LONGi | SUSTAINABLE DEVELOPMENT GOALS

2023 Sustainability Summary Report

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LONGi Green Energy Technology Co., Ltd.

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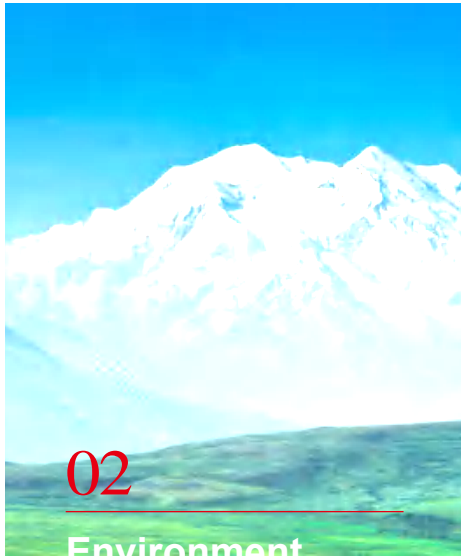

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Message from the Chairman

Chairman of LONGi Green Energy Technology Co., Ltd. **Zhong Baoshen**

2023 was indeed a landmark year for the photovoltaic (PV) industry, featuring a dynamic blend of opportunities and challenges. The global solar industry installed 400 gigawatts (GW) of new capacity, which saw a leap of over 70% from the previous year, bringing the total installed capacity beyond 1.5 terawatts (TW). Intensified market competition drove prices down, but it also fueled a rapid increase in solar product adoption and application worldwide.

Confronted with the roller coaster of industry dynamics and complex market changes, LONGi took a proactive, active, and rational approach. We upheld our commitment to innovation in technology and products, redefined our competitive edge, spearheaded the digital transformation, and embraced sustainability.

We stayed true to our mission, adhering to a philosophy of "innovation-oriented development" to achieve differentiated development in technology and products. Over the years, LONGi has delved deep into research for various solar cell technologies. In 2023, our proprietary crystalline silicon single-junction solar cells and silicon-perovskite tandem solar cells set new world records for cell efficiency, making LONGi a "dual champion" in the cell technology development. In September, our statement that "back-contact (BC) cell technology will become the market mainstream in the next five years" drew significant attention in the PV industry. We believe that deeds speak louder than words, and therefore strived to consolidate our BC technology platform and achieved stable mass production of hybrid passivated back contact (HPBC) cells, bringing what was once a "luxury" to the mass market. With HPBC cells being recognized around the world, our confidence in BC technology has been amplified.

We focused on the needs and pain points of customers, tailoring our Hi-MO 7 and Hi-MO X6 products for concentrated and distributed market demands, offering customers more efficient, reliable, and scenario-specific solutions. In response to the burgeoning green hydrogen industry, we launched the ALK Hi1 and ALK G electrolyzers and devised modular and intelligent solutions as we explored the path of "multi-technological route + multi-scenario application" for green hydrogen.

As the tide of global digitalization rises, we have embraced digital transformation, enhanced the transparency and visibility of intelligent manufacturing operations across our factories, and elevated our data management to a robust level. For instance, our Jiaxing base incorporated the industry 4.0 to showcase over 30 digitized use cases, pioneered AI-powered intelligent cell sorting and full-process AI quality inspection, and ensured precise and quality delivery. The base was also recognized as one of the first "Global Lighthouse Factories" in the PV industry, leading the industry trend of "smart manufacturing".

We drove the deep integration of sustainability issues with corporate strategy and operations. For instance, we promoted the sustainability concept of "LIGHT", onboarded our first Chief Sustainability Officer, received the Science Based Target initiative (SBTi) approval, and initiated the "Collaboration Action for Green and Sustainable Supply Chain Development". We also set up the "Solar+ Pavilion" in the Blue Zone at COP 28, partnered with the UN Refugee Agency, and ultimately went a step further in our sustainability and ESG journey.

At LONGi, we embrace the idea that companies flourish by serving the changing tides of time and societal imperatives, not just their own interests. As the world accelerates toward "carbon neutrality", the PV industry stands on the cusp of further growth. Regardless of the uncharted waters ahead, LONGi stays true to placing our customers at the forefront and tackling challenges with both wisdom and resilience. We will honor our commitment to spearhead sustainable advances as the world strides toward net-zero targets.

Message from the Chief Sustainability Officer

Vice President and Chief Sustainability Officer of LONGi Green Energy Technology Co., Ltd. **Zhang Haimeng**

As the cycle of a year closes and new beginnings take shape, I am delighted to address you for the first time as LONGi's Chief Sustainability Officer. It is my aspiration to bolster communication with our customers, investors, and a broad spectrum of stakeholders, showcasing LONGi's ambitions and actions in practicing sustainability.

Over the past two decades, PV companies like LONGi have made solar power the most economically viable and widely accessible clean energy source globally through technological innovation, and LONGi is proud to be the trailblazer among peers. This transformation has leveled the playing field, previously skewed by disparities in energy resources, making solar power a universal and beneficial resource. It has become a fundamental force in the global shift to carbon neutrality and green transformation.

In the past year alone, LONGi achieved shipments of 125.42 GW of photovoltaic silicon wafers, with a cumulative shipment reaching 414.24 GW. This means that by the end of 2023, LONGi manufactured 27% of the global cumulative installed photovoltaic capacity, equivalent to generating 1.7361 trillion kWh of green electricity and cutting the emission of 812 million tCO2e. This underscores LONGi's significant contribution to global climate action and sustainable development!

While LONGi drives down the cost of achieving global carbon neutrality through innovation in green energy technology, we are also dedicated to strengthening our internal environmental, social, and governance (ESG) practices.

Advancing climate actions to achieve harmony between humanity and nature. LONGi actively addresses climate change, systematically identifies, assesses, and manages climate risks, continuously fulfills climate action commitments, and promotes low-carbon and energy-efficient initiatives. In 2023, we became the first Chinese PV company to be approved by the independent Science Based Targets initiative (SBTi) and established a product lifecycle carbon footprint management system. At COP28, we released our third climate action white paper and introduced the "Green Electricity" and "Green Hydrogen" carbon-neutral solution, propelling the global energy transformation and climate action progress. We utilized photovoltaics for ecological restoration projects and initiated the "Zero-Carbon Life Plan for Pandas", leveraging solar power to support biodiversity conservation.

Collaborating with supply chain partners for wider sustainability. We prioritized collaborative partnerships with supply chain partners to build green and sustainable supply chains, conducted comprehensive lifecycle management of supplier CSR, completed the initial phase of the "Supply Chain Green Partner Empowerment Program", and conducted carbon footprint assessments for 50 key suppliers. Additionally, we investigated 13 suppliers of tin-containing materials for conflict mineral supply chain compliance, promoting responsible procurement and advancing the sustainable growth across the value chain.

Conveying goodwill to build a harmonious win-win society. LONGi consistently fulfills its social responsibilities. Internally, we ensure employee rights and welfare, uphold human rights, advocate for equality and diversity, and create a safe, healthy, and inclusive work environment through the ISO 26000 social responsibility system. Externally, we strongly support public welfare projects in education, energy, and environmental protection sectors and actively support community development.

In 2023, in line with our mission of "making the best of solar energy to build a green world", we set sustainability goals of "making clean energy affordable for all" and the energy equality concept of "achieving unity in diversity due to sunlight", which represents the greatest goodwill in LONGi's business philosophy. We hope that LONGi's business development can benefit all stakeholders, including the environment and society. We have integrated the concept of sustainability into the Company's strategic and operational practices, increased investment in technological innovation, green and low-carbon initiatives, responsible management, and diversity and inclusion, to meet the needs and expectations of global customers and partners. With a more open, inclusive, and pragmatic attitude, we aim to create a more sustainable and brighter future.

About LONGi

About us

Established in 2000, LONGi Green Energy Technology Co., Ltd. is headquartered in Xi'an, Shaanxi Province, and became publicly listed on the Shanghai Stock Exchange in April 2012 (stock code: 601012.SH). With a vision to "To be the most compelling solar technology company by leading the world's transition to green energy", the Company is dedicated to making clean energy affordable and accessible worldwide.

