

2.4 Risk Management

In response to the rapidly changing management environment and to ensure the Company's stable management and sustainable development, GlobalWafers formulated its Risk Management Policies and Risk Management Guidelines in 2015. In 2021, the Company integrated information and redefined the "[Risk Management Policy and Procedures](#)" to establish an effective risk management mechanism, assess and supervise risk tolerance, monitor risk exposure status, determine risk response strategies, and comply with risk management procedures.

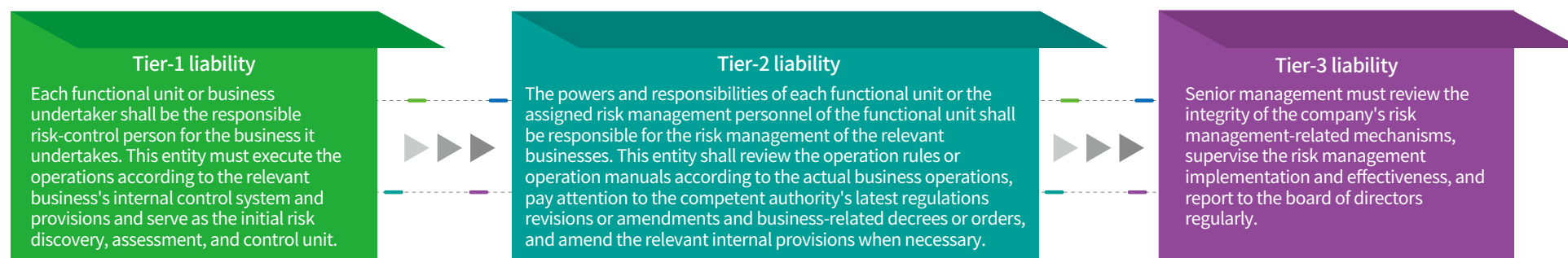
The board of directors is the highest risk management unit under GlobalWafers' risk management organizational structure. While looking to the overall operating strategy and operating environment, the board of directors aims to comply with laws and regulations, promote and implement the Company's holistic risk management, and bear the ultimate responsibility for risk management; senior management is responsible for planning, commanding, and deploying the implementation of risk management decisions sent down by the board of directors, and coordinating interaction and communication for cross-departmental risk management; each functional unit is responsible for analyzing, managing, and monitoring risks within their respective units. Our internal auditors form an independent unit that assists the board of directors in monitoring the implementation of the risk management mechanism to ensure their effective implementation.

GlobalWafers' risk management procedure includes identification, assessment, supervision, reporting, and response to risk. With this risk management procedure, we aim to effectively implement and facilitate the Company's risks management strategies.



GlobalWafers has formulated an assessment methodology as its foundational framework for risk management. For measurable and quantifiable risks, we employ rigorous statistical analysis and advanced analytical techniques, managing risks through a progressive approach. With risks that cannot be easily quantified, we assess using the qualitative method, i.e., a linguistic description to express the possibility and impact of a risk occurrence. Detailed operational and risk management information are disclosed both in the Company's annual report and on its website.

GlobalWafers' Operation Risk Management System operates according to the level-3 division of labor Risk management structure





GlobalWafers has established an effective risk management mechanism to assess and supervise its ability for withstanding risks and state of risks sustained; it also determines risks-response strategies and compliance status of risks management procedures. We have identified ESG risks and opportunities, which we illustrate below.

