductor Electronics, Ltd. (OSE)



June 12, 1971



No. 9, Zhongshan St., Nanzih Dist., Kaohsiung City



NTD 6,590,043,000



5,759



IC packaging and testing /
Electronic manufacturing services (EMS)



主要事業體



Semiconductor

Provides integrated IC packaging and testing services, including IC assembly and testing solutions.



EMS

Provides electronic manufacturing services, including product design, manufacturing, assembly, and testing.



Key Markets

OSE's major operating sites in the Nanzih Technology Industrial Park include Central 3rd Factory (HQ), Jin 3rd Factory (AT), East 3rd Factory (FP), Neihuan S. 1st Factory (IC), and Neihuan S. 2nd Factory (SSD).



Key markets and customer locations

OSE's key markets include Taiwan, the United States, China, and other regions, providing IC packaging, testing, and EMS services.



• High Value-added and Diversified Services.



• Customer-centric Operations



• Quality Management and Operational Resilience



• Sustainable Partnerships and Long-term Value Creation

Operations are closely linked to energy use, GHG emissions, water management, and supply chain collaboration, forming the basis for climate risk and opportunity assessment.

06 A Message from the Chairman

Under a governance-driven approach, the Company strengthens climate resilience while working with stakeholders to create sustainable long-term value.



Climate risk is a key business issue

OSE's operations are closely linked to energy consumption, Greenhouse Gas Emissions, water resource management, and supply chain coordination, which underpin the assessment of climate-related risks and opportunities.



Strengthening board-level climate governance

The Board of Directors and the Sustainability Management Committee oversee climate-related risks and opportunities, incorporating them into enterprise risk management and strategic decision-making processes.



Advancing energy management and low-carbon transition

In 2025, renewable electricity use reached 11.566 million kWh. The Company continues to implement energy efficiency initiatives and process optimization to enhance operational efficiency and mitigate transition risks.



Integrating internal carbon pricing into decision-making

An internal carbon price of NT\$300 per tCO₂e is applied as a reference for investment evaluation, energy-saving project assessment, and low-carbon transition planning.



Enhancing governance and disclosure to support long-term value creation

OSE continues to strengthen climate governance and information disclosure, align with IFRS S1 and S2 requirements, and reinforce long-term resilience and sustainable value creation.



Chairman of OSE and Chair of the Corporate Governance and Corporate Governance and Sustainability Committee



2025 Action Highlights

Advancing climate governance and low-carbon transition
Delivering on our sustainability commitment



01

Energy Transition Renewable Energy Deployment

Purchased renewable electricity reached

11.566 million kWh.

- Increased renewable energy sourcing
- Reduced Scope 2 emissions and transition risks
- Strengthened energy resilience



02

Operational Optimization

22 energy efficiency projects implemented

Total energy saved:

1,655,742.16 kWh

- Improved energy efficiency
- Reduced operating costs and emissions



03

Internal Carbon Pricing

Internal carbon price:

NT\$ 300/tCO₂e

- Supports investment decisions
- Enhances carbon cost allocation
- Integrates climate risk into decision-making



04

Resource Circulation Water Management

Wastewater recovery rate:

34.26%

- Promotes water recycling and reuse
- Reduces water consumption
- Improves resource efficiency



Aligned with SDGs

Sustainable Innovation | Low-carbon Transition | Shared Value



SDG 6



SDG 7



SDG 9



SDG 12



SDG 13



Sustainability



Climate



Value Creation

Towards a Sustainable Future

Building Low-carbon Competitiveness

OSE will continue to strengthen climate governance, enhance risk management, advance energy transition, and improve data governance and cross-functional collaboration to reinforce operational resilience.

It will also work with stakeholders to promote low-carbon transformation, sustainable supply chains, and improved disclosure, supporting long-term value creation.



01

Environmental

- Strengthen energy and carbon management
- Improve energy efficiency and resource use
- Enhance environmental protection and pollution control



02

Corporate Governance

- Strengthen board oversight and risk management
- Enhance business practices and compliance
- Improve climate-related disclosure quality



03

Social Inclusion

- Promote a safe and inclusive workplace
- Support talent development and diversity
- Enhance community engagement



04

Information Security

- Strengthen cybersecurity and data protection
- Enhance system reliability and resilience
- Mitigate digital and operational risks



05

Supply Chain Cooperation

- Promote sustainable supply chain practices
- Strengthen supplier risk management
- Enhance supply chain collaboration



Climate Governance Framework and Operational Mechanism

Climate governance is led by the Board of Directors, with execution coordinated by the Corporate Governance and Corporate Governance and Sustainability Committee to ensure effective management and integration of climate-related issues.



Governance Mechanism



Regular reporting to the Board of Directors

- Reports on climate governance progress
- Periodic review by the Board



Integration into operations and capital decisions

- Climate risks incorporated into decision-making
- Internal carbon pricing applied as a decision tool



Performance tracking and management

- Monitoring GHG emissions, energy use, and renewable energy
- Tracking implementation progress

Governance Highlights



Renewable Energy
11.566
million kWh



Energy Efficiency
Projects
22

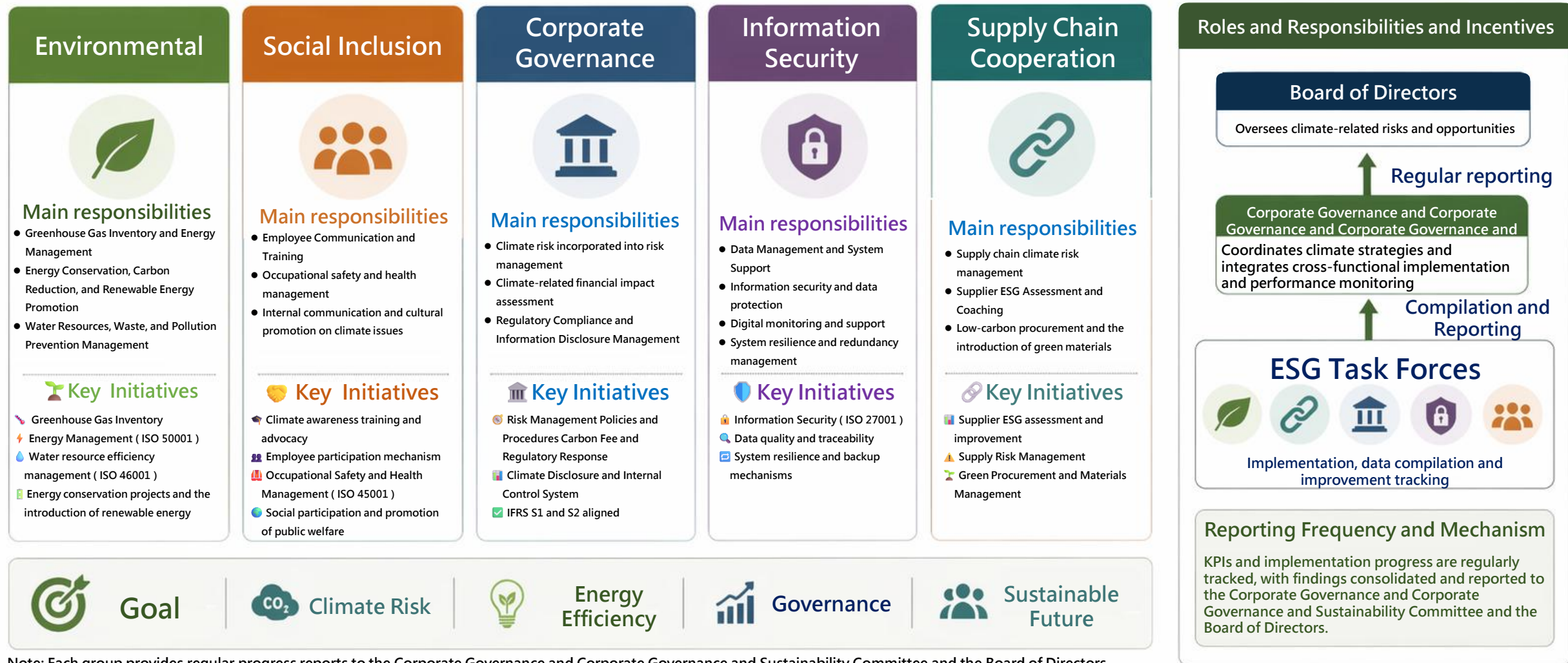


Energy-saving
investment: NTD
10.848 million

Each task force regularly reports implementation progress to the Corporate Governance and Corporate Governance and Sustainability Committee and the Board of Directors to ensure alignment with the Company's short-, medium-, and long-term strategies.

Division of Labor and Responsibility Matrix of the ESG Task Forces

Climate initiatives are executed by five task forces across functions, with the Sustainability Office coordinating and reporting to the Corporate Governance and Corporate Governance and Sustainability Committee.



Note: Each group provides regular progress reports to the Corporate Governance and Corporate Governance and Sustainability Committee and the Board of Directors, ensuring that climate governance is aligned with the Company's short-, medium-, and long-term strategic objectives.

The Company has established a climate reporting mechanism under which task forces consolidate climate-related actions. The Sustainability Office integrates and submits the information for committee review and Board reporting, ensuring climate risks and opportunities are embedded in governance, decision-making, and continuous improvement.



Climate-related issues are managed by five task forces based on defined responsibilities.

- 🌍 Climate Risk Identification and Assessment
- 🔧 GHG Inventory and Emissions Management
- ⚡ Energy and Water Management
- 🌱 Renewable Energy Deployment and Performance Tracking

- 🎓 Training and Awareness
- 👥 Employee Engagement and Communication
- 🏆 Community Engagement and Social Contribution

- ⚠️ Risk Management and Internal Controls
- 📋 Regulatory Compliance and Disclosure
- 📁 Climate-related Information Integration

- Climate Data Management and System Support
- Information Security and Data Protection
- Digital Monitoring and Reporting

- Supplier Climate Risk Engagement
- Supplier ESG Assessment and Development
- Customer Decarbonization Response

Consolidate task force outcomes, assess impacts, and provide management recommendations

- **Chairman:** Chairman
- **Deputy Chairman:** General Manager
- **Management Representative:** Deputy General Manager of Administrative Center

- ## Climate action consolidation, materiality assessment, and risk analysis

- ## Target review, resource allocation, and alignment with business strategy

- ## Review of climate progress and reporting

Regular Board Reporting on Climate Progress

- Oversight of climate-related risks and opportunities
- Review of major climate strategies and capital allocation
- Integration of climate governance into overall business strategy

Strategic oversight and guidance

- ESG Committee (Quarterly)
- Board of Directors (At least annually)



Latest Reporting Date
April 23, 2025



- Climate risk and opportunity assessment
- GHG and energy performance
- Decarbonization and renewable energy progress
- Project outcomes

- Risk Management Policies and Procedures
- TCFD Recommendations
- IFRS S1 and S2 Disclosure Requirements

Climate Risks, Opportunities and Strategic Response Overview

Strategic Objectives

Managing climate risks and opportunities through analysis and strategy to enhance resilience and support low-carbon transition and long-term value.



Energy efficiency and low-carbon transition

Stakeholder engagement and sustainability



Climate risk mitigation and resilience



Business value and competitiveness

Alignment with International Frameworks



Identification and Impact Assessment

Establishing the foundation for climate strategy through risk and opportunity identification, impact assessment, scenario analysis, and resilience review



01 |

Climate Risk and Opportunity Identification

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Identify climate-related risks and opportunities based on regulatory trends, market conditions, and operational characteristics



02 |

Operational and Financial Impact Assessment

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Assess potential impacts on operating costs, capital allocation, supply chains, and financial planning



03 |

Scenario Analysis and Resilience Review

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Evaluate strategy resilience under different climate scenarios across short-, medium-, and long-term horizons



04 |

Strategic Response and Management Actions

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Integrate results into energy management, low-carbon investment, supply chain engagement, and risk management

Strategic responses

Climate change presents risks and opportunities in energy efficiency, renewable energy, low-carbon products, and supply chains. The Company drives low-carbon transition through risk management and resilience.