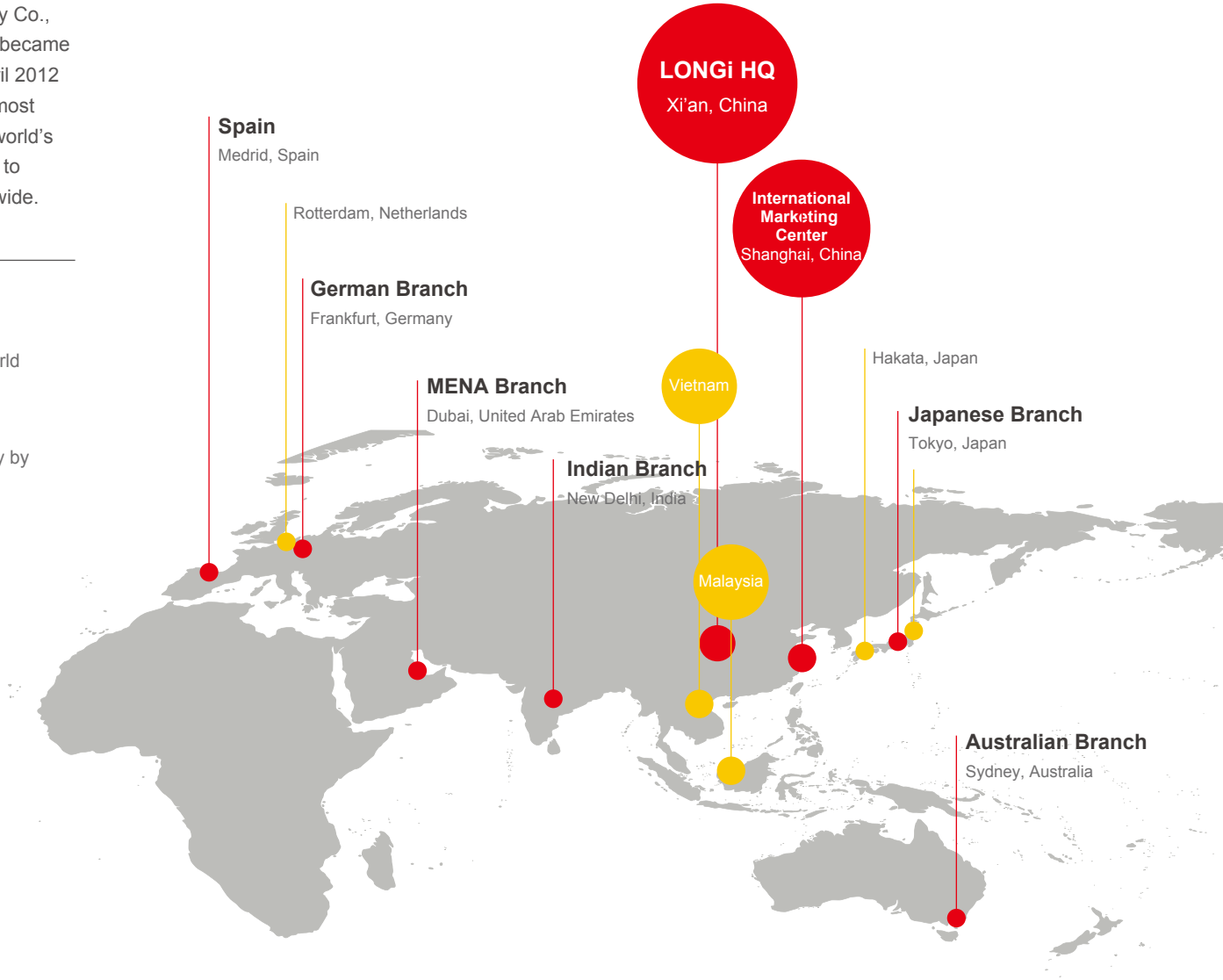
Mission — To make the best of solar energy to build a green world

Vision — To be the most compelling solar technology company by leading the world's transition to green energy

Core values — Reliability,Value-add, Fulfillment

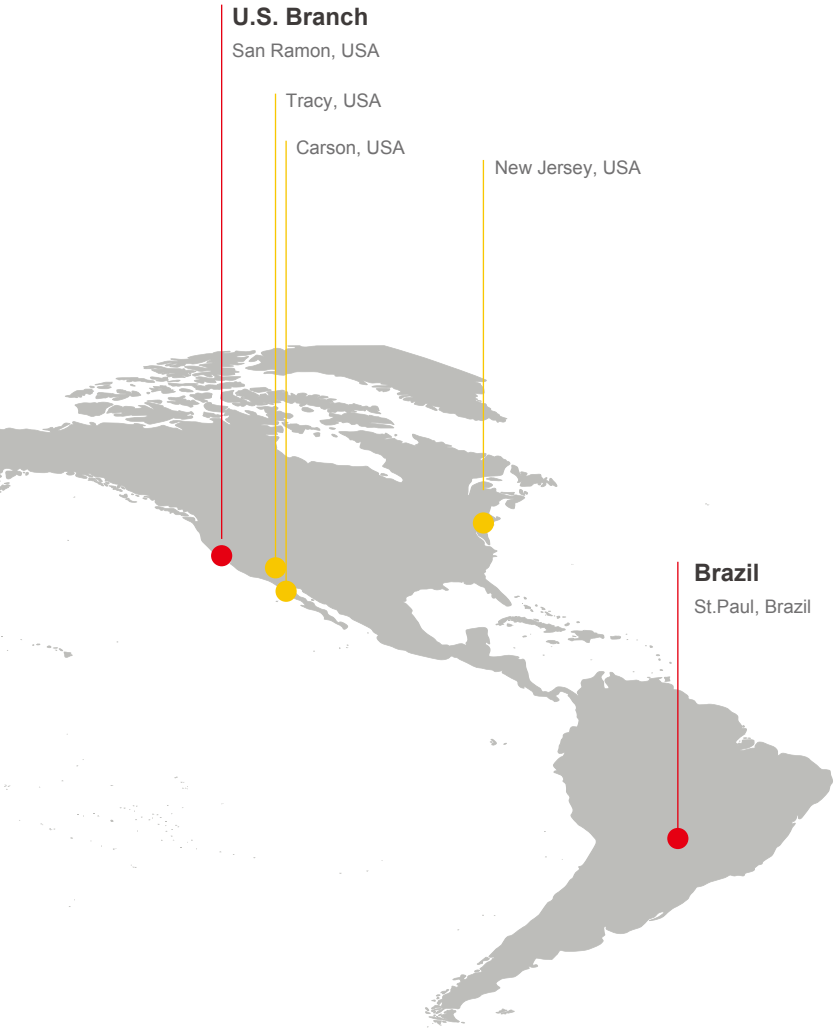
● **Global Marketing Center**

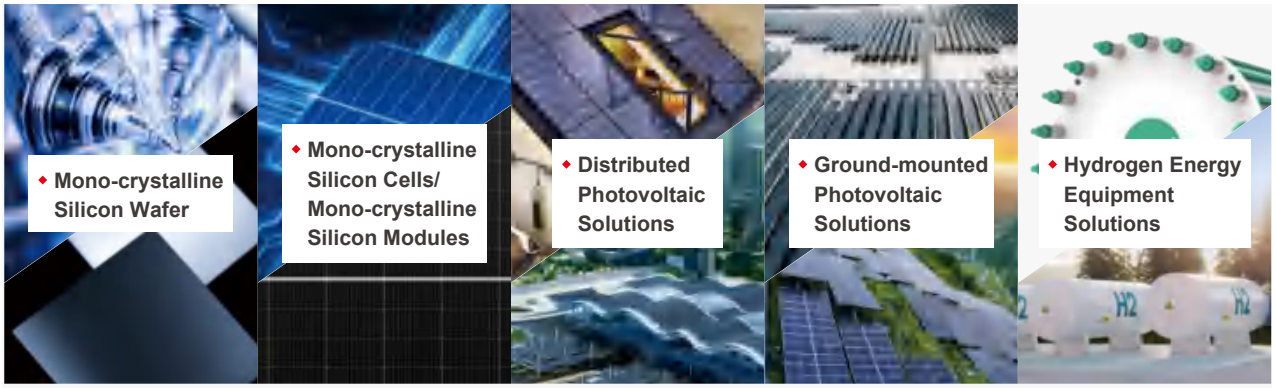
● **Global Logistics Center**



Our business footprint

LONGi focuses on technological innovation and operates in five major business segments: monocrystalline silicon wafers, solar cell modules, distributed PV solutions, ground-mounted PV solutions, and hydrogen energy equipment. LONGi's monocrystalline silicon wafer shipments have ranked first globally for many years, while its monocrystalline module shipments ranked second globally in 2023. LONGi has also developed alkaline water electrolysis hydrogen production system and offered "green power" and "green hydrogen" products and solutions to support the global goal of net-zero emissions.





Monocrystalline silicon wafers Capacity	Monocrystalline solar cells Capacity	Monocrystalline modules Capacity	Hydrogen energy equipment Capacity
170 GW	80 GW	120 GW	2.5 GW

LONGi's major product capacities in 2023

We have manufacturing facilities strategically located in China, Vietnam, and Malaysia, with sales offices in countries such as the United States, Japan, India, Australia, the United Arab Emirates, and others. Our business footprint spans across more than 150 countries and regions globally.

Note: The map is up to date as of December 2023.

ESG ratings

(The rating results have been updated as of April 2024.)

MSCI ESG RATINGS

MSCI ESG Ratings measure companies' resilience to long-term finance-related ESG risks.

BB

FTSE RUSSELL

FTSE4Good Index Series measure the performance of companies with distinguished ESG practices.

3.0

LSEG DATA & ANALYTICS

Refinitiv ESG Scores measure companies' ESG performance based on public data across 10 different ESG topics.

B+

中证指数 CHINA SECURITIES INDEX

China Securities Index ESG Ratings reflect companies' ESG performance in the industry, revealing the impact of ESG factors on sustainable operations.

AA

SUSTAINALYTICS

Sustainalytics ESG Risk Rating comprehensively measures and analyzes the potential risks a company may face as well as the company's risk management capacity.

26.6 Medium Risk

Win.d

Wind ESG Rating assesses companies' substantive ESG risks and their capacity for sustainable operation, measuring the companies' ESG commitments and performance.

BBB

S&P Global

S&P Global Corporate Sustainability Assessment (CSA) analyzes companies through multiple indicators such as governance, environmental protection, and social responsibility, reflecting the companies' capabilities in ESG management and information disclosure.

50

CDP

CDP is a not-for-profit charity that runs the global disclosure system for investors and companies to measure and manage their environmental impacts.

Climate change: B

Water security: B

Supplier Engagement Rating (SER): B-

EcoVadis

EcoVadis evaluates corporate social responsibility (CSR) performance, covering topics including environment, labor and human rights, ethics, and sustainable procurement.

Silver

IPE

Institute of Public & Environmental Affairs (IPE) evaluates companies' climate governance and environmental management of supply chain through disclosed information.

Corporate Climate Action Transparency Index (CATI):

60.40 (No. 18)

Green Supply Chain CITI Index:

30.08 (No. 57)

Ranking first among other PV equipment manufacturers for both indices

Sustainability Management

In 2023, LONGi introduced the LIGHT sustainability philosophy, comprising the core elements of Lead, Innovative, Green, Harmonious, and Trustworthy. This philosophy align our corporate development strategy with the United Nations' 2030 Sustainable Development Goals, aiming to achieve clean, renewable, and efficiently utilized energy while collaborating with stakeholders to create a future where "clean energy is affordable for all".