Corporate Governance Aspect		Environmental Aspect		People Aspect	
Identified risks	Strategies for transforming risks into opportunities	Identified risks	Strategies for transforming risks into opportunities	Identified risks	Strategies for transforming risks into opportunities
All risks involving management and investment	<ul style="list-style-type: none"> Proactively establish a comprehensive up-, middle- and down-stream integrated supply chain to expand the operation scale and disperse operation risks via multi-angled management strategies Establish an automatic feedback production analysis system to improve process stability, optimize quality, and reduce costs Continue to cultivate advanced technology R&D, commit to enhanced performance of key materials for power components and widen the gap with competitors Invest in the development of key technologies for GaN RF components to address the market demand for IoT and G5 mobile telecommunication Establish an information security risk management structure and policy, strengthen information security management awareness, and prevent possible information security risks and losses by implementing specific management plans as well as related education and training 	Climate change risks	<p>The management is conducted in two major aspects, "mitigation" and "adaptation"</p> <p>Mitigation</p> <ul style="list-style-type: none"> Promulgate the ISO50001 energy management system to supervise the equipment for major energy use and plan energy action improvement plan Promote green products and green production to reduce energy consumption Implement water-conservation measures and increase the use of reclaimed water <p>Adaption</p> <ul style="list-style-type: none"> Strengthen the Company's capacity for withstanding extreme climate conditions (drought, floods, snow storms) Conduct energy management and enhance energy consumption efficiency as a response to increased energy costs (e.g., rising electricity bills, carbon tax, energy tax) 	Risks for occupational health and safety	<ul style="list-style-type: none"> Conduct hazard identification and risks assessment plus risk reduction measures, stipulate relevant management procedures and handling guidelines, and implement regular emergency response drills The Company has conducted regular health and safety education and training to prevent occupational hazards and protect labor safety and hygiene
Challenges for relationship maintenance and communication with internal & external stakeholders	<ul style="list-style-type: none"> Enhance the stakeholder area on the Company's website, hold regular legal seminars, and build a communication channel with our stakeholders to understand and respond to issues of concern for all stakeholders 			Labor Health Risks	<ul style="list-style-type: none"> Regarding particular operations prone to health hazards, special physical check-ups are offered to employees who are newly recruited or undergoing job changes. Yearly special health check-ups are conducted, and labor operation environment supervision is implemented To strengthen employees' health awareness, we have held sporadic employee health management and health promotional events in order to share information on major illnesses or health and enable our employees access to comprehensive health information The factory has established a Covid Contingent Action (CCA) pandemic response team in response to COVID-19 to provide rolling adjustment of the plant's pandemic measures and plan pandemic-related employee benefits according to the development of COVID-19. The actions include providing vaccination incentives and purchasing additional employee group insurance to cover new statutory infectious diseases. The goal is to establish a friendly workplace environment, ensure employee health, and enable employees to work without worry
Strengthen the Board of Directors' Competency	<ul style="list-style-type: none"> Improve the board of directors' structure and its member composition, implement corporate governance policies and specific incentive measures, formulate relevant governance provisions, and clearly define the punishment and appeal system to enhance the sustainable value of the Company 	Risks for environmental protection	<ul style="list-style-type: none"> Install pollutant emission supervision system; devote ourselves to reduction of pollutants Strengthen the risk control for transforming waste into resources and reuse; use regenerated raw materials as much as possible 	Risks for labor-management relationships	<ul style="list-style-type: none"> Labor-management communication: The Company attaches great importance to the rights and interests of employees. So, before any important decisions are made, the Company notifies affected employees via labor-management meetings, electronic newsletters, or personnel announcements in order to protect their rights and interests. Work hours and output management: Stipulate clear job descriptions and establish work goals. We have adopted work hours and output management to ensure the value and rationality of work, ensure that colleagues can create value under the premise of work-life balance, and reduce the risk of labor disputes. Employee complaints channel: Charge designated personnel with handling employee opinions, handle problems raised by employees in a timely manner, reduce labor-management conflicts.
Regulation Compliance Risks	<ul style="list-style-type: none"> Continue to monitor the revisions of relevant laws and regulations, ensure compliance with laws and regulations by adding and revising corresponding internal procedure specifications, and provide education and training 				

In addition, GlobalWafers has identified 3 major emerging risks: climate change, information security, and infectious pandemic/pandemic diseases. The Company has formulated corresponding risk strategies and implementation mechanisms for all aspects of its corporate operations based on possible impacts to ensure that the risks can be effectively controlled.

Climate change risks and opportunities

Climate change is one of the key environmental issues of most concern to the United Nations, governments, societies, and enterprises worldwide. GlobalWafers has complied with the framework of the Task Force on Climate-Related Financial Disclosures Recommendation (TCFD) promulgated by the Financial Stability Board to disclose climate change information, assess the risks and opportunities of climate change for the Company. Climate change information is disclosed based on 4 core elements: governance, strategy, risk management, and indicators and targets.