Low-carbon Competitiveness for Long-term Value

Key Strategic Actions



- Energy and carbon management
- Renewable energy and efficiency
- Process innovation and low-carbon solutions
- Supply chain collaboration

Key Success Factors



- Cross-functional collaboration and management support
- Data management and tracking
- Innovation and resources
- Stakeholder engagement and collaboration

Monitoring and Review



Regular monitoring by the Corporate Governance and Sustainability Committee, with reporting to the Board and ongoing adjustments to ensure target achievement and strategy resilience



Strategy Integration Mechanism

Integrating climate considerations into operational planning, investment decisions, and risk management to ensure alignment with financial strategy.

Climate Risk and Opportunity Identification

Identification and assessment of climate risks and opportunities across short-, medium-, and long-term horizons to support strategy and resilience



Climate Risks and Opportunities		
Risks	Transition Risks	- Carbon Pricing and Regulation - Disclosure and Decarbonization Requirements - Energy Price Volatility - Low-carbon Technology Transition - Customer Supply Chain Requirements
	Physical Risks	- Extreme Weather and Flooding - Water Scarcity - Rising Temperatures and Energy Demand - Sea Level Rise and Climate Change
Opportunities	Resource Efficiency	- Cost Reduction through Energy Efficiency - Energy Efficiency - Water Recycling
	Market and Products	- Low-carbon Product Demand - Supply Chain Collaboration - International Market Participation
	Resilience and Innovation	- Resilience and Adaptation - Renewable Energy and Value Creation - Innovation and Digital Opportunities

Timeline and potential impact					
Short Term (0–2 years)		Medium Term (3–8 years)		Long Term (8+ years)	
• Carbon pricing implementation • Increased disclosure requirements • Rising energy costs		• Pressure to adopt renewable energy • Increased low-carbon investment • Rising customer expectations		• Low-carbon transition as a market entry requirement • Long-term competitiveness impacts	
• Extreme rainfall, typhoons, and flooding • Increased operational disruption risk		• Water scarcity affecting production • Increased frequency of extreme weather		• Climate pattern changes • Rising long-term energy and water costs	
• Energy efficiency improvements and cost reduction • Enhanced equipment efficiency		• Efficiency gains and cost optimization		• Optimized cost structure • Improved profitability	
• Increased customer focus on sustainability • Adjustments to order requirements		• Growing demand for low-carbon products • Strengthened supply chain collaboration		• Expanded market competitiveness • Enhanced brand value	
• Enhanced operational flexibility • Improved risk response capability		• Expanded renewable energy deployment • Enhanced digital management		• Resilience as a core competitive advantage • Innovation-driven long-term growth	
※ Impact Level: ● High ● Medium-High ● Medium ● Low ● Minimal					

Key Summary	
	Risk Management Focus on compliance, extreme weather, and strengthening governance and energy management
	Opportunity Capture Drive efficiency, renewable energy, and innovation for value creation
	Strategic Integration Embed climate risks and opportunities into strategy and decision-making
Timeline definition	
	Short Term (0–2 years): Within current operational planning cycle
	Medium Term (3–8 years): Equipment replacement and strategy adjustment period
	Long Term (8+ years): Beyond asset lifecycle with long-term impacts

Climate Risk and Opportunity Assessment Results

Assessment of climate risks and opportunities across time horizons to support strategy, resource allocation, and prioritization.



Climate Risks and Opportunities Overview

Transition Risks	Carbon Pricing and Regulation
	Disclosure and Decarbonization Requirements
Physical Risks	Energy Price Volatility
	Low-carbon Technology Transition
Climate Opportunities	Customer Supply Chain Requirements
	Extreme Weather and Flooding
	Water Scarcity
	Rising Temperatures and Energy Demand
	Sea Level Rise and Climate Change
	Energy Efficiency and Cost Reduction
	Renewable Energy
	Low-carbon Products and Technologies
	Supply Chain Collaboration
	Innovation and Digital Opportunities

Management Policy

Integration of climate risks and opportunities into strategy, investment, and management processes to enhance resilience and long-term value.

Operational and financial impact

Transition Risks	Changes in carbon pricing, energy policies, and disclosure requirements may affect operations, leading to increased compliance costs, capital expenditures, and management complexity	Increased operating costs (carbon and energy costs)
		Increased capital expenditures (equipment replacement, technology investment)
Physical Risks	Extreme weather events such as heavy rainfall, water scarcity, and high temperatures may disrupt operations, supply chains, energy demand, and equipment maintenance	Market competition and regulatory risks
		Impact on financial performance and asset valuation
Climate Opportunities	Improving energy efficiency, adopting renewable energy, and enhancing resource efficiency can reduce costs and support low-carbon transformation, strengthening competitiveness	Operational disruptions and capacity losses
		Increased equipment damage and maintenance costs
		Supply chain disruption risks
		Increased insurance and disaster prevention costs
		Reduced operating and energy costs
		Enhanced product value and customer trust
		Expansion into green markets and new business opportunities
		Strengthened corporate resilience and brand value

Assumptions used in scenario analysis

Low-carbon Transition Scenario (1.5°C scenario)	Carbon pricing increases
	Renewable energy adoption
High-Emission Scenario (approximately 4.0°C)	Technological innovation
	Increased frequency of extreme weather
	Higher risks of water scarcity and rising temperatures
	Increasing environmental costs
Key focus: Transition Risks and Climate Opportunities	
Key focus: Physical Risks	

Climate Risk and Opportunity Matrix

Type	Project	Short Term (0-2 years)	Mid-term (3-8 years)	Long Term (8+ years)	Impact Level
Transition Risks	Carbon Pricing and Regulation				High
	Strengthening Energy Policies and Regulations				High
	Pressure to Adopt Renewable Energy				High
	Customer Low-carbon Supply Chain Requirements				High
	Low-carbon Technology Investment Pressure				Medium-High
Physical Risks	Extreme Rainfall, Typhoons, and Flooding				High
	Water Scarcity Risk				Medium-High
	Rising Temperatures and Extreme Heat				Medium
	Sea Level Rise and Climate Change				Medium
Climate Opportunities	Energy Efficiency and Cost Reduction				High
	Renewable Energy Deployment				High
	Low-carbon Products and Technologies				Medium-High
	Sustainable Supply Chain Collaboration				Medium
	Innovation and Digital Management				Medium

※ Impact Level: High | Medium-High | Medium | Low | Minimal

Note: Impact levels are based on operational and financial impacts, Likelihood, and urgency, supporting strategy and resource allocation.

Climate-related risks and opportunities affect OPEX, CAPEX, revenue, market demand, asset value, and operations; assessed to inform strategy, resource allocation, and investment decisions.

Climate Risks and Financial Impacts

I Significant Climate Risks and Potential Financial Impact				
Risk Type	Major Risk Items	Potential Financial Impact		
Transition Risks	Carbon Pricing and Regulatory Schemes	Increased operating costs (OPEX)		
	Pressure to Adopt Renewable Energy	Increased capital expenditures (CAPEX)		
	Customer Low-carbon Supply Chain Requirements	Operational and revenue impacts due to contract changes		
	Enhanced Disclosure and Regulatory Requirements	Increased compliance and regulatory costs		
	Low-carbon Technology Investment Pressure	Impacts on financial performance and asset valuation		
Physical Risks	Extreme Rainfall, Typhoons, and Flooding	Operational disruptions and capacity losses		
	Water Scarcity Risk	Increased repair and insurance costs		
	Rising Temperatures and Extreme Heat	Rising energy and water costs		
	Sea Level Rise and Long-term Climate Change	Increased equipment replacement and maintenance costs		
Climate Opportunities	Energy Efficiency Enhancement	Reduced operating costs (OPEX)		
	Renewable Energy Deployment	Lower capital intensity (CAPEX optimization)		
	Low-carbon Products and Technological Innovation	Increased low-carbon revenue and market share		
	Sustainable Supply Chain Collaboration	Enhanced asset value and brand equity		
Financial Impact Explanation				
Based on risk characteristics and scenarios, assessing impacts on OPEX, CAPEX, revenue, and financial position				
OPEX (Operating Expenditure)	CAPEX (Capital Expenditure)	Revenue Impact	Assets & Liabilities	Financial Statements & Valuation
Note: Financial impact assessments are based on internal management information and scenario analysis and are subject to ongoing review.				

II Explanation of Operational and Financial Impacts	
OPEX (Operating Expenditure)	- Rising carbon costs and increases in energy and water expenses - Renewable energy premiums and electricity price fluctuations - Increased regulatory compliance, disclosure, and management costs
CAPEX (Capital Expenditure)	- Investment in energy-efficient equipment replacement and upgrades - Renewable energy deployment and long-term power procurement agreements - Low-carbon technology R&D and equipment upgrades
Revenue and Market	- Customer low-carbon requirements affecting order acceptance conditions - Low-carbon products and services enhancing market competitiveness - Supply chain carbon management influencing revenue growth
Operational Disruption	- Extreme weather causing production disruptions or shipment delays - Supply chain disruptions leading to raw material shortages - Resource constraints and repairs resulting in additional costs and delays
Impact Level Definitions	
● High – Significant impact ● Medium–High – Moderate to significant ● Medium – Moderate ● Low – Limited ● Minimalal – Minimalal / negligible	
Impact refers to financial impact (positive or negative)	

III Risk × Financial Impact Matrix					
Risk Items	Main impact	Financial impact (short / medium / long term)			
		OPEX	CAPEX	Revenue	Operational impact
Transition Risk					
Carbon Pricing and Regulatory Schemes	Rising costs	●	●	●	●
Pressure to Adopt Renewable Energy	Rising costs	●	●	●	●
Customer Low-carbon Supply Chain Requirements	Revenue impact	●	●	●	●
Enhanced Disclosure and Regulatory Requirements	Rising costs	●	●	●	●
Low-carbon Technology Investment Pressure	CAPEX increase	●	●	●	●
Physical Risks					
Extreme Rainfall, Typhoons, and Flooding	Operational disruption	●	●	●	●
Water Scarcity Risk	Rising costs	●	●	●	●
Rising Temperatures and Extreme Heat	Rising costs	●	●	●	●
Sea Level Rise and Climate Change	Operational impact	●	●	●	●
Climate Opportunities					
Energy Efficiency Enhancement	Cost reduction	●	●	●	●
Renewable Energy Deployment	Cost reduction	●	●	●	●
Low-carbon Products and Technological Innovation	Revenue growth	●	●	●	●
Sustainable Supply Chain Collaboration	Revenue growth	●	●	●	●

⌘ Impact Level: ● High | ● Medium-High | ● Medium | ● Low | ● Minimal

Impact Level Definitions	
● High – Significant impact ● Medium-High – Moderate to significant ● Medium – Moderate ● Low – Limited ● Minimal – Minimal / negligible	

Impact refers to financial impact (positive or negative)

※ Impact Level: ● High | ● Medium-High | ● Medium | ● Low | ● Minimal

Key Points	Cost	CAPEX	Revenue	Resilience	Monitoring
Climate risks and opportunities impact OPEX, CAPEX, revenue, and operations; mitigation through strengthened management.	- Efficiency - Cost control - Water	- Equipment - Renewable - Low-carbon	- Customer demand - Low-carbon products - Supply chain	- Risk response - Adaptation - Disruption	Regular monitoring of climate risks and financial impacts; scenario updates and reporting to the Corporate Governance and Sustainability Committee and Board.

Note: Impact levels are based on a comprehensive assessment of operational and financial impacts, Likelihood, and management urgency.

Scenario Analysis Approach

Scenario analysis is used to assess climate impacts on operations, strategy, and financials across different future pathways, supporting medium- to long-term risk management and strategic planning and enhancing resilience and transition capability.