ESG Sustainable Development Vision

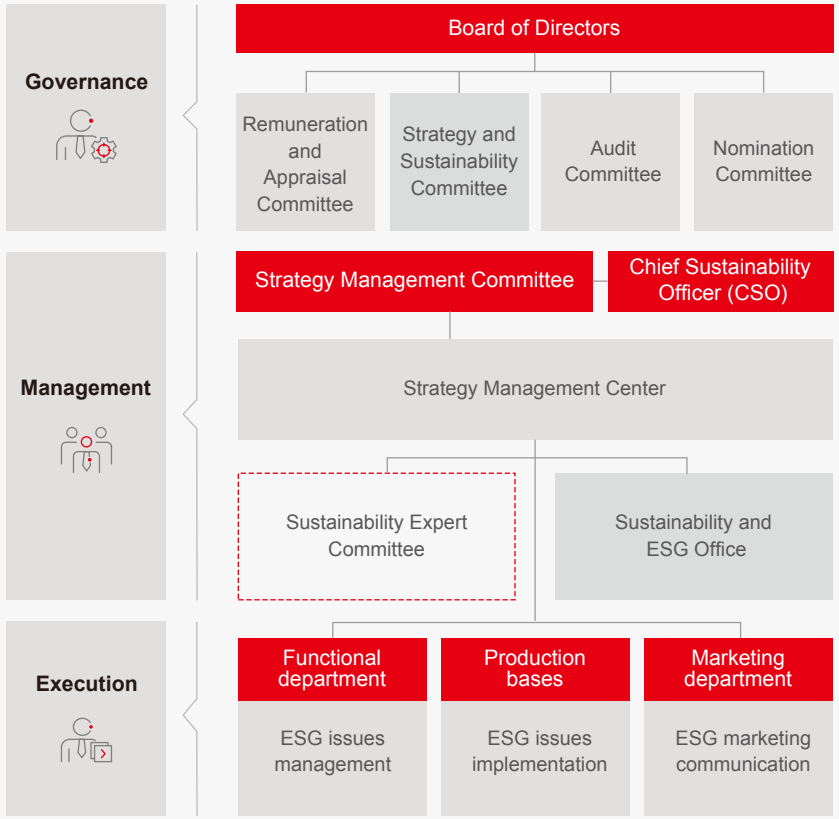
Lead for the clean energy world

ESG Sustainable Development Goal

Affordable for all

ESG governance framework

In 2023, we fine-tuned our ESG governance structure, renaming the "Sustainable Development Management Committee" as the "Strategy Management Committee" to promote a deeper integration of our sustainability initiatives with the Company's overall strategy.



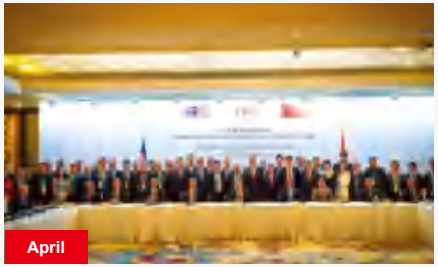
Stakeholder Engagement Highlights in 2023

We actively participated in international industry events to showcase the achievements in sustainable practices of Chinese PV enterprises to the world.

Case | **LONGi's full-scale response to the United Nations SDGs at international events**

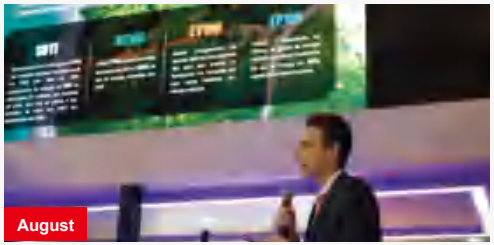
We have participated in discussions on sustainability disclosure guidelines and criteria by the International Sustainability Standards Board (ISSB) and the China Association for Public Companies, joining "ISSB Partnership for Early Awareness of Sustainability-Disclosure Today".

Chairman Zhong Baoshen attended the Boao Forum for Asia for the China-Australia Entrepreneurs Dialogue



President Li Zhenguo was invited to the Malaysian Prime Minister's Roundtable

LONGi attended the Colombia Global Energy Summit



LONGi took part in the Intersolar South America Exhibition

President Li Zhenguo attended the ESG Global Leaders Conference, the high-level week of the United Nations General Assembly, the United Nations SDG Summit 2023, and the Global Energy Interconnection Conference

President Li Zhenguo spoke at the 2023 APEC CEO Summit

LONGi set up the Solar+ Pavilion in the Blue Zone at the 28th United Nations Climate Change Conference (COP28), organizing 29 events, engaging with organizations such as the International Sustainability Standards Board (ISSB), the Carbon Disclosure Project (CDP), and Carbon Trust, and released the third climate action white paper

Corporate Governance

Topics covered in this chapter

Governance and Operations | Risk Management and Control | Business Ethics | Information Security

In response to SDGs

Highlight in this chapter

- Certified to ISO37301 compliance management system.
- Certified to ISO37001 anti-bribery management system.
- Achieved 100 % coverage of anti-corruption training for employees at medium and high risk.
- All IT infrastructure and information systems certified to ISO27001 and ISO27701 systems.

Governance and Operations

LONGi has formulated and implemented the *Compensation Management Measures for Directors*, clearly defining the remuneration of executives, which mainly consists of basic remuneration and performance-based remuneration. Performance-based remuneration is incentives that reward value creation for the Company during the operating period. On top of that, a clawback mechanism is in place for the Company to recover performance-based compensation in the event of incorrect financial statements or other specified circumstances.

Adjustments have been made to certain members of the specialized committees for the fifth Board. Director Mr. Tian Ye will no longer serve on a member of the Board's Audit Committee, and Independent Director Ms. Guo Ju'e has been elected as a member of the Board's Audit Committee. Additionally, Director Mr. Tian Ye was elected as a member of the Board's Strategy and Sustainable Development Committee. The above changes take full account of the professional background and experience of the directors, aiming to promote the scientific and efficient operation of the Board's specialized committees.

Longi 2023 maintains good communication with investors and participates in various investor exchange activities.

- 212 questions responded on SSE e-interactive platform
- 46 roadshows
- 99 on-site research visits
- 159 investor conference calls
- 55 strategy conferences
- 4 performance briefing sessions

In June 2023, LONGi ranked the first in the "Best Investor Relations Program" category of the "2023 Asia Executive Team Survey" by *Institutional Investor*, one of the most influential financial magazines globally.

◆ Audit Committee	Xu Shan Chair , Lu Yi, Guo Ju'e
◆ Strategy and Sustainable Development Committee	Zhong Baoshen Chair , Li Zhenguo, Liu Xuewen, Wang Zhigang, Lu Yi, Tian Ye
◆ Remuneration and Appraisal Committee	Guo Ju'e Chair , Li Zhenguo, Xu Shan
◆ Nomination Committee	Lu Yi Chair , Guo Ju'e, Bai Zhongxue

Members of the Board's specialized committees after the adjustments

Risk Management and Control

In 2023, LONGi obtained the ISO 37301 Compliance Management Systems certification. LONGi has formulated its compliance management system and carried forward the certification projects in line with the *ISO 37301: 2021 Compliance Management Systems - Requirements and Guidance*, incorporating compliance risk management into daily operations and management.

Chief Compliance Officer	Assumed by the Vice President, responsible for leading the Group's compliance risk management efforts.
Risk Control and Management Department	As the coordinator of the Company's compliance management, the Department assists the Chief Compliance Officer in organizing, coordinating, and overseeing compliance risk management efforts.
Compliance Risk Control Owner (RCO)	The RCOs are tasked with the overall management and capacity building of compliance risk management, responsible for the overall results of compliance risk management and control.
Risk Control Joint Meeting	As the integrated platform for compliance discussions and decision-making within the Company, the Risk Control Joint Meeting is responsible for formulating, implementing, and supervising corporate compliance policies and measures, ensuring consistent and effective compliance risk management across departments.
Business Compliance Officer	Responsible for assisting the heads of business units in managing compliance risks specific to their respective units.

LONGi's Compliance Management Structure

During the reporting period, the Company has conducted 37 audit projects of various types, identifying 180 risk points, all rectified already. LONGi regularly carries out internal and external audits, and continually promotes the management of business units and internal control departments.

In 2023, LONGi obtained the ISO 37001 certification for its anti-bribery management system. LONGi strictly abides by the standards of business ethics, formulates and implements the *Code of Business Conduct*, promotes a culture of probity, resolutely opposes commercial bribery, corruption, monopolization, money laundering, and unfair competition.

For more information about the Code of Business Conduct, please refer to

Business Ethics

In 2023, LONGi was not involved in any litigation related to unfair competition or monopoly practices. The Company respects and protects trade secrets, refrains from false publicity, and guarantees the fairness and transparency of prize sales. In online business activities, LONGi does not disrupt the normal operation of web products or services and is committed to creating a market environment of fair competition.

Cases of violations due to fraud and corruption were 0. LONGi conducts regular investigations in accordance with the supervision procedures to address any violations. The Company made no direct or indirect political contributions in 2023. All charitable donations were subject to the specific approval process, in accordance with the laws and regulations of regions in which LONGi operates.

In 2013, LONGi updated the Complaint Reporting Management Measures. LONGi has established a standardized reporting and complaint management mechanism, providing channels including telephone, website, WeChat public platform, WeChat mini-program and email. All employees, suppliers, customers and other internal and external stakeholders are encouraged to report irregularities. At the same time, the Company improves the protection measures for whistleblowers, and resolutely safeguards the legitimate rights and interests of whistleblowers.

▼ **LONGi's integrity training（2022-2023）**

Integrity training and promotion

1,205 sessions

vs 2022 578 sessions

YoY ↑ 2.1 times

Information Security

In 2023, all IT infrastructure and information systems of LONGi obtained the ISO 27001 and ISO 27701 certifications. To ensure the effective operation of the systems, the Company conducts internal audits and regulatory reviews annually, and undergoes audit trails by external organizations.