Climate Change Governance

The GlobalWafers Sustainable Development Committee is the Company's highest organization for climate change management. This Committee is chaired by the chairperson and has 3 subcommittees, separately charged with the environmental, governance, and social aspects. The Environmental Committee is fully supported by the board of directors. The chairperson is responsible for overseeing the Environmental Committee's operations; reviewing the Company's climate change vision, policies, and goals; managing climate change risks and opportunities; reviewing implementation; and discussing future plans. The chairperson is responsible for reporting the Company's climate-related affairs to the board of directors. The report serves as a key reference to formulate the Company's policies on sustainability.

The Environmental Committee is responsible for the following:



Climate Change Strategy

The United Nations Framework Convention on Climate Change (UNFCCC) proposed 2 main strategies to address global warming and climate change during the convention: the first is mitigation, meaning greenhouse gas emission reduction or increased greenhouse gas storage through human intervention to slow the speed or scale of climate change problems. The second, adaptation, meaning to seek strategies that can effectively reduce the effects of climate change by assessing its impacts and taking preventive measures to minimize damage or exploit beneficial opportunities.

To effectively implement energy conservation and carbon reduction, GlobalWafers has set 2019 as the benchmark year to set its short, medium, and long-term carbon emission reduction targets. Among the adaptation strategies, the Company has implemented simulation exercises as well as education and training for the substantial risks brought by climate change to the Company's assets and established extensive and rigorous preventive measures and emergency response plans. Should a crisis or disaster occur, it will immediately propose the most appropriate response and recovery plan to minimize the uncertainty and possible impact of the disaster.

In terms of transition risks, the Company has followed the energy diversification trend, complied with the specifications and goals of the Renewable Energy Development Act, invested to cope with the pressures of a low-carbon economy brought by climate change; departments have started to plan and purchase renewable energy and green power certificates.

Climate Change Risk Management

After referencing the TCFD framework, the Environmental Committee reviews domestic and foreign research reports, documents, and integrates the evaluation data of various departments and subsidiaries; it then ranks the importance of risk topics by screening climate risk issues through a multiplication of the degree of financial or strategic impacts with the probability of occurrence, which gives the risk value. The goal is to formulate risk management policies for effective identification, measurement, assessment, monitoring, and control; take specific action plans to reduce the impact of related risks; and adopt specific action plans to mitigate the effects of associated risks.



🌱 Climate Change Indicators and Targets

To effectively manage the impact of climate change risks and opportunities on GlobalWafers, the Company has taken practical actions to support net-zero transformation and pledged that all subsidiaries under the Group will endeavor to use 100% renewable energy by 2050. Our global production bases have formulated the schedule to fully incorporate ISO 14064 greenhouse gas inventory and third-party verification; ISO 50001 energy management system and third-party verification by 2024; and set short-, medium-, and long-term greenhouse gas reduction targets. In addition to our work to improve energy efficiency, we are signing power purchase agreements (PPA) and purchasing of Renewable Energy Certificates (RECs); the Company has also set goals for each stage of the climate blueprint: achieve 20% renewable energy adoption by 2030, 35% by 2035, and 50% by 2040. We aim to gradually accomplish our long-term goal of using 100% renewable energy by 2050 to reduce carbon emissions from power generation.