I Scenario Analysis Methods and Processes

Define Scope	Develop Scenarios	Identify Risks & Opportunities	Assess Financial Impact	Strategy Response
- Define purpose and scope - Set assessment period - Define organizational boundaries	- Reference climate scenarios (e.g., low-carbon and high-emission pathways) - Incorporate industry trends and regulatory developments	- Identify transition and physical risks - Identify climate-related opportunities	- Assess impacts on OPEX, CAPEX, revenue, and financial position - Primarily qualitative, with progressive quantitative enhancement	- Develop response strategies and action plans - Integrate into planning and risk management processes

II Scenario Description and Company Focus

Scenario Type	Scenario Name	Main Basis	Temperature Change	Key Characteristics	Company Focus
Transition Scenario	IEA Net-zero Scenario	IEA Net Zero Emissions 2050	~1.5°C	- Net-zero target by 2050 - Tightening policies and rising carbon pricing - Accelerated innovation and renewable deployment	- Increased carbon costs - Transition CAPEX - Technology and equipment demand - Low-carbon products and market opportunities
High-emission Scenario	RCP 8.5 High-emission Scenario	IPCC RCP 8.5	~4.0°C	- Persistently high emissions - Limited policy action and slow low-carbon transition - Increased frequency and intensity of extreme events	- Operational disruption and repair costs - Rising energy and water costs - Asset impairment risk - Supply chain disruption
Physical Risk Scenario	Extreme Climate Scenario	IPCC Climate Risk and Disaster Studies	~2.0–4.0°C	- Increased typhoons, heavy rainfall, and extreme heat - Water scarcity risk - Impact on infrastructure and operations	- Enhanced facility protection - Business continuity planning (BCP) - Water and energy efficiency - Supply chain resilience

Note :The main operating site is the Kaohsiung Nanzih Technology Industrial Park. Scenario analysis results are based on regional risk exposure and operational characteristics.

III Contextual Basis and International Framework

International Framework / Standards

Application Notes

IEA NZE (Net Zero Emissions 2050)

Assessment of policy, technology, and market transition impacts under a net-zero pathway aligned with global decarbonization targets by 2050

IPCC RCP 8.5

Assessment of long-term physical risks under a high-emission scenario, including impacts on operations and asset performance

TCFD Recommendations

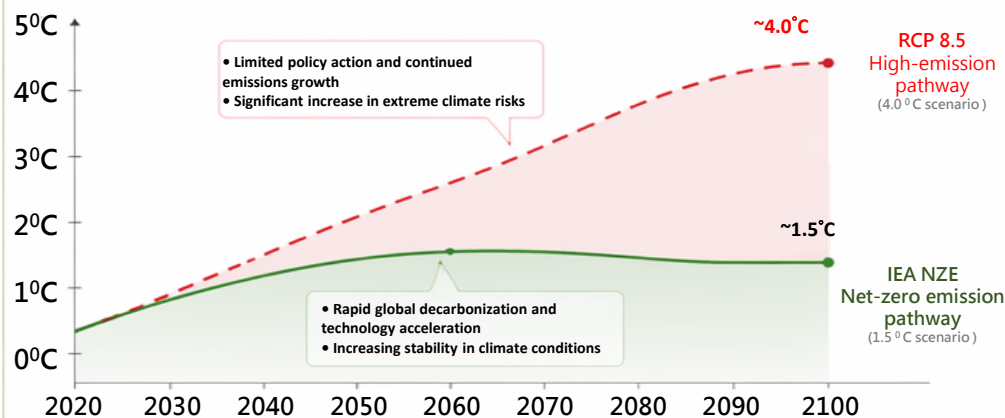
Scenario analysis and disclosure aligned with the four core pillars: governance, strategy, risk management, and Metrics & Targets

SASB & IFRS S2

Integration of industry-specific disclosures and international sustainability standards to enhance financial impact assessment and decision-usefulness

IV Dual-Track Scenario Analysis Overview

Global Temperature Change (°C)
(Relative to Pre-industrial Levels)



Significance of Scenario Analysis

Scenario analysis supports understanding of financial impacts, informs strategic responses, enhances operational efficiency, and identifies opportunities for low-carbon transformation.

Strategy Resilience and Response

Scenario analysis assesses climate risks and opportunities across future pathways to evaluate strategic resilience and strengthen climate adaptation and transition capability.



I Setting the Scene

Scenario Type	Scenario Description	Global Warming by 2100	Main Features
Transition Risk Scenario (low-carbon pathway)	Global transition toward net-zero emissions, with increasingly stringent policies and rapid development of low-carbon technologies	~+1.5°C (IEA NZE)	- Increasing carbon pricing and renewable energy deployment - Accelerated technological innovation - Growing demand for low-carbon transition
Physical Risk Scenario (high-emission pathway)	Continued growth in Greenhouse Gas Emissions, leading to increasing frequency and intensity of extreme climate events	~+4.0°C (IPCC RCP 8.5)	- Rising average temperatures and climate risks - Increased extreme weather events and disruptions - Greater operational and supply chain impacts

Note: Scenarios are based on international frameworks (IEA and IPCC) to assess potential impacts on operations and strategy under different climate pathways.

II Analytical Methods and Assumptions

Analytical Methods and Assumptions	Scenario analysis is applied, referencing international pathways (e.g., IEA NZE and IPCC RCP 8.5), to assess climate-related risks and opportunities and their impacts on operations and financial performance
Scope of Assessment	Based on the primary operating site (Kaohsiung Nanzih Technology Industrial Park), covering operations, supply chain, and energy use
Time Horizons	- Short term: 0–2 years - Medium term: 3–8 years - Long term: 8+ years
Financial Assumptions	Based on operational and capital planning, including key financial metrics such as OPEX, CAPEX, revenue, and asset value

III Strategic Resilience Assessment Results

Area	Scenario		Strategy Resilience Response
	Transition (1.5°C)	Physical Risk (4.0°C)	
Operations	●	●	Strengthen operational resilience and enhance flexible scheduling mechanisms in the medium term
Financial Impact	●	●	Optimize cost structure and improve energy and resource allocation efficiency
Supply Chain	●	●	Strengthen supply chain resilience and enhance carbon reduction measures in response to customer demand
Strategic Opportunities	●	●	Capture growth opportunities from low-carbon technologies and energy transition
Overall Resilience	●	●	Continue to advance energy efficiency, decarbonization, and resilience enhancement measures

※ Impact Level: ● High | ● Medium-High | ● Medium | ● Low | ● Minimal

IV Potential Financial Impacts under Scenario Analysis

Financial Metric	Transition Scenario (1.5°C)			Physical Risk Scenario (4.0°C)		
	Short (0–2 yrs)	Medium (3–8 yrs)	Long (8+ yrs)	Short (0–2 yrs)	Medium (3–8 yrs)	Long (8+ yrs)
OPEX	▲	▲	▲	▲	▲	▲
CAPEX	▲	▲	▲	▲	▲	▲
Revenue Impact	—	▲	▲	▼	▼	▼
Asset & Equipment Value	—	▲	▲	▼	▼	▼
Operational Disruption Risk	—	▼	▼	▲	▲	▲

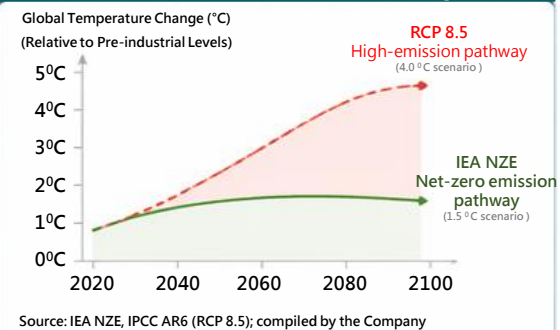
Legend: ▲ Increase or positive impact ▼ decrease, pressure, or risk; — limited or non-material impact — Limited or non-material impact

Note: Results are derived from qualitative scenario analysis, considering cost pressures, capital requirements, revenue opportunities, asset valuation, and operational disruption risks, and serve as the basis for subsequent quantitative assessment.

V Strategic Resilience Assessment Results

Strengthening Energy Transition and Low-carbon Management	Increase renewable energy use, implement energy-saving initiatives and process optimization, and enhance energy efficiency to mitigate transition risks.
Enhancing Operational Resilience and Risk Management	Strengthen disaster prevention facilities and business continuity planning (BCP) to improve resilience to extreme weather and water risks.
Deepening Supply Chain Collaboration and Customer Engagement	Respond to customer low-carbon requirements, enhance carbon reduction and data transparency across the supply chain, and strengthen long-term competitiveness.
Seizing Low-carbon Opportunities and Driving Innovation	Develop low-carbon technologies and green products, expand market opportunities, and create long-term value through innovation.

VI Dual-track scenario path



- ◆ Transition scenario: Cost and CAPEX pressures, with long-term competitiveness driven by decarbonization and innovation
- ◆ Physical risk scenario: Increased operational and financial impacts, requiring strengthened resilience and risk management



- ◆ Advance energy efficiency and renewable energy deployment
- ◆ Integrate climate risks into CAPEX and operational decisions
- ◆ Strengthen supply chain and customer decarbonization
- ◆ Conduct regular resilience review and ongoing adjustments



Regular Review and Update

Regular review of scenario results and strategic responses, with reporting to governance bodies to strengthen resilience and long-term competitiveness.

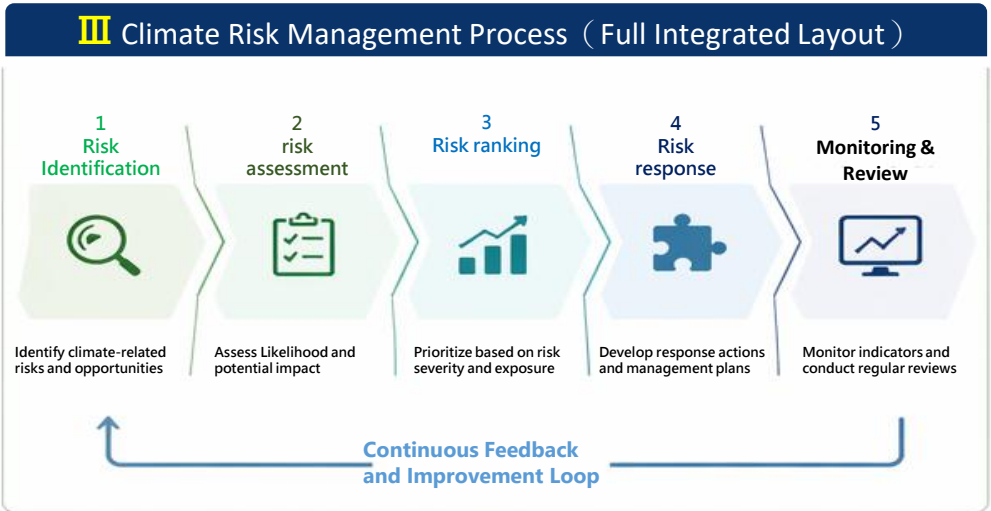
Risk Management

Climate risks and opportunities may affect operations, strategy, cost structure, and supply chains; managed through identification, assessment, prioritization, response, and monitoring aligned with the TCFD framework



I Setting the Scene	
Identifying Climate Risks and Opportunities	Integrating Risk Management Mechanisms
Systematically identify transition and physical risks, as well as climate-related opportunities, and assess impacts on operations and financials	Integrate climate risks into the enterprise risk management framework, with defined responsibilities and governance oversight
Strengthening Resilience and Adaptability	Driving Long-term Value Creation
Enhance operational resilience and adaptive capacity to mitigate climate impacts	Capture climate opportunities through innovation and low-carbon solutions to create long-term value and competitive advantage

II Method (TCFD Framework Application)	
Area	Description
Governance	• Board oversight of climate-related risks • Defined roles and responsibilities of management • Cross-functional coordination mechanisms
Strategy	• Scenario analysis and financial impact assessment • Evaluation of impacts on business strategy • Medium- to long-term strategic response planning
Risk Management	• Risk identification, assessment, and prioritization • Risk response and management processes • Ongoing monitoring and indicator tracking
Metrics & Targets	• Monitoring key indicators (e.g., emissions, energy use) • Tracking progress against carbon reduction targets • Performance review and continuous improvement



IV Types of Climate Risks and Opportunities		
Transition Risks	Physical Risks	Climate Opportunities
Policy & Regulation : Increasing carbon pricing, emissions controls, and environmental regulations	Acute risks : Increasing frequency and intensity of extreme weather events (typhoons, floods, heavy rainfall)	Resource Efficiency : Improve energy efficiency, reduce carbon emissions, and lower operating costs
Technology : Rapid development of low-carbon technologies drives replacement of existing technologies	Chronic risks : Rising temperatures, sea level rise, and prolonged droughts	Products & Services : Develop low-carbon technologies and provide green products and services
Market : Changing customer preferences increase competition in green products and services	Supply Chain Impact : Disruptions to supplier operations, logistics, and raw material availability	Market : Capture green market opportunities and meet customer sustainability demand
Reputation : Increased stakeholder concern poses risks to corporate reputation	Asset Impact : Damage to facilities, operational disruptions, and increased maintenance costs	Resilience : Enhance operational resilience and reduce climate-related risks
Finance : Higher financing costs and changing investor preferences	Operational Impact : Reduced productivity and increased energy and resource costs	Innovation : Introduce green technologies and innovative business models

V Continuous Improvement
Deepening Scenario Analysis Expand the scope and application of scenario analysis to enhance financial quantification capabilities.
Strengthening Data and Metrics Management Improve data quality, traceability, and consistency to support climate-related decision-making.
Enhancing Governance and Execution Capabilities Strengthen cross-functional collaboration and risk management processes to enhance governance effectiveness.
Promoting Low-carbon Transformation Advance energy efficiency, renewable energy adoption, and low-carbon technologies to support transition goals.