No privacy breach incidents were reported during the year. At least one penetration testing is conducted on all information systems of the Group every year, with third-party vulnerability analysis and rectification based on the results ensured. In 2023, 263 system vulnerabilities were identified, all of which have been fully rectified or have a remediation plan in place, ensuring no impact on any customers or employees.

LONGi sent over ten articles throughout the year via email and LONGi's WeChat official account, disseminating information security knowledge to all employees, so that they handle information security issues with caution. The supplier information security management norms have been integrated into the Supplier Management System. This includes inspecting and evaluating suppliers' information security performance ability when necessary and protecting the information security rights and interests of both LONGi and its suppliers through confidentiality agreements, service monitoring and review measures.

01 Products and Services

Topics covered in this chapter:

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Products and Solutions 16

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Customer Services 20

In response to SDGs:

Highlight in this chapter:

1.088	R&D investment reached USD 1.088 billion
8.12%	a YoY increase of 8.12 %
5.96%	R&D revenue ratio was 5.96 %
7.58%	a YoY increase of 7.58 %
5.474	Hydrogen investment reached USD 5.474 million
24.46%	a YoY increase of 24.46 %

Continuous innovation in silicon wafer, cell and module products to achieve overall leadership in efficiency, performance, quality and cost.

Jiaxing LONGi Solar was selected as a Global Lighthouse Factory by the World Economic Forum (WEF), marking only lighthouse factory in the global PV industry.

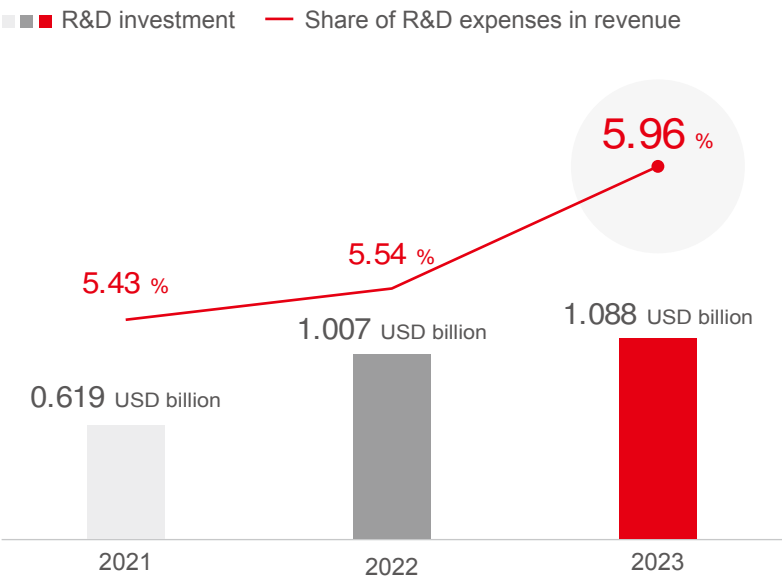
62	Received a total of 62 carbon footprint certifications.

Technology and Innovation

R&D Innovation

LONGi prioritized R&D investment in clean technology, set annual R&D plans and targets, and provided financial guarantees. Meanwhile, we also offered innovation training courses for technical personnel. Our Golden Seed Program, a series of innovation training courses launched in 2023, covered 271 employees and supported 22 innovation incubation projects in total.

LONGi's R&D investment and its share in revenue (2021-2023)



LONGi launched the TaiRay wafers. These wafers feature significant advantages such as suitable for multiple cells, more concentrated resistance distribution, and more effective metal impurity absorption, marking an innovative breakthrough in silicon wafer technology unseen in nearly a decade .

Made significant strides in improving the efficiency of cells. LONGi firmly committed to the BC[1] cell technology among the crystalline silicon cell technologies and constantly increased R&D investment. The BC cell technology matrix covering HPBC[2] and HBC[3] is gradually being formed, among which the efficiency of HBC cells set a new world record in 2023. In particular, LONGi has set a new world record of 33.9% in November, after the announcement of 31.8% in May and 33.5% in June.

1.BC: Short for Back Contact.
2.HPBC: Short for Hybrid Passivated Back Contact Cell.
3.HBC: Short for Heterojunction Back Contact Cell.

LONGi upgraded the processes and modified the structures of PV modules, providing several high-performance products that are able to operate in various complex environments.

Hi-MO 7 module

Based on
HPDC
technology

Mass production power is
580 W

Conversion efficiency is
22.5 %

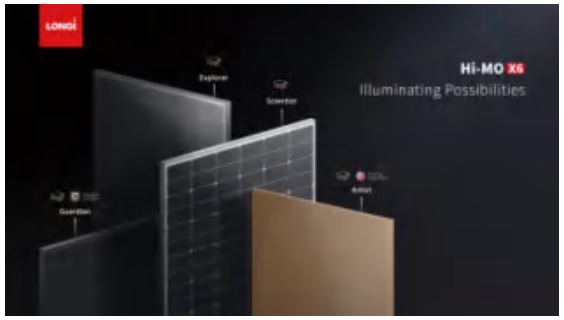
Hi-MO X6 Guardian Anti-Dust module

Featuring
HPBC
technology

Busbar-free design in front-side, increasing light absorption by
2.27 %

Achieve a power generation gain of
2.04 %

with a maximum gain of up to
6 %



New-generation LONGi ROOF 4.0 BIPV

Based on the
HPBC
cell technology

Reaching a record-high efficiency of
22.6 %

and an output of
580 W

Meeting
Class A
fire protection rating, the highest level of waterproof rating

resistant to
17-level
typhoon

Smart Manufacturing

Jiaxing LONGi Solar was selected as the Global Lighthouse Factory by the World Economic Forum (WEF). Having been awarded the only lighthouse factory in the global PV industry, LONGi distinguished itself as a world-leader in smart manufacturing and digitalization.

LONGi's Jiaxing production site: the first Lighthouse Factory in the PV sector

LONGi completed its Lighthouse Factory project within 9 months from its initiation in 2022. Leveraging new technologies like industrial internet, big data, and artificial intelligence, Jiaxing LONGi Solar developed over 30 AI models and algorithms to drive the application of smart manufacturing outcomes.

Over 30
4IR Advanced Digitization Use Cases were implemented

43 %
Yield loss has dropped by

84 %
Production delivery cycle goes down by

9 months
Lighthouse Factory completed (most lighthouse factories average greater than two years from planning to completion)

20 %
Reduction in overall energy consumption per unit of production site

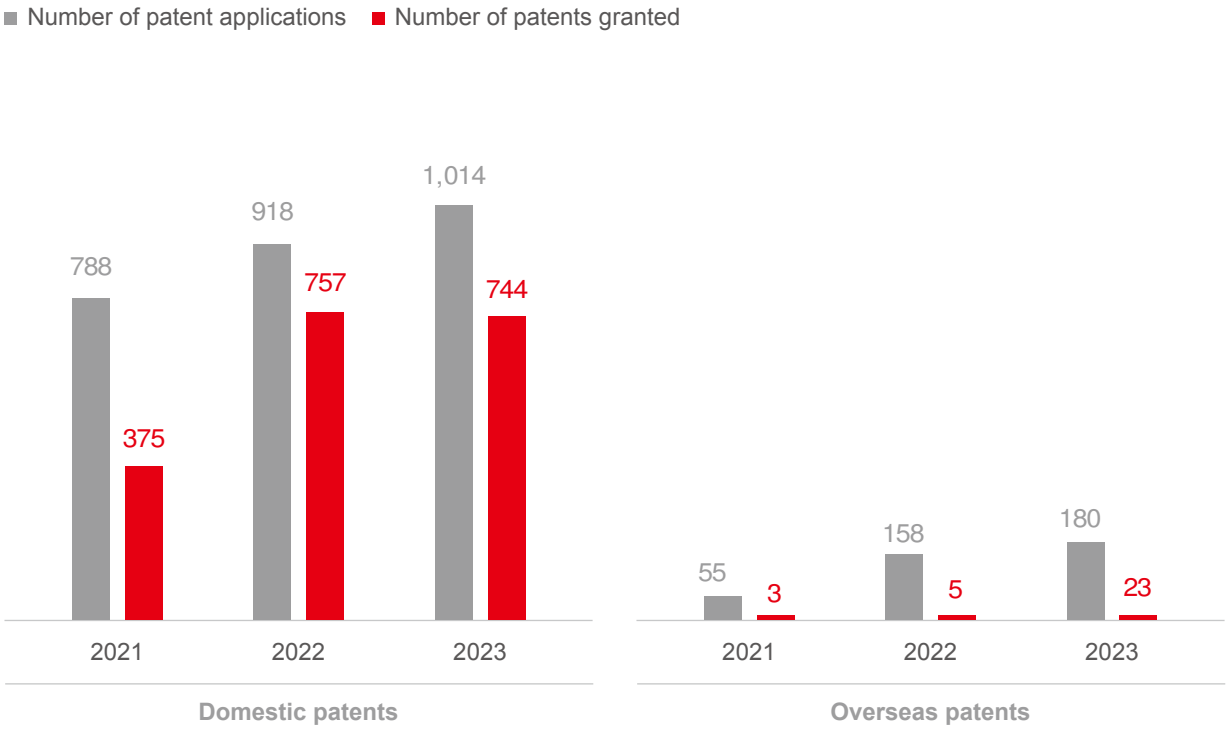
18 s
One PV module comes off the line every 18 seconds.

Intellectual Property Rights

Planned in detail and established a comprehensive layout IPR system covering patents, trademarks, copyrights, trade secrets, and domain names, based on criteria such as timing, geographical distribution, technical fields, and types of patents.

As of the end of the reporting period, we have held 2,879 granted patents and international trademark registrations in nearly 200 countries/regions.