🌱 Climate Change Identification and Assessment

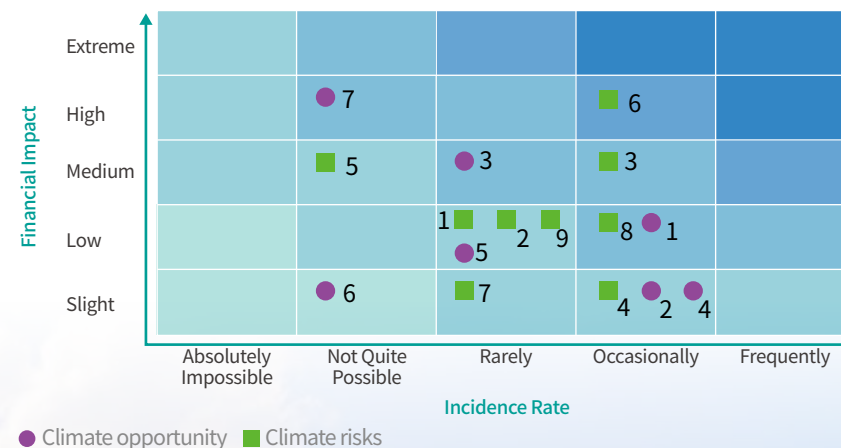
GlobalWafers adopts the Well-Below 2°C and 1.5°C from the Nationally Determined Contributions (NDC) and Science Based Targets (SBT) as a basis for scenario analysis, conducts financial impact assessment on certain climate change risks, and continues to manage and make improvements. The latest climate risk assessment highlights the following 8 major climate risk items and explaining the impacts and countermeasures for each risk and respective opportunity: increased costs of greenhouse gas emissions, renewable energy regulations, market uncertainty, increased investment costs in new technologies, increased raw material costs, impact on company image, increased severity of extreme weather events, and rising average temperatures.

GlobalWafers has also identified feasible opportunities and developed countermeasures to reduce the preceding risk factors. The goal is to promote cleaner production, water resources management, carbon information disclosure, new/low-carbon technologies, and other project development measures.

Serial no.	Climate risks	Serial no.	Climate opportunity
1	Average temperature rise	1	Promote cleaner production
2	Extreme climate events with increased severity - water shortage	2	Water Resources Management
3	Extreme climate events with increased severity - electricity consumption increase	3	Adopt new/low carbon technologies
4	Increased raw material/transportation costs	4	Policy incentive
5	Impact the Company's image	5	Carbon information disclosure
6	Renewable energy regulations	6	Production process
7	Market uncertainty	7	Develop new products or services via R&D and innovation
8	Increased new technologies investment costs		
9	Increased greenhouse gas emission costs		

Note: The financial impact index is divided into 5 grades, and the economic impact score is 1-5 points.

Note: The probability of risk occurrence is divided into 5 grades: 5 = frequent, 4 = occasional, 3 = very infrequent, 2 = very unlikely, and 1 = not possible.





Climate change risks and opportunities with substantial potential impact on finance or strategies					
Type	Climate risks	Description of potential financial impacts	Impact level	Coping Strategies/Cases	
Physical risks	Immediacy	Average temperature rise	Plant' s electricity consumption increases, cost and emission increase, resulting in increase in operating cost	Low	Scheduled for greenhouse gas inventory and energy management system to be fully implemented in all plants worldwide by 2023, and the greenhouse gas reduction actions will be led by senior executives
		Extreme climate events with increased severity	Water shortage caused by climate anomaly	Low	Deploy water usage system where appropriate, and promote water-saving measures in the various plants
			Increase in production electricity consumption Increases greenhouse gas emission costs	Medium	Promote implementation of energy management systems and execute various energy-saving measures
	Long-term	Increased raw material/ transportation costs	Increase in operating costs	Slight	Demand for alternative material suppliers
Transformation risks	Goodwill	Impact the Company' s image	Unable to satisfy stakeholders' expectations, causing damage to the Company' s reputation, resulting in loss in sales	Low	Promote clean production and recycling, and regularly publish Sustainability Report so that stakeholders can understand the Company' s energy conservation and carbon reduction actions
	Policy and regulations	Collection of carbon tax (fee) Relevant laws and regulations of renewable energy	Policies leading to increase in operating costs	High	Sign green energy procurement agreements and purchase renewable energy certificates, together with the climate blueprint, to achieve the goals in stages
	Technology	Increased new technologies investment costs	Products and services are replaced by low-carbon technologies to satisfy customers and the market, and new technology development leads to cost increase	Medium	Develop more energy-saving environmentally friendly products
	Market	Market uncertainty		Low	
		Increased greenhouse gas emission costs	The cost of transitioning to a low-carbon economy Various equipment and increase in operating cost in response to government tax imposed	Low	Actively promote various energy conservation and carbon reduction projects
Type	Climate opportunity	Description of potential financial impacts	Impact level	Coping Strategies/Cases	
Resource efficiency	Promote cleaner production	Reduce water and electricity consumption, reduce operating costs	Medium	Continue to promote various water-saving/electricity-saving measures	
	Water Resources Management	Increase water resource utilization, reduce water intake	Low	Improve wastewater recycling rate of factory processes	
Energy	Adopt new/low carbon technologies	Reduced operating costs	Medium	Accelerate crystal growth thermal field design and development	
Market	Policy reward	Obtain government subsidy, reduce capital expenditures	Low	Evaluate policies subsidy projects	
	Carbon information disclosure	International organizations' initiatives	Low	Transparent disclosure of carbon information to improve company image	
Resilience	Production process	Strengthen basic measures, build sustainable operation capabilities and make full use of high-efficiency materials to reduce cost	Slight	Evaluate using high-efficiency raw materials, reduce resource usage	
Products and services	Develop new products or services via R&D and innovation	Research and develop low-power and low energy consumption products to meet customers' requirements	Medium	Continue to invest in the research and development of resources, develop energy-saving products	