Continuous enhancement of climate risk management to strengthen resilience and mitigate impacts on operations and financials through structured processes and ongoing improvement.



Risk Identification Process

Climate risks and opportunities are identified using external scenarios, internal data, and stakeholder inputs, and prioritized based on financial impact, Likelihood, and time horizons to support risk management, strategy, and resource allocation



I Identify Sources of Climate Risks and Opportunities		II Climate Risk Classification		III Key Factors for Risk Scoring	
External Context and Trends	- Reference international scenarios (e.g., IEA NZE, IPCC RCP 8.5) - Policies and regulations (carbon pricing, emissions standards) - Industry trends, technological developments, and market changes - Climate-related events (natural disasters and extreme weather data)	Transition Risks	Timeline	Financial Impact	- Revenue impact (price, demand, product mix) - Cost impact (operations, raw materials, compliance) - Asset impact (impairment, replacement, insurance) - CAPEX and investment impact
Internal Operations Information	- Key operational data and supply chain information - Energy, water, and raw material usage - Historical incidents, disruptions, and response records - Financial, investment, and project planning data	Physical Risks	Value chain scope	Likelihood of Occurrence	- Assess Likelihood based on context and historical data - Consider short-, medium-, and long-term trends - Incorporate changes in frequency and intensity of climate events
Stakeholder Perspectives	- Customer and supplier requirements - Investor and financial institution concerns - Employee and community feedback - ESG assessments and client audit requirements			Time Horizon Impact	- Short term: Driven by operational and regulatory factors - Medium term: Driven by strategic adjustments, investment, and supply chain pressures - Long term: Driven by climate change trends, resilience, and market competitiveness

IV Risk Ranking and Prioritization		V Feedback and Management Process				
Risk Matrix Financial Impact High Medium Low Low Medium High Likelihood		Principles - Prioritize based on financial impact - Consider Likelihood and urgency of occurrence - Incorporate operational locations, supply chain, and customer requirements - Evaluate management feasibility and urgency of response ◆ Risks are assessed based on financial impact and Likelihood, and classified into low, medium, and high levels. ◆ The results support risk prioritization and resource allocation decisions.				
		1	2	3	4	5
		Results Feedback	Risk Management Action	Performance tracking	Continuous Improvement	Regular Review
		Feedback evaluation results to operations, strategy, and financial planning	Develop response actions and define responsibilities, resources, and timelines	Track risk indicators and evaluate effectiveness of action plans	Adjust strategies and management measures to reduce risks and enhance resilience	Review risk assessments and update climate risk ranking and management strategies

Objective	Key Achievement I	Key Achievement II	Key Achievement III
Establish a systematic climate risk identification and ranking framework to support management decisions, resource allocation, and continuous improvement.	Prioritize risks based on financial impact, Likelihood of occurrence, and time horizons.	Strengthen risk classification and prioritization to support effective management actions.	Integrate assessment results into operations, strategy, and resource allocation processes.

Climate Risk Transmission Pathways

Climate risks affect operations, financial performance, and strategy through multiple transmission pathways.

Assessment results support risk management and resource allocation.



1. Sources of Risk

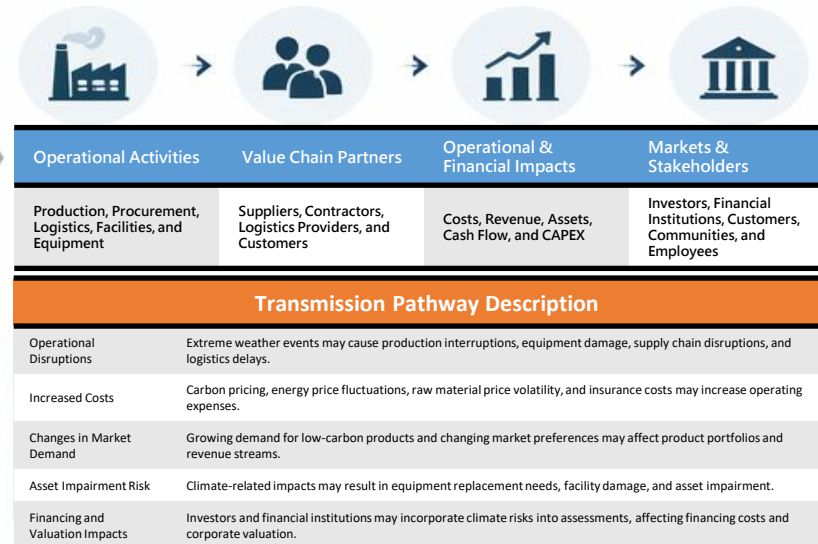
Transition Risks

- ① Increasing policy and regulatory requirements
- ② Carbon pricing, carbon taxes, and emissions trading mechanisms
- ③ Low-carbon technology and process transition pressure
- ④ Growing market demand and customer low-carbon requirements
- ⑤ Increasing stakeholder expectations and reputational risks

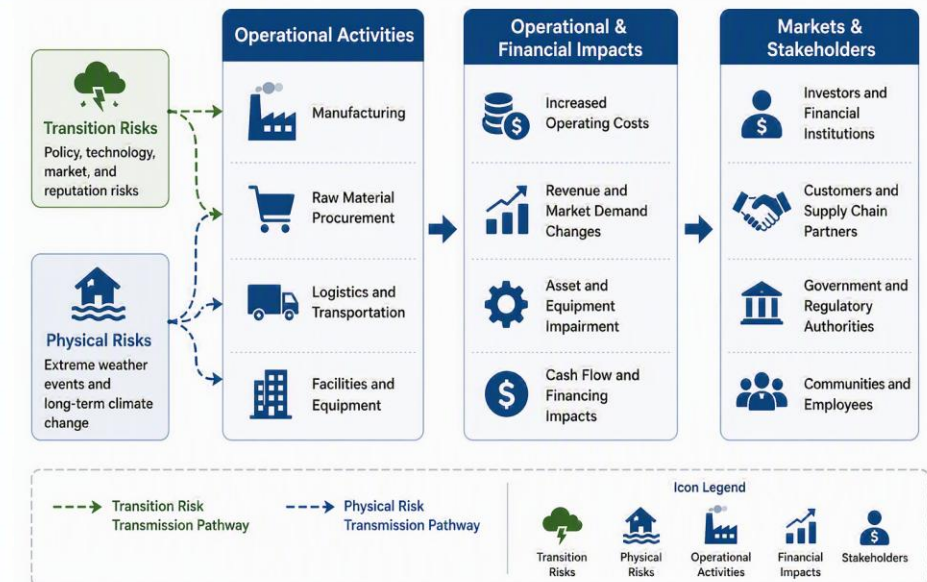
Physical Risks

- **Acute Risks:** Extreme weather events such as typhoons, flooding, heavy rainfall, droughts, and extreme heat
- **Chronic Risks:** Rising temperatures, water scarcity, sea-level rise, and long-term climate pattern changes

2. Risk transmission path



3. Climate Risk Transmission Pathways



4. Key Impact Areas

Operational Impacts

- Production interruptions and capacity losses
- Supply chain disruptions and logistics delays
- Increased equipment damage and maintenance costs

Financial Impacts

- Increased operating costs
- Increased capital expenditure
- Impacts on profitability and cash flow

Market Impacts

- Changes in product demand and market preferences
- Low-carbon transition opportunities
- Changes in competitiveness and market share

Strategic Impacts

- Strategy and investment adjustments
- Product portfolio and technology transition
- Long-term business model adaptation

Stakeholder Impacts

- Investor assessment and investment decisions
- Customer requirements and supply chain expectations
- Community and employee trust and reputation

Management Objectives



By identifying climate risk transmission pathways, OSE strengthens cross-functional risk management and organizational resilience, reduces potential financial impacts, captures opportunities arising from the low-carbon transition, and creates long-term sustainable value.

Alignment with
TCFD Core Elements



Governance



Strategy



Risk
Management



Metrics &
Targets

Climate Risk Matrix

Assessment of climate-related risks based on Likelihood and financial impact, with risk levels illustrated through a heat matrix to support prioritization and resource allocation.

Likelihood of Occurrence (Probability)					Financial Impact (Impact on Operating Profit)				
1 Low Unlikely	2 Medium and Low Less Likely	3 Possible	4 Medium and High More Likely	5 High Very Likely	1 Low <1%	2 Medium and Low 1–3%	3 Medium 3–5%	4 Medium and High 5–10%	5 High >10%

Note : Financial impact is estimated based on the degree of impact on operating profit.

1. Evaluation Methodology and Process

Step

Identify Risks

Refer to the TCFD framework and relevant sources to systematically identify climate-related risks and opportunities.

Assess Likelihood

Assess the Likelihood based on historical data and future trends (1-5 points).

Assess Financial Impact

Evaluate the financial impact on revenue, costs, assets, and cash flow (1-5 points).

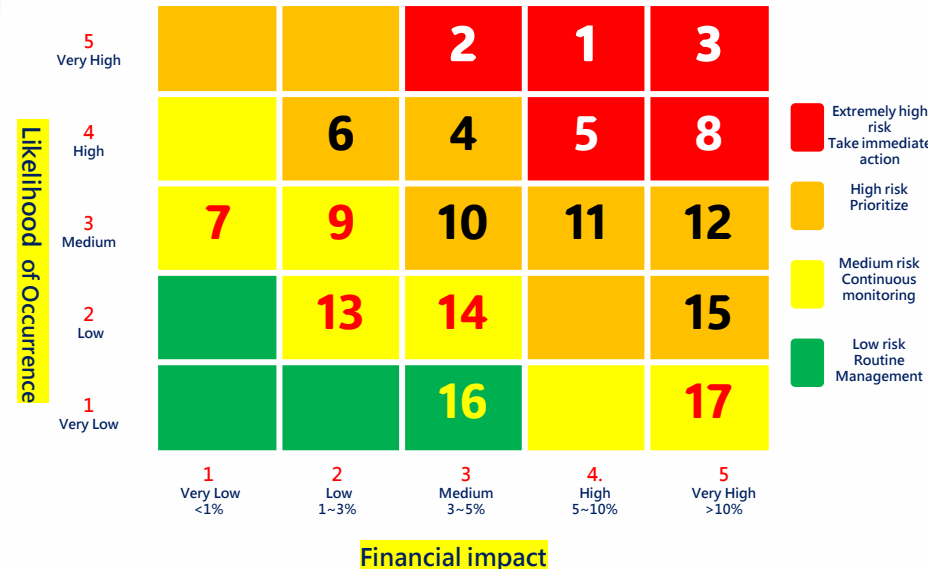
Calculate Risk Level

Risk Score = Likelihood x Financial Impact (Maximum score: 25 points).

Develop Response Strategies

Classify risks into levels and list priority risks for management.