LONGi's patent applications and granted patents (2021-2023)



Cooperation for Innovation

Industrial cooperation

Working with partners along the industrial chain, LONGi has advanced nearly 100 projects, organized close to 60 technical exchange events. These efforts have led to the resolution of over 80 technical problems, covering key areas in clean energy technology, such as silicon wafers, cells, modules, recycling, and smart manufacturing.

University - enterprise cooperation

We have built stable cooperation relationships with over 30 top universities and research institutes. We collaborated with the UNSW School of Photovoltaics and Renewable Energy Engineering on a joint project to train talents in new energy technologies.

International cooperation

We engaged actively with the International Green Hydrogen Organization (GH2) on green hydrogen initiatives and signed a strategic cooperation framework agreement during COP28.

Products and Solutions

Low-carbon Products

Received a total of 62 carbon footprint certifications. LONGi carried out carbon footprint calculations of products to precisely quantify carbon emissions throughout the product lifecycle. In 2023, we led silicon material suppliers in participating in these calculations and obtained authorization to use the results. With outstanding eco-friendly features, several LONGi silicon wafer and module products received carbon footprint certifications from third-party institutions in 2023. Among these, the module products included 18 carbon footprint certifications from France, 4 from South Korea, and 1 International Environmental Product Declaration (EPD)[1].

- The entire range of silicon wafer products obtained the carbon footprint CRE4[2] certificate and PPE2[3] certificate
- Hi-MO 7 module products were granted the ECS[4] carbon footprint certificate by Certisolis in France, marking that LONGi's mainstream modules were all granted this ECS carbon footprint certificate
- Hi-MO 5 and Hi-MO 7 products obtained the carbon footprint PPE2 certificate from Certisolis
- Hi-MO 5 products obtained carbon footprint certification from South Korea, making LONGi the first Chinese module supplier completing carbon footprint certification of South Korea
- Hi-MO 7 modules have obtained EPD

Carbon footprint certifications from France

18

Carbon footprint certifications from South Korea

4

International Environmental Product Declaration (EPD).

1

French Carbon Footprint ECS Certification by Certisolis

International Environmental Product Declaration

1. The International EPD System is the world's first, longest running and most far-reaching EPD system, originally established in 1997 by the Swedish Environmental Protection Agency (SEPA) and industry as the Swedish EPD System, which introduced the Environmental Product Declaration (EPD) and Product Category Rules (PCR).
2. CRE4: A standard proposed by the French Energy Regulatory Commission in 2016, which requires companies to assess the carbon footprint of their PV module products.
3. PPE2: short for AO PPE2 PV Sol. Proposed by the French Energy Regulatory Commission in 2023, it is set to revise the ECS assessment requirements.
4. ECS: short for Evaluation Carbone Simplifiée, an assessment method proposed by the French Energy Regulatory Commission for PV module products.

Build a green and low-carbon industrial chain covering the entire lifecycle of PV products, in order to create even lower-carbon PV products.

Product design

Conduct eco-designing to enhance the recyclability and maintainability of products and materials.

Raw material supply

Deepen cooperation with upstream suppliers who provide green and low-carbon products and hold environmental certifications.

Production and manufacturing

Adhere to green transformation in manufacturing, increase the proportion of renewable energy applications, and build digital factories to improve production efficiency.

Packaging and transportation

Use green packaging, optimize warehouse structures and shipping routes to improve transportation and storage efficiency.

Operations and maintenance

Provide repairing services for products instead of replacing to extend product lifespans.

Recycling and reuse

Establish an industrial chain recycling and regeneration system, plan science-based waste reusing projects, and fully leverage the value of the circular economy.

LONGi developed "PV+" with multiple scenarios, offering innovative solutions for centralized and distributed PV customers worldwide.

Power	• Implement ground-mounted power stations and distributed generation applications tailored to local conditions, reducing dependence on fossil fuels. • Implement multi-energy complementary integrated solutions, with PVs as the main component, combining wind, water, and other resources to build a clean and low-carbon energy supply system.
Industry	• Provide tailored green power replacement solutions for energy-intensive industries such as petrochemicals and metallurgy.
Construction	• Leverage the advantages of digital and smart engineering to customize building integrated PV-BIPV and households PV to enhance building sustainability.
Transportation	• Explore the new ecology of the integration of transportation and PVs to promote efficient collaboration between NEVs and renewable energy. • Launch comprehensive green solutions for transportation, making full use of various transportation sites.
Agriculture, forestry and fisheries	• Launch agri-PV, forestry agri-PV, animal husbandry agri-PV, and fishery agri-PV, and develop new PV businesses such as solar panel power generation, and planting, animal husbandry and fish farming underneath panels, to use land and resource more efficiently.

Green Hydrogen

Released two alkaline water electrolysis hydrogen production products. The LONGi ALK Hi1 series reduces power consumption down to 4.0 kWh/Nm³ for the first time. The single electrolyzer production capacity of the LONGi ALK G series has reached an industry-leading 3,000 Nm³/h.

Power industry: The centralized power plant in Uzbekistan connecting to the grid

In 2023, LONGi Hydrogen Energy provided core products and solutions for China's first large-scale green hydrogen demonstration project. The project produces 20,000 tonnes of green hydrogen annually, replacing natural gas used for hydrogen production in oil refining, thus achieving low-carbon coupling development between modern oil processing and green hydrogen.

By the end of 2023, the project had operated smoothly for

4,200 hours

supplying

22.36 million m³ of hydrogen

Responsibility for Products

Quality System Management

Quality management system has been certified by third parties. All of our manufacturing bases have obtained ISO 9001 quality management system certification, and our module products have obtained IEC 62941 manufacturing quality system certification for ground-mounted PV modules.

▾ Domestic manufacturing base

LONGi Solar Technology obtained again the TÜV IEC TS 62941 quality system certification for photovoltaic module manufacturing.

▾ Overseas manufacturing base

Vietnam base: The NWestern Vietnam, Vietnam module factory, and Vietnam cell factory have all received the on-site inspections by Certification Partner Global (CPG) and have obtained QEHS certification.

Malaysia base: The Serenda module factory, Kuching silicon solar factory, and Kuching cell factory have all passed inspections by the British Standards Institution (BSI) and the National Institute for Occupational Safety and Health (NIOSH) and have obtained ISO 9001 certification and EHS certification.

Honours of LONGi's product quality in 2023

- With high performance and quality, LONGi won the "PV Module Energy Simulation AQM" awarding for its Hi-MO 6 and Hi-MO 7 modules from TÜV Rheinland Germany in September.
  This is already the seventh consecutive year they have won an award in the PV module category at the "Quality First" Solar Conference.

AQM Awards

- In December, LONGi won the award for "Outstanding Management of Quality and Sustainable Development" by SGS.

SGS Award for Outstanding Management of Quality and Sustainable Development

Customer Service

Ensured all products we provide are secure and reliable. By the end of the reporting period, all LONGi component products have been certified to the IEC 61730 PV module safety certification. There were no product recalls during the reporting period.

- **When selecting materials for products:** we adhere to strict standards and norms, aiming to avoid substances harmful to human health and reducing health risks at their source.
- **After products are sold:** we continue to monitor product safety risks and promptly initiate recalls and disposal actions upon identifying defects or safety concerns.

Customer satisfaction score increased from 4.51 to 4.80 out of 5 by the end of the year. In 2023, we established a customer satisfaction survey mechanism based on the Net Promoter Score (NPS) system. Monthly customer satisfaction follow-ups were conducted, generating scores across four aspects. By collecting and analyzing customer feedback, we therefore improved our products and services.

CC3 organizations	Sales managers, delivery managers, and solution managers provide direct service support.
Service hotline	4008601012
Official website	https://www.longi.com/en/
LONGi e-mail	customercare@longi.com

02 Environment

Topics covered in this chapter:

Responses to Climate Change	22
Water Resources Management	25
Clean Production	28
Circular Economy	29
Biodiversity Conservation	30

In response to SDGs:

Highlight in this chapter:

China's first PV enterprise to be certified by the Science Based Targets initiative (SBTi).

100%	100% of production bases have been covered by ISO 14001 environmental management system.
100%	Environmental risk assessment coverage rate reached 100%.
25	25 bases have been certified to ISO 50001 energy management system.
3	Recognition with three new national and three new provincial green factory certifications.
18.32%	Total electricity consumption per unit of product decreased by 18.32% compared to 2020.
33.52%	Total water consumption per unit of product decreased by 33.52% compared to 2020.

Responses to Climate Change

Climate Risk Management

Identified climate risks, vulnerabilities, and potential opportunities. We have conducted analysis for 3 temperature rise scenarios, i.e. accelerated transition (<2°C/1.5°C), current policy (baseline), and high-temperature rise (>4°C), to comprehensively incorporate the risk identified and assessed into the strategic decision-making and daily operations. Through review, climate database risk screening, and industry research along the value chain, we have formed a long list that includes 16 transformational risks, 65 physical risks, and 15 climate opportunities. Meanwhile, we have developed the corresponding climate risk management system, which is detailed in the *2023 Climate Action White Paper of LONGi*.

Learn more about the *2023 Climate Action White Paper of LONGi*

Climate goals and achievements

SBTi	RE100	EP100	EV100
• Scope 1 and 2 emissions are reduced by **60 %** by 2030 compared to 2020 • Scope 3 emission intensity per tonne of purchased goods and services is reduced by **52 %** by 2030 compared to 2020	• Achieve **70 %** renewable energy use by 2027 and **100 %** renewable energy use by 2028	• Complete the deployment of an energy management system by 2025 and improve energy utilization rate by **35 %** from the baseline of 2015	• Install charging facilities at all manufacturing sites by 2030. **100 %**
14 % Scope 1 GHG emission reducted 14% from 2022.	**3,815** Renewable electricity use of 3,815 million kWh, accounting for 31% of total electricity use.	**31.2 %** Overall Group energy productivity improved by 31.2% compared to 2015.	**253** Purchase of charging piles at the Group level and installed 253 new charging piles.