Based on the results of our impact level identification of climate change risks and opportunities, the high-impact climate risk issues include collection of carbon tax (fee) and renewable energy regulations. Our response strategies with regards to these include:

- ✓ Joined the RE100 Initiative (formally joined in October 2022), gradually realizing the long-term goal of using 100% renewable energy by 2050;
- ✓ Low-carbon technology transition (energy-saving action plans for facility, process optimization);
- ✓ Plan to use incentive systems or other methods to require carbon management and reduction (goal) in the supply chain in stages.

Information Security

In recent years, many notable companies both globally and within Taiwan have experienced ransomware incidents that resulted in significant losses. Consequently, companies have been quick to enhance their information security operations. GlobalWafers has continued to optimize its information security management system and enhance its information security defense capabilities in order to ensure effective information security practices, while also reducing the risk of evolving, novel information security attacks. The Company has adopted the PDCA cycle operation model to achieve its objectives and provide continuous improvement, established information security monitoring and vulnerability scanning systems to prevent external hacker intrusions and theft of internal secrets, and implemented strict software and hardware control (including the Internet and personal information equipment) to ensure personal data and internal confidential data protection and security.

The information security management and control mechanisms are implemented in 3 major aspects (as follows) to ensure effective information security protection and reduce risks.

1 Information System Security Management

- ✓ Install endpoint protection software on servers and personal computers or laptops, and automatically update virus definitions or signatures.
- ✓ Construct email security gateway equipped with information security modules such as spam filtering, malicious file detection, and phishing email detection in order to enhance email attack protection.
- ✓ Important systems and databases are regularly backed up and stored off-site to ensure data availability.
- ✓ Information system vulnerability scanning is conducted periodically, and system loopholes are fixed.
- ✓ The computer operating systems or servers are updated for securities based on the cyber risks.
- ✓ Established a firewall in the internal network and set up firewall rules to protect important information systems.
- ✓ Performed annual disaster recovery drill for important application systems.

2 Information System Access Control

- ✓ Strictly control the application system and file access setting permissions to ensure information confidentiality.
- ✓ Formulate and implement account/password complexity principles, and update passwords regularly to ensure the validity of identity authentication.
- ✓ For employees who have resigned and changed departments, the information department adjusts permissions of documents to ensure up-to-date, correct data permission and authorization.
- ✓ Established management procedures for non-employees (suppliers and contractors) to apply for accounts and access systems. Once the application is approved, access will be granted to enter the system; and handling status is recorded.
- ✓ No personal terminal devices are permitted to be connected with any external storage medium.
- ✓ Personal computers are prohibited from connecting to the Company's network and resources, and we established a device authentication management mechanism.