2. Heat Matrix (Likelihood X Financial Impact)



3. Risk Item Description (Corresponding Matrix Reference)

Transition Risks

- | | |
|--|--|
| 1. Increased carbon fees / carbon taxes | 5. Renewable energy price volatility and supply stability concerns |
| 2. Tightening domestic and international regulations | 6. Increasing green financing barriers |
| 3. Increasing energy transition costs | 7. Reduced market competitiveness |
| 4. Rising technology transition costs | 8. Product / service transformation failure |

Physical Risks

- | | |
|--|--|
| 9. Extreme heat reduces equipment efficiency | 13. Extreme weather events damage equipment and facilities |
| 10. Heavy rainfall and flooding affect production and shipments | 14. Sea level rise impacts plant facilities |
| 11. Drought increases water costs and causes water supply restrictions | 15. Supply chain disruptions |
| 12. Typhoons and strong winds cause operational disruptions | 16. Rising average temperatures increase energy demand |
| | 17. Long-term climate change alters the business environment |

4. Risk Level Description and Key Responses

Risk Rating	Description	Key Management Actions
Very High (16-25)	Both Likelihood and financial impact are high, with significant potential impacts on operations and financial performance.	- Prioritize resources and immediate mitigation actions - Escalate to senior management for oversight and decision-making - Implement and monitor action plans regularly
High (11-15)	Likelihood or impact is high, requiring proactive risk management and mitigation measures.	- Establish mitigation plans and management indicators - Integrate risks into overall risk management processes - Monitor implementation effectiveness regularly
Medium (6-10)	Risks may have moderate impacts and require continued monitoring and appropriate response measures.	- Monitor internal and external developments continuously - Review risk trends and adjust response measures As needed
Low (1-5)	Potential impacts are limited and can be managed through routine controls and monitoring.	- Conduct routine monitoring and periodic reviews - Maintain established management controls and procedures

5. Purpose of the heat matrix

Purpose	Description
Determine Management Priorities	Identify and prioritize climate-related risks to support effective resource allocation and management actions.
Support Strategic Decision-Making	Provide a basis for operational planning, capital allocation, and climate-related strategy development.
Strengthen Risk Communication	Visualize key climate-related risks to enhance communication and alignment across functions.
Drive Continuous Improvement	Regularly review risk assessment results and response effectiveness to improve risk management practices.

Note: Risk levels are based on Likelihood, impact, and urgency, supporting risk prioritization and resource allocation.

Climate Risk Management Mapping

Assessment of climate-related risks and their impacts on operations, financial performance, markets, and supply chains, with management actions and responsible functions assigned according to risk levels to support resilience and risk mitigation.



Sources of Risk	Description	Management strategy	Description	Management Objectives	Description
Transition Risks	Risks arising from policy, regulatory, technology, and market changes	Mitigate	Reduce climate risks through efficiency improvements and emission reduction initiatives	Enhance Operational Resilience	Reduce impacts on operations and supply chains
Physical Risks	Impacts of extreme weather events and long-term climate change on operations	Transfer	Share risks through insurance and supply chain diversification	Strengthen Financial Resilience	Mitigate financial risks and cost pressures
		Accept	Monitor and manage unavoidable risks through contingency measures	Create Long-term Sustainable Value	Support stakeholder expectations and low-carbon transition

Major Climate-Related Risk Management Matrix							
Climate-Related Risks	Risk Category	Likelihood (1–5)	Financial Impact (1–5)	Risk Rating	Potential Impacts	Management Actions (Key Measures)	Responsible Function
🌱 Carbon Pricing and Strengthening Climate Regulations	Transition Risks (Policy & Regulatory)	4	4	🔴	Higher operating costs and stricter compliance requirements	Promote carbon reduction initiatives, strengthen regulatory compliance capabilities, and integrate carbon costs into business planning and investment decision-making.	✓ Environmental Management Team (Lead) • Corporate Governance Team (Support) • Sustainability Office (Support)
⚡ Energy Price Fluctuations	Transition Risks (Market)	4	3	🟡	Higher operating costs and pressure on profit margins	Improve energy efficiency, optimize energy procurement strategies, and implement energy-saving initiatives to reduce exposure to energy price volatility.	✓ Environmental Management Team (Lead) • Supply Chain Team (Support) • Sustainability Office (Support)
💧 Water Scarcity and Rising Water Costs	Physical Risks (Chronic)	3	3	🟡	Higher water costs and operational impacts	Strengthen water resource management and recycling practices to improve water-use efficiency and resilience to water shortages.	✓ Environmental Management Team (Lead) • Sustainability Office (Support)
🌪️ Extreme Weather Events Causing Operational Disruptions	Physical Risks (Acute)	4	4	🔴	Asset damage, operational disruption, and delivery delays	Strengthen climate resilience through disaster prevention measures and business continuity planning (BCP).	✓ Environmental Management Team (Lead) • Procurement & Operations Team (Support) • Sustainability Office (Support)
📉 Changing Market Demand and Competition from Low-Carbon Products	Transition Risks (Market)	3	3	🟡	Higher customer requirements and increased market competition	Enhance low-carbon products and services, strengthen ESG disclosure, and respond proactively to customer sustainability expectations.	✓ Supply Chain Team (Lead) • Sustainability Office (Support)
🚚 Supply Chain Decarbonization Pressures and Disruption Risks	Transition Risks (Technology & Market)	3	3	🟡	Higher raw material costs and supply chain instability	Enhance supplier engagement, sustainability assessments, responsible sourcing, and supply chain decarbonization initiatives.	✓ Supply Chain Team (Lead) • Sustainability Office (Support)

Climate-related risks are integrated into operational decision-making and resource allocation to strengthen organizational resilience, reduce financial impacts, and support long-term value creation.

Score Explanation

- Likelihood: 1 (Low) to 5 (High)
- Financial Impact: 1 (Low) to 5 (High)
- Risk Rating: Determined based on Likelihood and financial impact

Risk Rating	Score	Management Response
🔴 Very High	16–25	Immediate action and regular monitoring are required.
🟡 Medium-High	11–15	Mitigation actions should be implemented and closely monitored.
🟡 Medium	6–10	Continuous monitoring and improvement are required.
🟢 Low	1–5	Periodic monitoring and routine management are sufficient.

Note: This matrix is periodically reviewed and updated based on changes in external conditions, operational performance, and climate-related risk assessments to support risk management and strategic responses.

Metrics & Targets

Climate-related risks and opportunities are monitored through key metrics, including Greenhouse Gas Emissions, energy consumption, renewable energy, water resources, and energy efficiency investments. These metrics support target setting, performance monitoring, and continuous improvement toward a low-carbon and resilient future.





Greenhouse gas
(GHG) emissions

80,489.9140 tCO₂e

2025 GHG Emissions (Scope 1 & 2)

▼ 4.3% Reduction from Base Year

2030 Target: 23% Reduction from the Base Year



Renewable Energy Use
(Green Energy)

use 11.566 million kWh

Renewable Electricity Share

6.4%

2030 Target: 12.6% Renewable Electricity Share



Water Resource
Management

Wastewater Recycling Rate

34.26%

Water Use Intensity

▼ 28.7% Reduction from Base Year

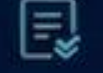
Continuously improve water-use efficiency and resource recycling.

Key Indicator Trends

Indicator	2021	2022	2023	2024	2025	2030 (Target)
Reduction from Base Year (%)	100% (Base year)	98.4%	98.4%	94.0%	81.2%	77.0% (-23%)
Renewable Electricity Share (% of Total Energy Consumption)	0% (Base year)	0%	0%	0.87%	6.4%	12.6%
Water Withdrawal Intensity (m³ per million NTD revenue)	100% (Base year)	87.8%	79.8%	83.6%	67.9% (-32.1%)	

Note: Baseline years are defined for each indicator. Trend data have been standardized for comparison.

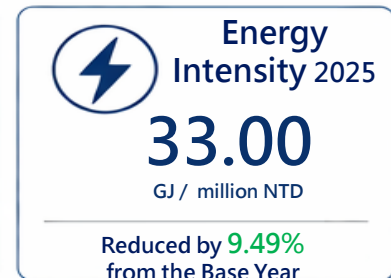
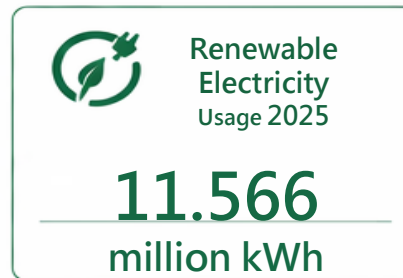
Indicators and Targets

-  **Climate Target Setting**
Align targets with climate science and decarbonization pathways.
-  **Performance Monitoring and Review**
Track progress against climate-related Metrics & Targets.
-  **Data-Driven Decision-Making**
Support operational, investment, and risk management decisions.
-  **Cross-Functional Collaboration**
Strengthen accountability and implementation across functions.

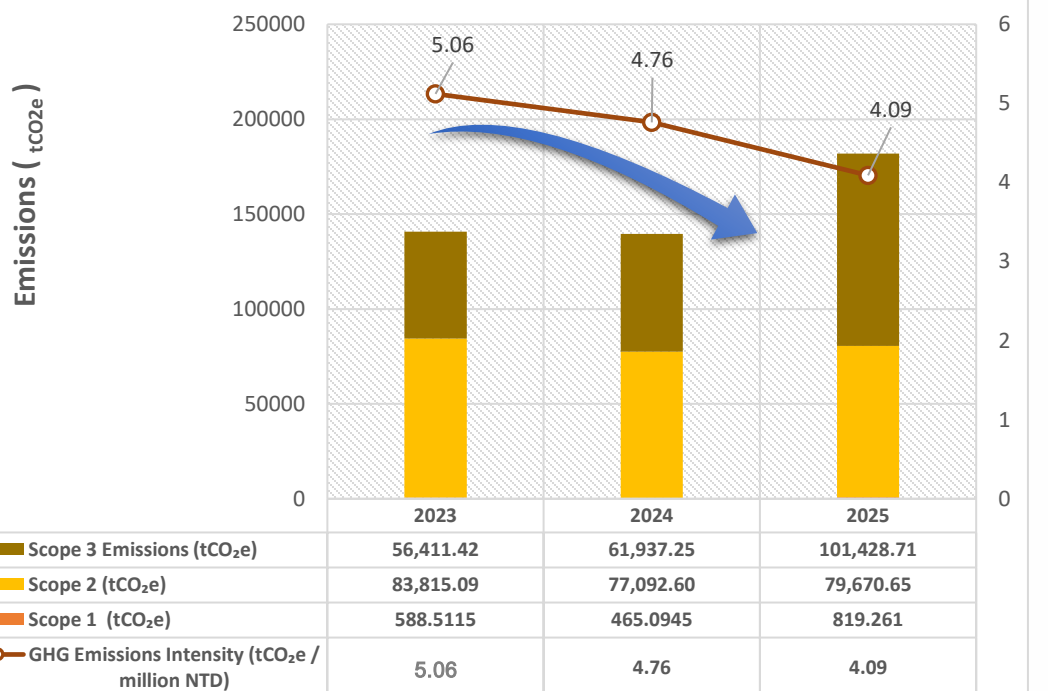
Indicator Overview	Scope 1 & 2 GHG Emissions Reduction from Base Year	Renewable Electricity Share	Energy Savings Achieved through Energy Efficiency Initiatives	Wastewater Discharge Reduction from Base Year	Wastewater Recycling Rate	Water Withdrawal Intensity Reduction from Base Year	General Waste Recycling Rate	Waste Generation Intensity
Target	18.8%	2.4%	1.0%	29.0%	34.0%	16.4%	≥ 37.0%	≤ 0.180%
Performance	4.3%	6.4%	0.92%	20.6%	34.26%	28.7%	47.1%	0.141%

Note: The base year, calculation boundaries, and units for each indicator are based on the company's internal statistics and relevant audit data; emissions are the sum of Category I and Category II, and the actual data are based on the annual greenhouse gas audit results.

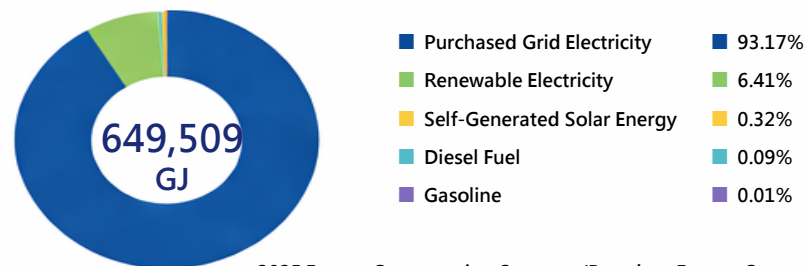
OSE monitors climate-related risks and opportunities through key metrics, including GHG emissions, renewable energy, energy intensity, and internal carbon pricing, supporting low-carbon transition and informed decision-making.