Climate Actions

Focused on internal operation and supply chain emission management. We implemented a series of initiatives including carbon accounting, energy management, and construction of clean energy facilities, and formulated the Carbon Emission Management System Manual and Zero-Carbon Factory Construction Guidelines.

Emission reduction in operations

8 production bases have deployed the Energy Management System (EMS)

25 production bases have been certified with the ISO 50001 Energy Management System

31.2% enabling the Group's overall energy productivity to increase by 31.2% compared with 2015

We have organized centralized procurement of charging piles at the group level

We have installed a total of **253** new charging piles at **23** operating sites

We have also accelerated the construction of Baoshan LONGi "Zero Carbon Factory" and have been awarded the PAS 2060 Carbon Neutral Certification in December 2023 by SGS.

Supply chain emission reduction

550 We have launched the "Supply Chain Green Partner Empowerment Program", with more than 550 suppliers actively participating in two consecutive sessions.

50 We have also completed the carbon inventory of 50 key suppliers and assisted them in analyzing their energy use and conducting carbon inventories to explore their reduction potential.

LONGi's total carbon emission (2023) (tCO_2e)

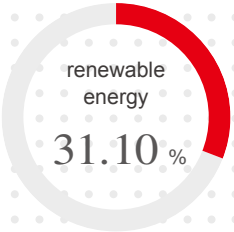
			GHG emissions within operations	Total emission
2023	Scope 1	135,747.14	5,079,201.26	42,069,242.89
	Scope 2[1]	4,943,454.12		
	Scope 3 (Partial[2])	36,990,041.63		

1. Due to the update of the regional power grids carbon dioxide emission factors, this report recalculates Scope 2 data for 2022 and 2021 based on the updated version of the Announcement of the Ministry of Ecology and Environment and the National Bureau of Statistics on the Release of CO2 Emission Factors for Electricity in 2021.
2. Scope 3 emissions encompasses purchased goods and services, upstream fuel and energy related activities, upstream transportation and distribution, waste generated from operations, business trips, employee commuting, downstream transportation and distribution, and final disposal of sold products.

Energy Saving and Emission Reduction

Established the energy management system. We conducted the annual energy evaluation on 29 bases within the scope of assessment[1], and completed a total of 509 energy improvement projects. As of the end of the reporting period, a total of 25 bases completed their EMS construction and obtained certification, with 10 new bases added in 2023.

Adopted green power in our production actively and optimized our energy structure. In 2023, 3,815 million kWh of LONGi's total electricity consumption came from renewable energy, accounting for about 31.10% of the total electricity consumption, which was equivalent to about 2,124,399.46 tCO_2e emission reduction.



Energy Conservation Targets

In 2023, the Group aimed to reduce total power consumption by

13.43 % compared to 2020

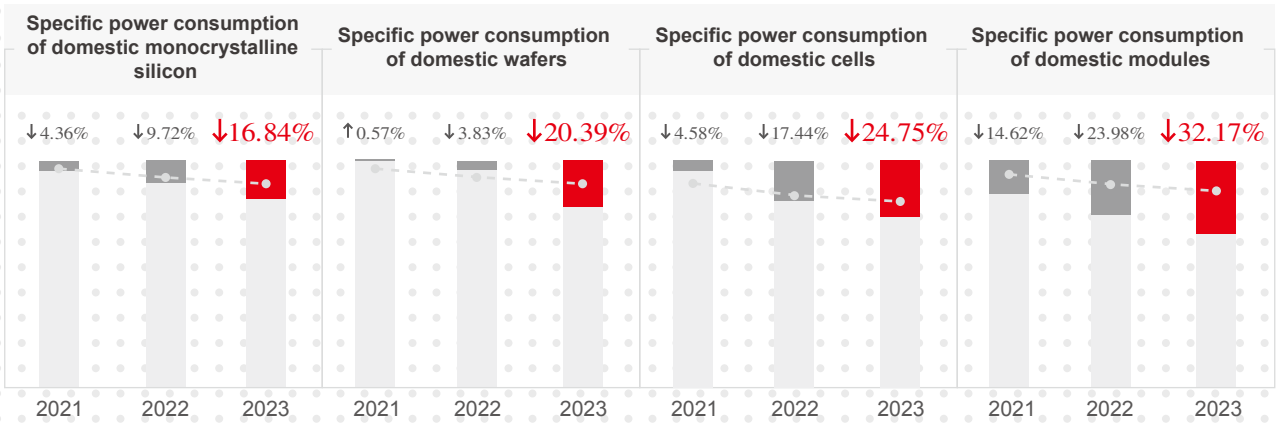
The actual achievement surpassed this target and reached a reduction of 18.32 %

In 2024, the Group aims to further reduce total power consumption by

9.14 % compared to 2023

The reduction of power consumption per product for monocrystalline, wafers, and cells exceeded expectations. We took 2020 as the base year, set the power consumption target for each product, and monitor the achievement of the target every year.

LONGi's power consumption reduction v.s. base year target (2021-2023)



1. LONGi has a total of 31 bases in China, among which 2 have not been reviewed and are still in production ramp-up.

Water Resources Management

Water Risk Management

LONGi assessed water risks for all operating locations. We conducted an annual inventory of water resources at all our factories based on the World Resources Institute (WRI) water risk atlas and use the risk level of water resources as an important reference for setting of water conservation targets. The results showed that a total of 20 bases were in high-risk areas (57.1%), with 15 in extremely high-risk areas and 5 in high-risk areas. Regions affected by water shortage mainly included Ningxia, Inner Mongolia, and Shaanxi.

Inner Mongolia

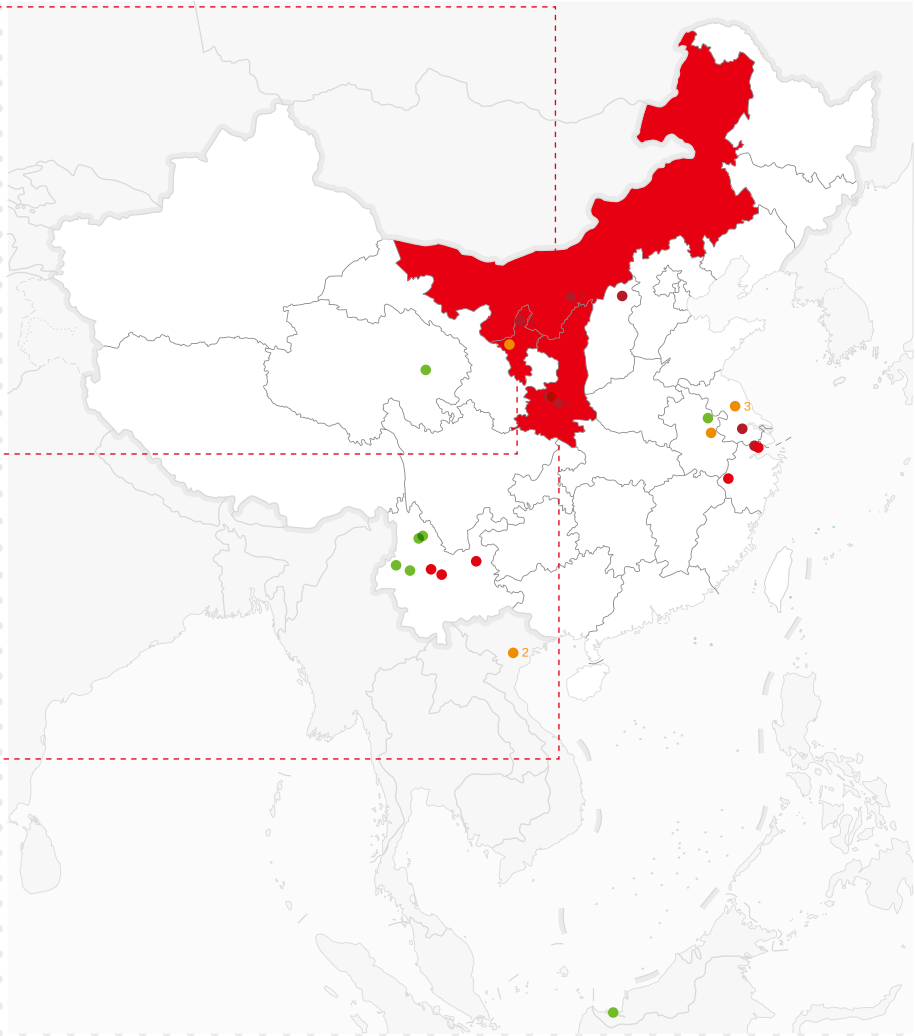
- Proactively using high-quality reclaimed water and coal mine drainage as alternative water sources, greatly reducing dependence on natural water resources
- Launching the “zero discharge” project, where production wastewater is specially treated and recycled with no wastewater discharged from the plants
- Reducing water consumption through process upgrading, water conservation projects, etc

Ningxia

- Installing reclaimed water and concentrated water reuse equipment, achieving an annual reclaimed water and concentrated water reuse amount of 9.361 million tonnes
- Reducing water consumption through process upgrading, water conservation projects, etc.

Shaanxi

- Building new plants for the “zero discharge” project with a maximum recovery rate of 97% in Xixian, Tongchuan, and Weibei
- Recycling rainwater as an additional water source
- Reducing water consumption through process upgrading, water conservation projects, etc.



Water Conservation

Carried out water-saving projects. In 2023, we carried out 118 water-saving process projects within the Group and saved 5.5293 million tons of water. As a result, the total water consumption of the Group decreased by 12.75% year-on-year, and by 33.52% from the base year.