3 Network Security Management

- ✓ Established a firewall to protect the network's external connections, and analyzed the firewall's anomaly records to strengthen protection.
- ✓ A multi-loop mechanism is adopted to connection to the Internet and the Company's internal network interface in order to prevent disconnection.
- ✓ An information service monitoring platform has been set up to monitor network traffic and connection status, which can resolve any network related problems in real time.
- ✓ The information department delivers security reminders to all colleagues irregularly to remind colleagues to remain alert for the emails received in order to prevent the increasingly serious phishing and malicious fraud letter problems.
- ✓ All internal staff's computers are installed with anti-virus software. Once the anti-virus control platform finds a virus, it will send a notification letter to the IT personnel for computer virus removal.
- ✓ The remote connection to the internal network when the employees are out of the office is limited to these compliant with the cyber security controls. Only these employees who are required to perform the necessary tasks may connect to the Company via remote connection via an authorization, and the VPN security connection with multi-factor authentication must be applied.

Pandemic Infectious Disease

Despite the ongoing COVID-19 pandemic in 2022, GlobalWafers acted swiftly by strengthening its pandemic response measures in the factory area to help protect the health and safety of all employees and stabilize normal wafer production chain operations. The various departments joined forces to formulate pandemic response strategies for the factory area, executed comprehensive pandemic response actions, complied with the government's prevention measures, inventoried pandemic response resources, and regularly adjusted pandemic-response actions according to the global pandemic status to ensure workplace health and safety.

We took a multi-pronged approach regarding pandemic response and employee care for the factory. In addition to executing the high-standard corporate pandemic response mechanism to ensure uninterrupted production line operations, we have continued to practice multiple care measures to ensure the safety of all employees, exert a positive influence on the enterprise, and join forces with everyone to fight the pandemic.

- ❶ Employee care: When the local outbreak occurred in May 2021, GlobalWafers immediately took pandemic response as its top priority and purchased the statutory infectious disease health insurance for its employees to maintain the safety and health of every colleague. The scope of protection includes statutory infectious disease coverage, statutory infectious disease inpatient medical coverage, and statutory infectious disease intensive care unit hospitalization medical coverage.
- ❷ Pandemic response information: To enable employees to grasp the real-time pandemic response information correctly, the Health Management Center periodically collected the latest pandemic information at home and abroad and made rolling pandemic response measure adjustments in the factory, and made real-time announcements of the state of the COVID-19 pandemic so that employees could quickly receive correct pandemic response information.
- ❸ Health monitoring: To reduce employee exposure risks, GlobalWafers has set up infrared thermometers at the entrance of each factory area and implemented entry control for risk groups such as people with fever or other symptoms and suspected exposure history. The goal is to implement employee pandemic response and entry control fully.
- ❹ Visitor management: Use electronic bulletins to educate supply chain manufacturers about COVID-19 prevention measures when entering the plants, require all visitors and contractors to fully apply for entry into plants, limit the scope of activities depending on the pandemic response level, and require everyone to wear masks throughout the process to protect the safety of employees.
- ❺ Pandemic response in the plants: To prevent the infection risks due to clustering, office workers have taken several contingency measures such as: checkboard seating, isolation rooms, triage, working from home, among other measures, to reduce clustering density and reduce frequency of contact among employees (Note: separate areas, work from home, and using remote systems to maintain smooth work.)
- ❻ Safe dining environment: The Company has planned pandemic response dining lines, plastic table partitions, disposable lunch boxes, and divided the dining area by units to ensure worry-free meal dining safety in plants.
- ❼ Disinfection in plants: The Company has formulated public area disinfection and cleaning measures, adjusted the frequency of environmental disinfection and supplied alcohol disinfectant in public spaces, increased internal ventilation, encouraged personnel to open windows in confined spaces, affixed adhesive films on top of frequently used buttons, added partitions in restaurants, posted correct hand-washing instructions in each restroom, and conducted a regular inventory to ensure that the Company has sufficient anti-pandemic materials.
- ❽ Physical and mental care: COVID-19 has created a social atmosphere of anxiety and tension. In 2021, GlobalWafers introduced the Employee Assistance Program Consortium (EAPC) to provide each employee with 2 free one-to-one consultation services per year. GlobalWafers has also regularly passed out psychological growth promotion materials to help employees resolve negative emotions and stress.