Emissions intensity (tCO₂e / million NTD revenue)



Item	Unit	2021	2022	2023	2024	2025
Grid Electricity Purchased	kWh	164,822,459	166,796,800	169,666,164	162,642,623	168,081,546
	GJ	593,360.85	600,468.48	610,798.19	585,513.44	605,093.57
Gasoline	Liter	6,610.26	3,725.55	2,781.85	2,578.03	2,376.99
	GJ	215.88	121.67	90.69	84.04	77.49
Diesel Fuel	Liter	50,906.53	26,907.95	18,577.77	15,744.88	17,127.55
	GJ	1,790.42	946.37	653.39	552.65	601.18
Self-Generated Solar Energy	kWh	–	–	175,776.30	617,498.51	582,794.10
	GJ	–	–	632.79	2,222.99	2,098.06
Renewable Electricity	kWh	–	–	–	1,418,037	11,566.331
	GJ	–	–	–	5,104.93	41,638.79
Total Energy Consumption (GJ)		595,502.31	601,997.37	612,175.06	593,478.05	649,509.09
Energy Intensity GJ / million NTD revenue		37.34	38.73	36.68	36.46	33.00



2025 Energy Consumption Structure(Based on Energy Consumption in GJ)

Shadow Carbon Price



Application Scope

- Capital expenditure investment evaluation
- Financial evaluation of carbon reduction projects
- Internal carbon management mechanism

Description

The shadow carbon price serves as an internal carbon pricing benchmark to support investment evaluation, energy efficiency and carbon reduction projects, and climate-related decision-making, strengthening the Company's low-carbon transition and carbon management.

Indicator Management Principles

Quantitative Management

Monitor climate-related performance through data-driven metrics and target tracking.

Continuous Improvement

Improve energy efficiency, reduce emissions, and increase renewable energy use.

Transparent Disclosure

Disclose climate-related information in accordance with applicable standards.

Cross-Functional Collaboration

Strengthen climate action through collaboration across functions under ESG governance.

Note

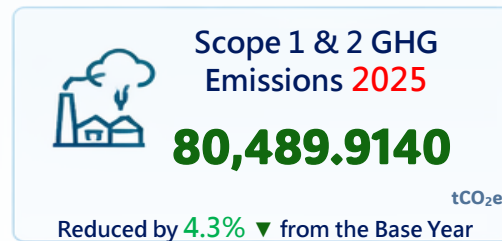
1: GHG emissions data are based on ISO 14064-1:2018 verification results.

2: The increase in Scope 3 emissions in 2025 was primarily attributable to changes in raw material procurement volumes.

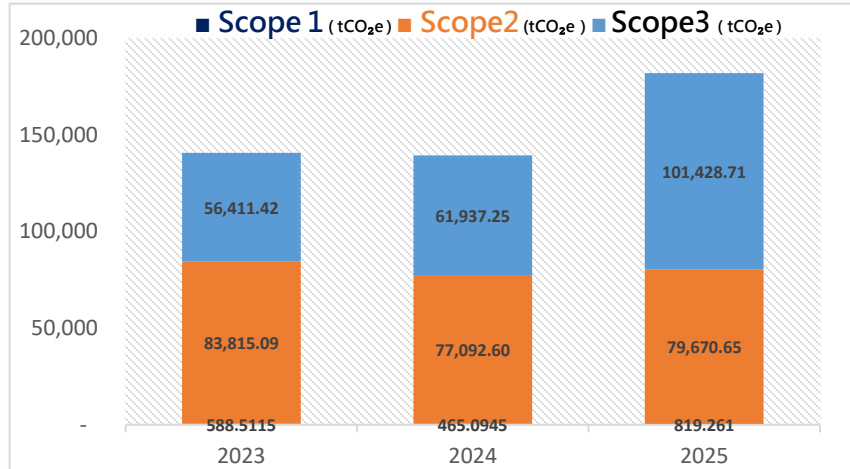
3: Calculation boundaries, units, and base years for each metric are determined in accordance with the Company's internal methodologies and annual data inventory results.

Greenhouse Gas Emissionss Data

OSE conducts greenhouse gas (GHG) inventories in accordance with ISO 14064-1:2018 and discloses Scope 1, Scope 2, and Scope 3 emissions. OSE monitors GHG emissions intensity to track low-carbon operational performance and support climate-related management and decision-making.

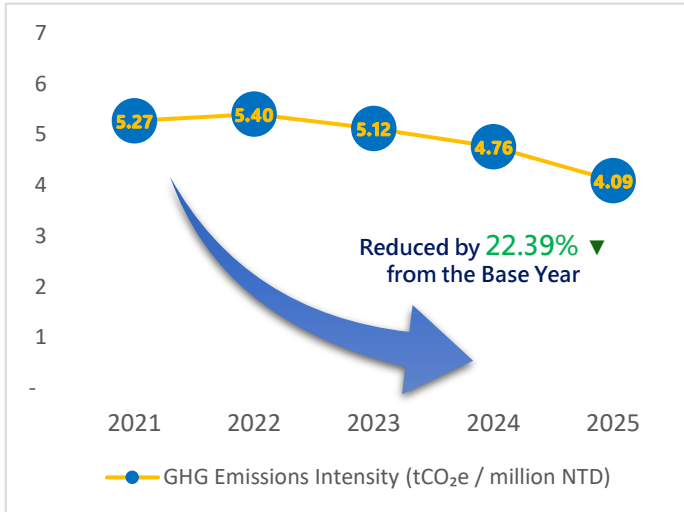


Greenhouse Gas Emissionss by Scope (2023–2025)



Note: The increase in Scope 3 emissions is primarily attributable to changes in raw material procurement volumes. OSE will continue to strengthen supply chain decarbonization initiatives to reduce its overall carbon footprint.

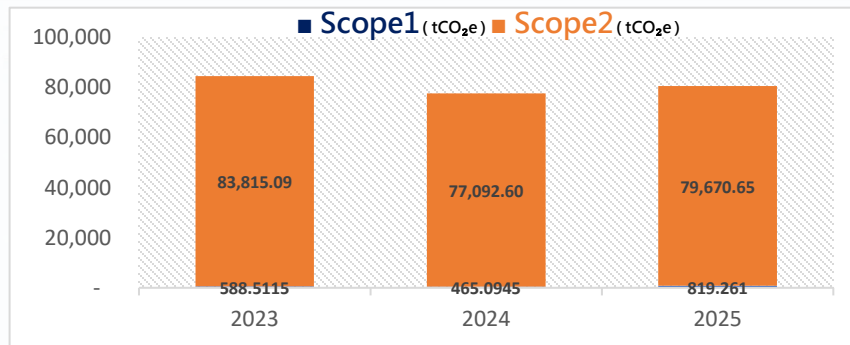
GHG Emissions Intensity Trends (2021–2025)



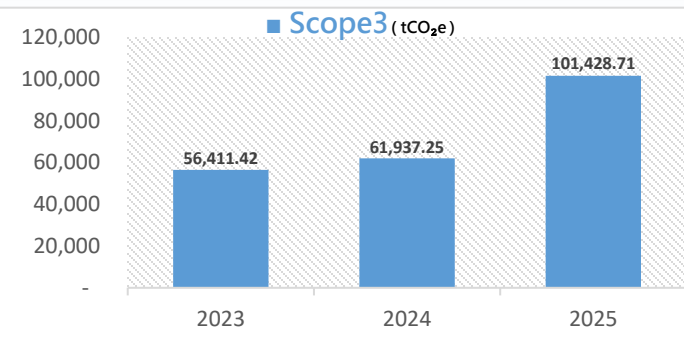
GHG Emissions and Emissions Intensity Overview

Year	GHG Emissions (tCO ₂ e)				Emissions intensity (tCO ₂ e / million NTD revenue)
	Scope 1	Scope 2	Scope 3	Scope 1&2	
2023	588.5115	83,815.085	56,411.4182	84,403.5965	5.12
2024	465.0945	77,092.6031	61,937.2486	77,557.6976	4.76
2025	819.2610	79,670.6530	101,428.7126	80,489.9140	4.09

Scope 1 & Scope 2 Emissions (2023–2025)



Scope 3 Emissions (2023-2025)



Note: GHG emissions are calculated in accordance with ISO 14064-1:2018. Scope 3 emissions may vary due to changes in reporting boundaries, procurement volumes, and emission factors. Actual data are based on annual GHG inventory results.

Key Highlights

- ✓ Scope 1 & 2 GHG emissions totaled 80,489.9 tCO₂e in 2025, representing a 4.3% reduction compared with the base year.
- ✓ GHG emissions intensity decreased to 4.09 tCO₂e per million NTD revenue in 2025, representing a 22.39% reduction from the base year and reflecting continued improvement in carbon efficiency per unit of revenue.
- ✓ OSE continued to expand renewable electricity use and implement energy efficiency initiatives, contributing to reductions in Scope 1 & 2 GHG emissions and energy-related risks.
- ✓ The increase in Scope 3 emissions was primarily attributable to changes in raw material procurement volumes. OSE will continue to strengthen supply chain decarbonization initiatives and supplier engagement.

Energy and Renewable Energy Management

OSE enhances energy efficiency, expands renewable electricity use, and implements energy conservation initiatives to support low-carbon transition and climate resilience.

Total Renewable Electricity Use **2025**

12,149,125 kWh
Renewable Electricity Share
6.73 %

Compared with 2024 ▲ 5.49 %

Total Energy Consumption **2025**

649,509 GJ
Energy intensity
33.00 GJ/ million NTD revenue

Compared with 2024 ▼ 9.49 %

Energy Efficiency Projects **2025**

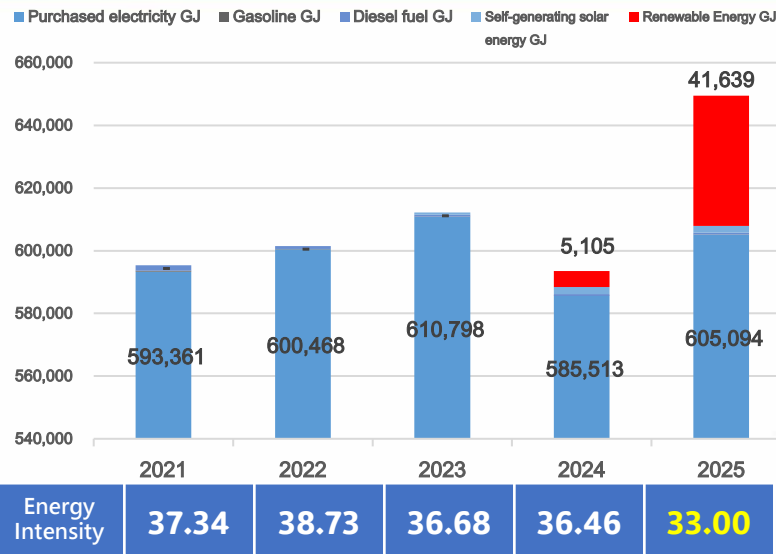
22 items
Electricity savings
1.656 million kWh

Carbon Reduction Benefits **2025**

784.8218 tCO₂e

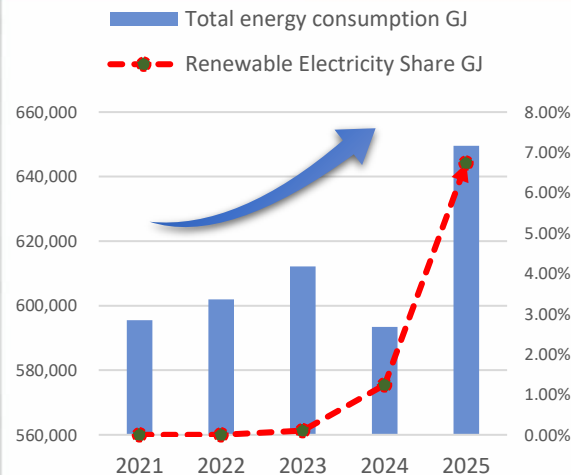
Estimated based on electricity savings and grid emission factors.