Water saving targets

The Group's overall specific water consumption target in 2023

29.82 % lower than that of 2020

33.52 % was the actual achievement

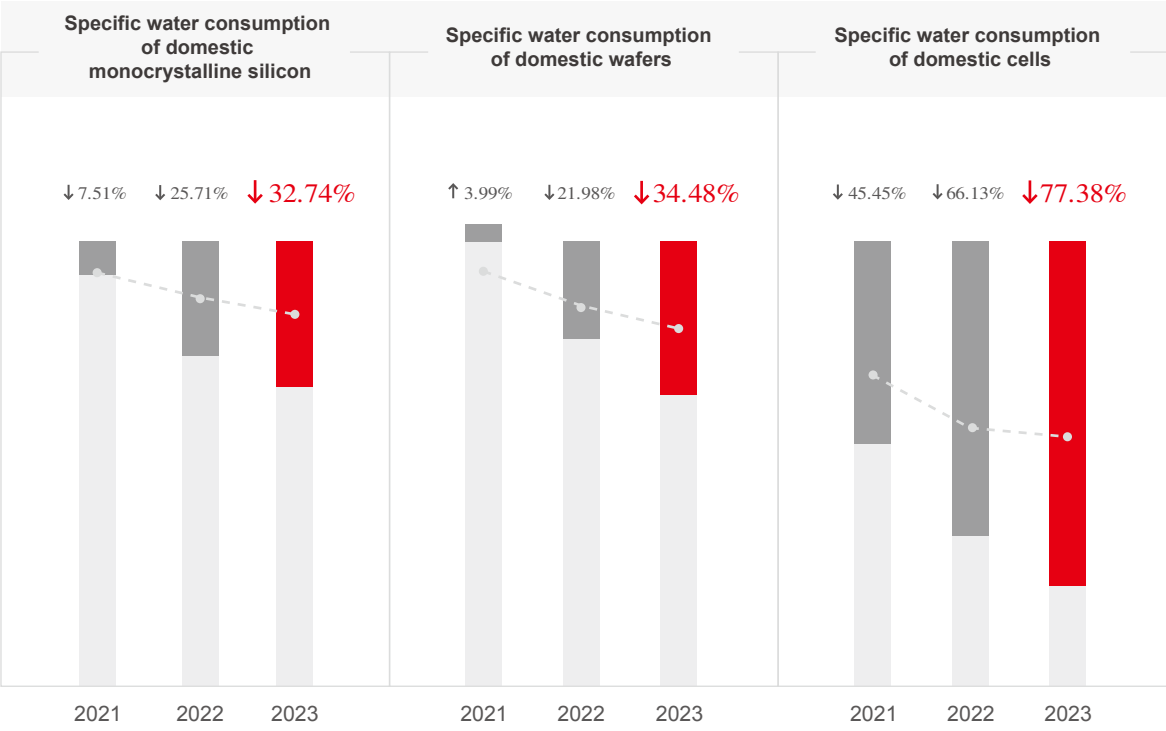
The Group's overall specific water consumption target in 2024

13.80 % lower than that of 2023[1]

1. LONGi's specific water consumption target and product water consumption target are set in comparison with the base year of 2020. Due to product type adjustment, the targets after 2024 are compared with those in 2023.

Managed water footprint of products. We developed tailored water footprint measurement management plans for different types of products, and monitor the water consumption intensity per unit product. In 2023, the reduction rate of water intensity per unit product of mono-crystalline silicon, wafers and cells exceeded the expected target. Meanwhile, we are building production water "zero discharge" plants.

LONGi's specific water consumption reduction rate v.s. the base year target (2021-2023)[1]



LONGi's water consumption performance in 2023:

Total water withdrawal	52,644.61 kt
Total water withdrawal intensity	0.4056 kt/million revenue
Total water consumption	10,922.80 kt
Reclaimed water reuse rate[2]	53.82 %
Water conservation	5,529 kt

1. Modules require little water consumption and therefore no target has been set.
2. Calculation of reclaimed water reuse rate: reclaimed water reuse rate = amount of reused reclaimed water ÷ total amount of water withdrawal × 100%

Clean Production

LONGi has obtained 3 national and 3 provincial green factory certifications

3 national

3 provincial

4 of its bases have passed the clean production audit

4 bases

Furthermore, 100% of the 31 bases operated by LONGi have been certified to the environmental management system ISO 14001.

31 bases

100 %

Formulated emission reduction management plans and carried out emission reduction guidance. Our production bases upgraded their waste gas treatment facilities to improve treatment efficiency and reduce emissions of nitrogen oxides and volatile organic gases. We introduced measures such as improving the capacity of nitrogen waste gas treatment devices, upgrading the treatment process of lamination waste gas and adding the regenerative catalytic combustion process to improve the treatment efficiency of non-methane hydrocarbons.

Improved the capacity of wastewater treatment. We adopted measures such as coal mine drainage recycling and evaporation and filtration wastewater recycling, which further reduced production wastewater discharge.

Established a complete system for solid waste management. We carried out a special project to recycle solid waste and reduce emissions at the source. Specifically, we minimized solid waste generation by identifying hazardous characteristics and selling recycled solid waste as by-products. As a result, the recycling rate of non-hazardous waste increased to 73.3%.

Circular Economy

Created full-chain circular economy concepts and practices, which included product design, green packaging, transportation, and product recycling. We have reduced the impact of packaging on the environment by using renewable, recyclable, and other environmentally friendly materials. In addition, we have optimized the logistics and product recycling system to promote the sustainable development of the PV industry chain.

Promoted the circular economy with partners. As a member of PV Cycle, a world-leading waste management organization, we have established close cooperation with partners such as Soren, Open, and 3Drivers to jointly promote the sustainable development of the PV industry. We have also registered waste electronic recycling businesses in Belgium, the United Kingdom, France, Germany, Italy, the Netherlands, Portugal, Spain, and other countries, making positive contributions to building a circular economy.

1

Product Design

- Development of fluorine-free solar backsheets
- Successfully passed the LEED certification of PV CYCLE
- Achieved 100% recycling rate of photovoltaic cell products
- Recycling rate of 93.5% for silicon-based PV cells realized
- Recyclable material utilization rate of module products exceeded 5%

2

Green Packaging

- Promote the recycling of waste pulp to produce carton packaging
- Use of silicon cardboard boxes to replace the original packaging
- Realize 100% recycling of packaging for silicon wafers and batteries for domestic sales
- Actively promote and practice PP recycling packaging

3

Product Recycling

- Strictly follow the Industrial Emissions Directive IED 2010/75/EU and the European Union's Waste Electrical and Electronic Equipment Recycling (WEEE) Directive to scientifically treat end-of-life product components
- Actively carry out research on the recycling and treatment process of WEEE

4

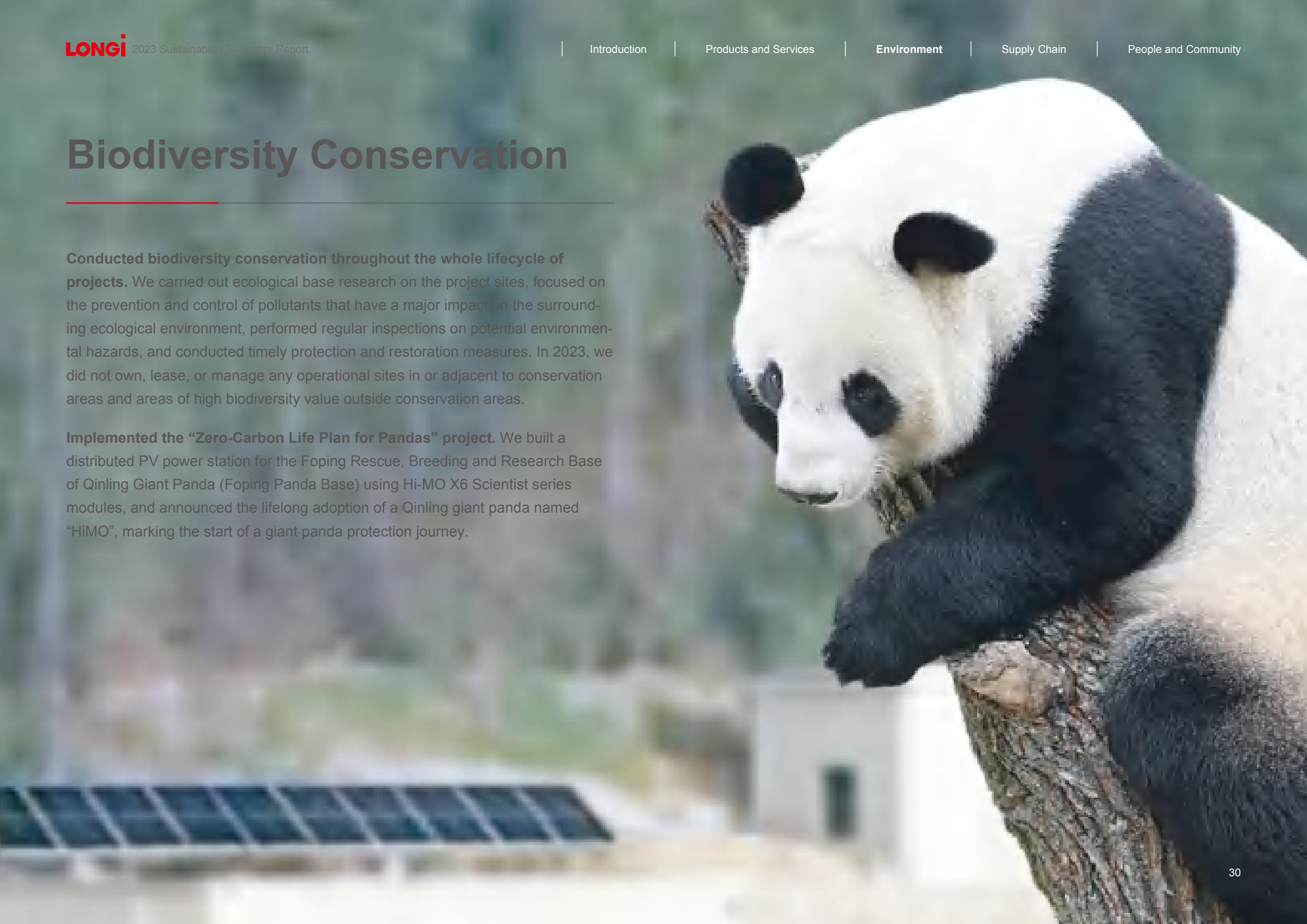
Transportation

- Build an online platform to visualize the transportation status of the whole process, with 100% visibility of the order status of external customers
- Adopting multimodal transportation such as railroad (rail trains and cars) and rail-sea (rail trains and ships)
- Constructing front/center warehouses and adopting initiatives such as replacing warehouses with boxes

Biodiversity Conservation

Conducted biodiversity conservation throughout the whole lifecycle of projects. We carried out ecological base research on the project sites, focused on the prevention and control of pollutants that have a major impact on the surrounding ecological environment, performed regular inspections on potential environmental hazards, and conducted timely protection and restoration measures. In 2023, we did not own, lease, or manage any operational sites in or adjacent to conservation areas and areas of high biodiversity value outside conservation areas.