Energy Consumption Trends (2021–2025)



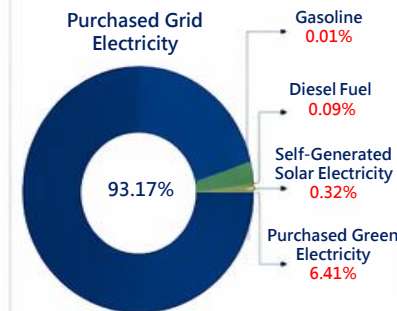
Note: Energy intensity = Total energy consumption ÷ annual revenue (million NTD).

Renewable Electricity Use and Share Trends (2021–2025)



Renewable Electricity Share increased to 6.73% in 2025, up 5.49 percentage points from 2024.

2025 Energy Mix



Purchased grid electricity remained the primary energy source in 2025, while the share of renewable electricity continued to increase.

2025 Energy Efficiency Project Performance

Solution Category	Projects	Annual Electricity Savings (kWh)	Carbon Reduction (tCO ₂ e)
Chiller System Optimization	2	36,967	17.5223
Air Compressor Replacement	1	175,564	83.2173
Equipment Efficiency Improvement	4	182,591.6	86.5485
Process Equipment Efficiency Improvement	15	1,260,619.56	597.5337
Total	22	1,655,742.16	784.8218

Note:

1. Carbon reduction is estimated using the 2024 electricity emission factor of 0.474 kg CO₂e/kWh published by the Ministry of Economic Affairs (MOEA).
2. Energy savings projects shown above represent major completed initiatives. Actual annual savings may vary depending on operating conditions.

Energy Management Strategies and Actions

Improve Energy Efficiency

Promote equipment replacement, system optimization, and process improvements to reduce energy consumption and enhance operational efficiency.

Optimize Renewable Electricity Use

Increase renewable electricity use through green electricity procurement and self-generated solar power to support decarbonization efforts.

Implement an Energy Management System

Implement ISO 50001 energy management practices and conduct regular reviews to drive continuous improvement in energy performance.

Strengthen Employee Awareness

Promote energy conservation awareness and employee engagement through training, communication, and participation initiatives.

Data Sources and Methodology

- Data Source: Taiwan operations
- Reporting Period: 2021–2025
- Data verified in accordance with ISO 14064-1 and compiled from the ISO 50001 Energy Management System
- Energy savings and carbon reduction benefits are estimated based on electricity savings and applicable emission factors

Water Resources and Physical Risk Management

OSE enhances sustainable water management through process optimization, wastewater recycling, and water risk monitoring to improve water-use efficiency, reduce operational impacts, and strengthen resilience to climate-related water risks.

Total Water Withdrawal
2025
1,371.50
million liters
Compared with 2024
▲ 6.33 %

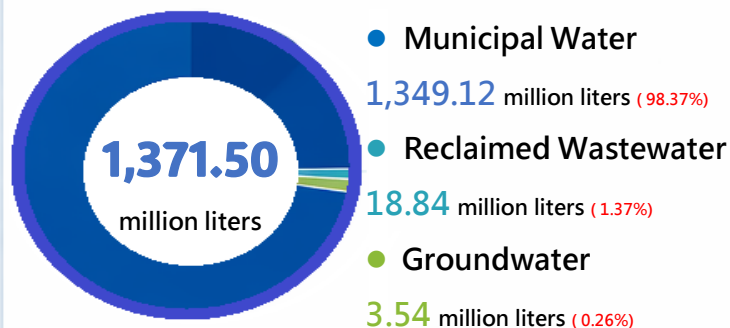
Water Withdrawal Intensity
2025
Improved by 28.7%
from the Base Year

Wastewater Recycling Rate
2025
34.26%
Target Achieved.

Wastewater Discharge
2025
995.69
million liters
Compared with 2024
▲ 6.87 %

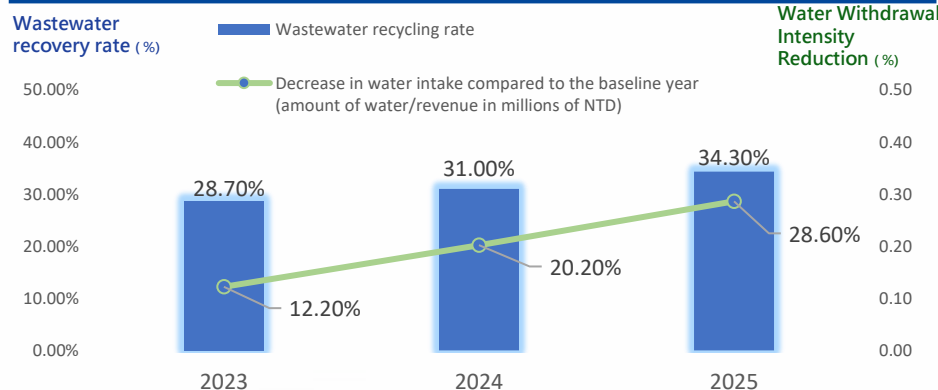
Water Risk Assessment
(WRI Aqueduct)
2025
The facility is not located in a high water-risk area.

2025 Water Withdrawal Structure



All water sources are classified as freshwater (<1,000 mg/L total dissolved solids).

Key Water Resource Trends (2023–2025)



Wastewater Recycling Rate
2025: **34.26%**



Water Withdrawal Intensity
Improved by **28.7%**
from the Base Year

Water Resources Management



Water Recycling Enhancement

Increase the use of recycled water in operations and expand water recycling applications to reduce freshwater consumption.



Process Water Optimization

Introduce water-saving equipment and optimize processes to reduce water consumption per unit of production and improve water-use efficiency.



Water Risk Monitoring

Regularly assess regional water supply conditions and water-related risks, and establish water risk mapping and early warning mechanisms.



Water Resilience

Establish water shortage response and contingency plans to strengthen operational stability and water supply resilience.

Water Resources Data Overview (Unit: Million Liters)

Disclosure Item		2022	2023	2024	2025
Water Intake	Municipal Water	1,159.45	1,390.14	1,246.05	1,349.12
	Diaphragm Wall Dewatering	40.18	40.56	21.76	18.84
	Groundwater	0	7.20	2.00	3.54
	Total Water Withdrawal	1,199.63	1,437.90	1,289.81	1,371.50
Wastewater Discharge		862.97	1,057.63	931.71	995.69
Water Consumption		336.66	380.27	338.09	375.81

Notes and explanations:

- All water sources are classified as freshwater ($\leq 1,000$ mg/L TDS).
- Municipal water data are based on annual water bills; dewatering data are based on meter readings.
- Wastewater is treated and discharged in accordance with local requirements.
- Wastewater discharge is classified as other water ($> 1,000$ mg/L TDS) and is not reused by other organizations.

Water resources management objectives



2030 Goals

- ✓ Increase the wastewater recycling rate to over **44%**.
- ✓ Reduce water withdrawal intensity by **32.1%** compared with the base year.



Management Vision

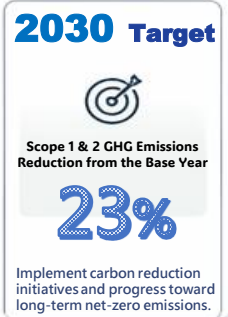
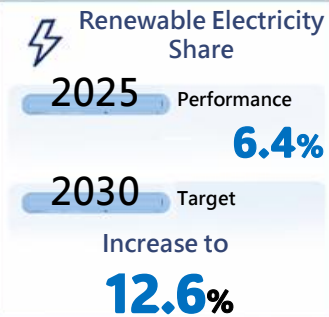
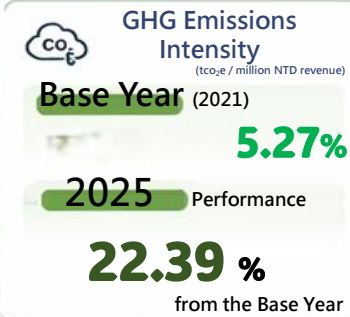
- ✓ Enhance water-use efficiency and wastewater recycling to reduce environmental impacts and strengthen sustainable water management and climate resilience.

Goals and Performance Tracking

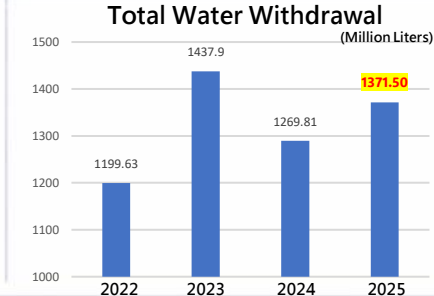
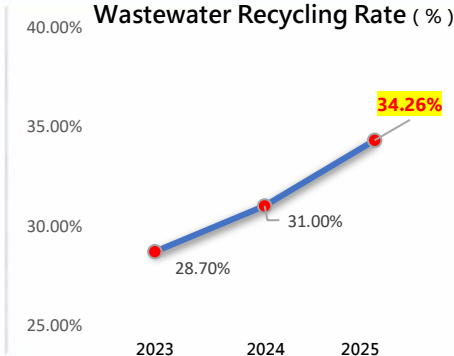
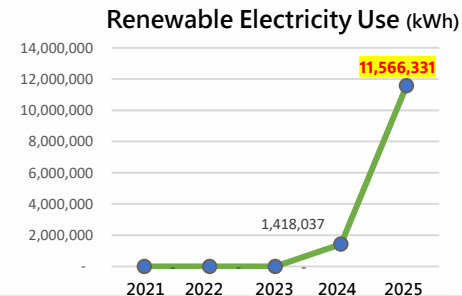
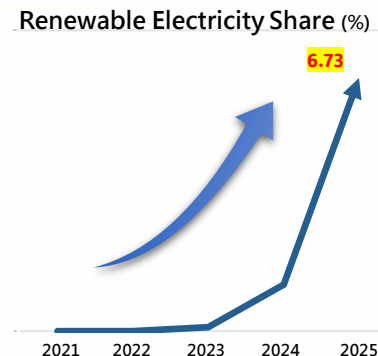
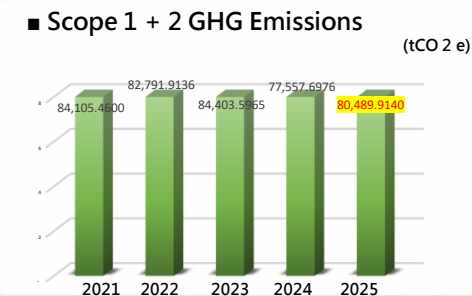
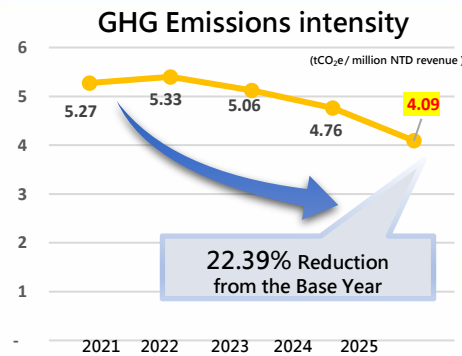
OSE establishes climate and environmental targets and regularly tracks performance to improve GHG emissions, energy use, and water management, strengthening low-carbon operations and organizational resilience.



Climate Management Targets and Base Year



Annual Performance



Target Tracking Table

Aspect	Target Indicator	Base Year	2025 Target	2025 Performance	2030 Target	Status
Carbon Reduction	Scope 1 & 2 GHG Emissions Reduction from the Base Year (%)	2021	18.8%	4.3%	23%	● Ongoing
	Renewable Electricity Share (%)	2022	2.4%	6.4%	12.6%	● Ongoing
Water Resources	Wastewater Recycling Rate (%)	2021	34%	34.26%	44%	● Ongoing
	Water Withdrawal Intensity Reduction from the Base Year (%)	2021	16.4%	28.7%	32.1%	● Ongoing
Water Management	Water Risk Management	-	100% Completion of Risk Identification and Response Planning for High-Risk Areas.		Ongoing Review and Improvement	● Ongoing

2025 Key Actions and Future Plans

Optimize Renewable Electricity Deployment	Strengthen Energy Conservation and Carbon Reduction	Enhance Water Resource Recycling	Strengthen Water Risk Resilience
Adjust renewable electricity procurement and energy management strategies according to operational needs.	Promote equipment upgrades and process optimization to reduce carbon emissions per unit of production.	Optimize wastewater recycling systems to increase water reuse and recycling rates.	Regularly assess water-related risks and establish contingency and response mechanisms.

Future Plans

- Continue energy efficiency initiatives and expand renewable electricity use to support carbon reduction targets.
- Improve water resource management through wastewater recycling and enhanced water-use efficiency.
- Strengthen internal carbon pricing and investment assessment mechanisms to support low-carbon decision-making and investments.

Note

- Wastewater discharge and water withdrawal intensity are calculated per million NTD revenue.
- Environmental data are compiled from internal management records and verified in accordance with ISO 14064-1:2018.
- Renewable Electricity Share is calculated as renewable electricity consumption divided by total energy consumption.

TCFD Recommended Disclosure Items Comparison Table

OSE follows the TCFD recommendations and discloses climate-related governance, strategy, risk management, and Metrics & Targets. The table below summarizes the relevant disclosures and report sections.

✓ Full Disclosure | ● Partial Disclosure | ○ Undisclosed / Under Development

TCFD	Recommended Disclosure Items	Summary of Disclosures	Corresponding Sections	Disclosure Status
Governance	a) Board oversight of climate-related risks and opportunities	Describes how the Board oversees climate-related risks and opportunities through governance and reporting mechanisms.	p.9 ∙ Climate Governance Framework; p.11 ∙ Climate Issue Reporting Process	✓ Full Disclosure
	b) Management's role in assessing and managing climate-related risks and opportunities	Explains the roles and responsibilities of management, the Sustainability Office, and cross-functional working groups in climate-related risk management.	p.9 ∙ Climate Governance Framework; p.10 ∙ Division of Labor for the Five Task Forces p.11 ∙ Climate Issue Reporting Process	✓ Full Disclosure
Strategy	a) Climate-related risks and opportunities and their actual and potential impacts	Describes the identification and assessment of climate-related risks and opportunities and their impacts on operations, strategy, finance, and the value chain.	p.12 ∙ Strategy Overview: Climate Risks, Opportunities, and Strategic Responses p.13 ∙ Identification of Climate Risks and Opportunities p.14 ∙ Assessment Results of Climate Risks and Opportunities p.15 ∙ Climate Risks and Financial Impacts	✓ Full Disclosure
	b) Resilience of the organization's strategy under different climate scenarios	Describes climate scenario analysis methods, assumptions, resilience assessment results, and response strategies.	p.16 ∙ Scenario Analysis Methodology; p.17 ∙ Strategy Resilience Analysis and Response Measures	✓ Full Disclosure
Risk Management	a) Processes for identifying and assessing climate-related risks	Describes risk sources, classification, assessment criteria, prioritization principles, and risk matrix methodology.	p.18 ∙ Risk Management; p.19 ∙ Climate Risk Identification Process; p.21 ∙ Climate Risk Matrix	✓ Full Disclosure
	b) Processes for managing climate-related risks	Describes risk transmission pathways, management strategies, responsible functions, and mitigation measures.	p.20 ∙ Climate Risk Transmission Path; p.22 ∙ Climate Risk Management Mapping	✓ Full Disclosure
	c) Integration of climate-related risks into overall risk management	Explains how climate-related risks are integrated into enterprise risk management through governance structures and management processes.	p.9 ∙ Climate Governance Framework; p.18 ∙ Risk Management; p.22 ∙ Climate Risk Management Mapping	✓ Full Disclosure
Metrics & Targets	a) Metrics used to assess climate-related risks and opportunities	Discloses key climate-related metrics, including GHG emissions, emissions intensity, energy consumption, renewable electricity, water resources, and internal carbon pricing.	p.23 ∙ Metrics & Targets; p.24 ∙ Overview of Key Climate-Related Metrics	✓ Full Disclosure
	b) Scope 1, Scope 2 and Scope 3 GHG emissions	Discloses Scope 1, Scope 2, and Scope 3 GHG emissions and emissions intensity for 2023–2025.	p.25 ∙ Greenhouse Gas Emissions Data	✓ Full Disclosure
	c) Targets and performance against climate-related goals	Discloses 2030 climate-related targets, renewable electricity targets, water resource management targets, and annual performance tracking results.	p.26 ∙ Energy and Renewable Energy Management; p.27 ∙ Water Resources and Physical Risk Management; p.28 ∙ Targets and Performance Tracking	✓ Full Disclosure



Disclosure Statement

- This comparison table is prepared based on the TCFD recommendations and cross-referenced with the disclosures presented in this chapter. OSE will continue to enhance the quality of climate-related disclosures and strengthen the transparency of climate-related risks, opportunities, metrics, and targets.

Status Description

- ✓ Full Disclosure: Fully addressed in this report.
- Partial Disclosure: Partially addressed and subject to further enhancement.
- Undisclosed / Under Development: Not yet disclosed and currently under development.

TCFD Disclosure Cross-Reference Table with the 2025 Sustainability Report

This appendix provides a cross-reference between the four core elements of the TCFD framework and the relevant sections of the 2025 Sustainability Report, enabling stakeholders to quickly access related disclosures



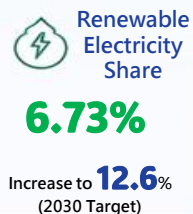
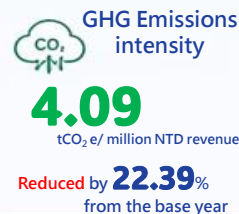
TCFD	TCFD Recommended Disclosures	Page Number	2025 Sustainability Report	Summary of Disclosures
Governance	Board oversight of climate-related risks and opportunities	p. 9–11	2.1 Corporate Governance	Board oversight mechanisms, reporting processes, and periodic reviews of climate-related issues.
	Management's role in assessing and managing climate-related risks and opportunities	p. 9–11	1.2 Sustainability Practices	Roles and responsibilities of the Corporate Governance and Sustainability Committee, Sustainability Office, and cross-functional working groups.
Strategy	Actual and potential impacts of climate-related risks and opportunities on the organization's business, strategy, and financial planning	p. 12–15	3.2.1 Climate-Related Financial Disclosures	Climate-related risk and opportunity identification, assessment results, and financial impact analysis.
	Resilience of the organization's strategy under different climate-related scenarios	p. 16–17	3.2.1 Climate-Related Financial Disclosures	Scenario analysis for 1.5°C and 4.0°C pathways, strategic resilience assessment, and response measures.
Risk Management	Processes for identifying and assessing climate-related risks	p. 18–21	3.2.1 Climate-Related Financial Disclosures	Risk identification sources, classification, assessment criteria, prioritization, and risk matrix methodology.
	Processes for managing climate-related risks	p. 20–22	3.2.1 Climate-Related Financial Disclosures	Climate risk transmission pathways, management strategies, responsible functions, and mitigation measures.
	Integration of climate-related risks into overall risk management	p. 9, 18, 22	2.1 Corporate Governance	Integration of climate-related risks into governance structures, enterprise risk management, and cross-functional reporting mechanisms.
Metrics & Targets	Metrics used to assess climate-related risks and opportunities	p. 23–24	3.1 Environmental Responsibility and Commitments	Key climate-related metrics, including GHG emissions, energy consumption, renewable electricity, water resources, and internal carbon pricing.
	Scope 1, Scope 2, and Scope 3 GHG emissions	p. 25	3.2 Climate Change and GHG Management	Disclosure of Scope 1, Scope 2, and Scope 3 GHG emissions and emissions intensity.
	Climate-related targets and performance	p. 26–28	3.2 Climate Change and GHG Management	Carbon reduction targets, renewable electricity targets, water resource management targets, and annual performance tracking results.
	Climate-related performance outcomes	p. 23–28	3.2 Climate Change and GHG Management	Performance achievements in energy efficiency, renewable electricity use, water resource management, and low-carbon transition initiatives.



Corresponding Explanation

This table helps stakeholders quickly cross-reference the disclosures in this chapter with the corresponding sections of the 2025 Sustainability Report.

Key Achievements (2025)



Data and Disclosure Principles

- ✓ Prepared in accordance with the TCFD framework, covering Governance, Strategy, Risk Management, and Metrics & Targets.
- ✓ Data are based on OSE's major operating locations and annual statistics.
- ✓ Reporting period: 2021–2025.
- ✓ GHG emissions data are based on ISO 14064-1:2018 inventory results.
- ✓ This table is for cross-reference purposes only. Actual disclosures are subject to this chapter and the 2025 Sustainability Report.

Basis of Preparation and Data Sources

The information disclosed in this chapter is compiled from international climate-related disclosure frameworks, internal management records, and functional data sources to ensure consistency, comparability, and traceability.



Reporting Period and Scope

Reporting Period	January 1, 2025 – December 31, 2025
Reporting Scope	OSE Taiwan Facilities
Reporting Currency	New Taiwan Dollar (TWD)

Basis of Preparation



TCFD Recommendations

Climate-related disclosures are prepared in accordance with the four core elements of the TCFD framework: Governance, Strategy, Risk Management, and Metrics & Targets.



GRI Standards 2021

Prepared with reference to the GRI Universal Standards and applicable topic-specific standards to enhance sustainability disclosure quality.



IFRS Sustainability Disclosure Standards S1 / S2

Prepared with reference to IFRS S1 and IFRS S2 to strengthen the completeness, consistency, and comparability of climate-related disclosures.



ISO 14064-1:2018

Used as the basis for greenhouse gas inventories and the disclosure of Scope 1, Scope 2, and related GHG emissions information.



CDP

Prepared with reference to the CDP framework, covering climate change, climate risks and opportunities, energy use, and emissions reduction performance.



Other Guidelines

Includes applicable regulations, industry guidelines, customer requirements, and internal management procedures.

Data Sources

Category	Data Items	Data Source	Method	Frequency	Remarks
Operational Activities	Energy, water, waste, and other operational data	Environmental Management Team	Monthly compilation and annual review	Monthly / Annually	Subject to internal verification and management review
GHG Emissions	Scope 1, Scope 2, and Scope 3 emissions data	Environmental Management Team (Verified by an independent third party)	Annual inventory and third-party verification	Annually	Verified in accordance with ISO 14064-1:2018
Financial Information	Financial data	Corporate Governance Team	Compiled based on annual financial statements	Annually	Released after accounting review
Human Resources	Workforce, training hours, and related data	Social Inclusion Team (HR System)	Annual statistics	Annually	Certain indicators are updated quarterly
Stakeholder Engagement	Stakeholder questionnaires and feedback	Social Inclusion Team / Sustainability Office	Questionnaire compilation and analysis	Annually / As needed	Implemented according to annual plans
Climate Risk Assessment	Climate risk and opportunity assessment data, scenario analysis, and financial impact assessment	Cross-Functional Working Groups	Context analysis and internal discussions	Annually / As needed	Updated in line with policy and risk management developments
Supporting Information	Policies, action plans, project progress, and related information	Relevant Functional Departments / Sustainability Office	Compiled as required	As needed	Updated according to project progress

Data Quality Management

Data Collection

Data Verification

Data Compilation

Internal Review

Public Disclosure

Establish data governance and management mechanisms

Collect raw data in accordance with standard operating procedures

Conduct reasonableness and completeness checks

Compile and classify data according to disclosure requirements

Conduct cross-functional review and management approval

Disclose information through the Sustainability Report, annual reports, and other public channels

Note: All information and data disclosed in this report are based on actual operational data. OSE continuously enhances its data management processes to ensure the accuracy, completeness, and reliability of disclosed information.

Creating sustainable value

OSE will continue to uphold its values of integrity, innovation, commitment, and collaboration, strengthen climate governance and operational resilience, and work with stakeholders to create long-term sustainable value.

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EMPATHY
Teamwork
Co-creating value



This report has been prepared with reference to the TCFD Recommendations and IFRS S1 and IFRS S2 to strengthen climate-related disclosures.



INTEGRITY



INNOVATION



PROACTIVENESS



EMPATHY



Sustainable Governance . Climate Resilience . Value Creation.