Implemented the "Zero-Carbon Life Plan for Pandas" project. We built a distributed PV power station for the Foping Rescue, Breeding and Research Base of Qinling Giant Panda (Foping Panda Base) using Hi-MO X6 Scientist series modules, and announced the lifelong adoption of a Qinling giant panda named "HiMO", marking the start of a giant panda protection journey.



03

Supply Chain

Topics covered in this chapter:

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Sustainable Procurement	36
Supplier Collaboration and Empowerment	39

In response to SDGs:

Highlight in this chapter:

100%	100% of suppliers have signed the *CSR Code of Conduct of LONGi Suppliers* and the integrity agreement.
83%	The annual due diligence audit coverage for suppliers reached 83%.
9 30 50	We have coached 9 suppliers to get ESG-related certifications (such as EcoVadis prizes, SA8000, SMETA , etc .), pushed 30 suppliers to carry out IPE environmental violation rectification and removal, and 50 suppliers to finish carbon-accounting.
0	LONGi achieved 0 use of conflict minerals, and the revenue from products using conflict minerals was also 0.
60	60 significant suppliers in Tier-1 have obtained green factory certifications.

Launched LONGi's "Diversified Supplier" support program.

Supply Chain Management System

Supplier Management Mechanisms

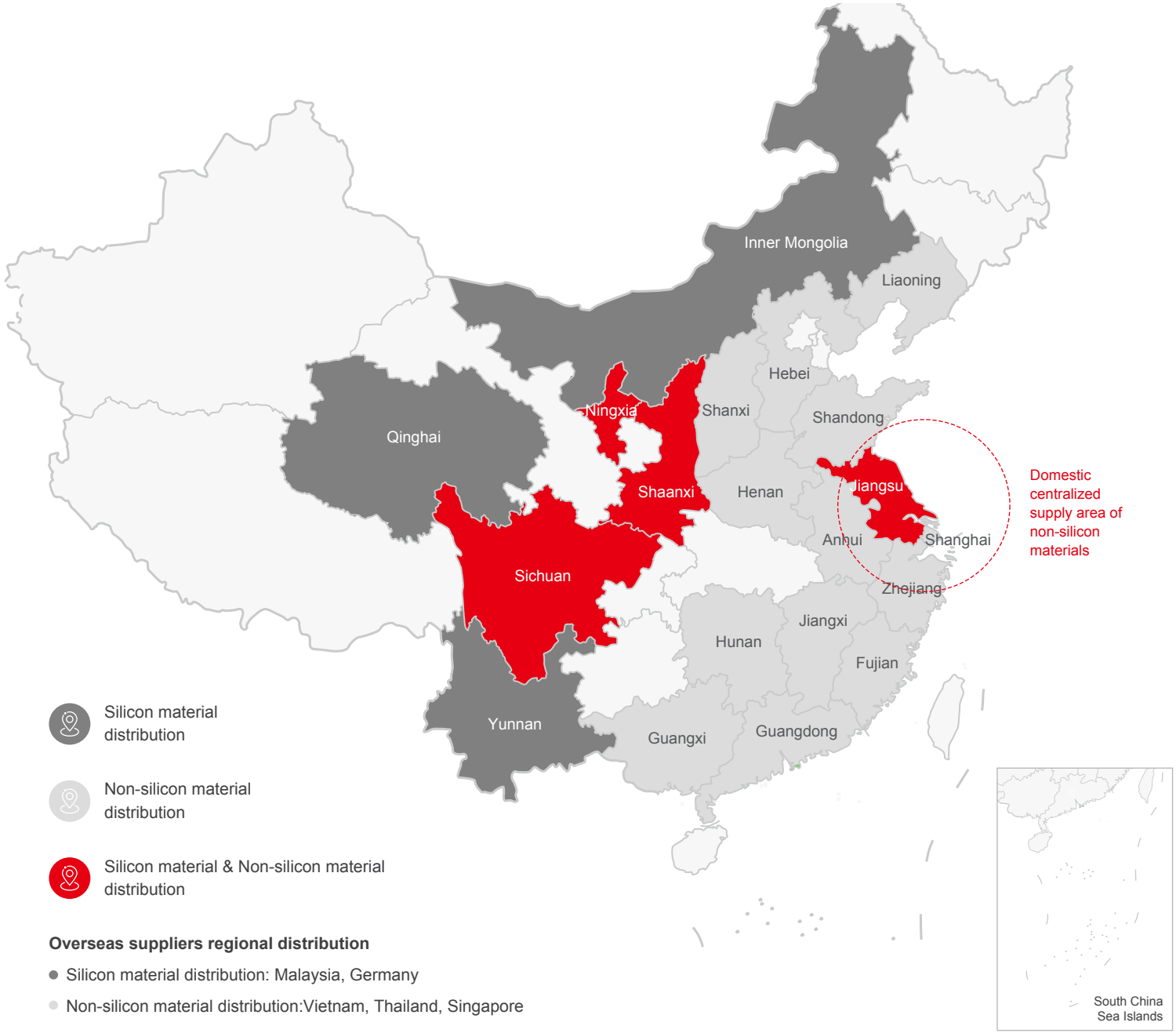
LONGi Sustainable Procurement	2023 Target	2023 Actual	2024 Target
COC Signing Rate	96%	100%	100%
New suppliers screened Rate by Social Criteria	90%	100%	100%
New suppliers screened Rate by Environment Criteria	100%	100%	100%
Due Diligence Finishing Rate of Significant Suppliers （by expenditure coverage）	80%	83%	90%
On-site Audit for high-risk Suppliers	-	28	High-risk 100%
Non-Conformity Findings Closure Rate within 6 months	50%	63%	65%
Purchasers Training Rate	100%	100%	100%
Suppliers Training Rate	100%	100%	100%
Supplier Green Empowerment Engagement	50 suppliers conduct carbon-accounting	50 suppliers conduct carbon-accounting	10 suppliers set up carbon-reduction target
Suppliers terminated for violation of COC	-	62	Zero tolerance violation exit

Established the three-tier Supplier Management Committee, which includes decision-making, execution, and executive secretary level, to achieve a more efficient and professional specialization and collaboration. This ensures that management tasks are handled with a dedicated and meticulous approach.

Clarified suppliers' hierarchical management mechanisms. LONGi categorized suppliers based on their operational characteristics and cooperation performance, scoring collaborative suppliers monthly, biannually, quarterly or annually across dimensions such as quality, cost, delivery, service, technique, and ESG performance. Based on the scores, suppliers were graded as A, B, or C, with corresponding rewards or penalties.

As of the end of the reporting period, LONGi had a total of

4,767 suppliers



Overseas suppliers regional distribution

- Silicon material distribution: Malaysia, Germany
- Non-silicon material distribution:Vietnam, Thailand, Singapore

Supply Chain Risk Management

LONGi Suppliers Lifecycle Management

Commitment	Risk Management	Contract Obligation	Performance Surveillance	Incentive mechanism or Exit

How to become LONGi' s Supplier?

① Registration
② Screening
③ Evaluation
④ Product Verification
⑤ On-site Audit
⑥ Contract

How to manage LONGi's approved vendor?

① Due Diligence
② Annual audit
③ Communication Empowerment
④ Performance
⑤ Exit

Selection > **Qualification** > **AVL Management** > **Surveillance**

Remark: LCC= Full Life Cycle

AVL=Approved Vendor List

Conducted annual due diligence surveys to identify suppliers' ESG risks, covering environmental management, human rights and labor protection, health and safety, business ethics, and corruption prevention. At the same time, we conducted annual on-site ESG audits of suppliers. For high-risk suppliers, we provided active coaching for rectification and conducted regular re-audits to ensure closed-loop corrections.

In 2023, a total of **158** suppliers underwent annual due diligence audits

covering **83** % of the expenditure

with **0** material violation of either being assessed as significant actual or potential negative impacts, or being terminated cooperation for significant actual or potential negative impacts

Conducted ESG on-site audits. In 2023, we conducted 28 ESG on-site audits of suppliers. Based on scores and findings, suppliers were categorized and managed accordingly. There were zero material violations with significant actual or potential negative impacts, or terminations of cooperation due to significant actual or potential negative impacts. For high-risk suppliers, we provided active coaching for rectification and conducted regular re-audits to ensure closed-loop corrections. During the report period, all non-conformity findings were resolved.

Findings and Corrections in the CSR due diligence

Percentage[1]	Category	Findings	Corrections
31 %	Labor rights	Regular collection and feedback of employee complaints were not conducted.	Improved the appeal mechanism by establishing an anonymous complaint channel for regular collection and feedback of employee complaints.
		Employees bear the pre-employment medical examination fee.	The medical examination fee incurred by the employee due to employment is borne by the employer.
1 %	Business ethics	Managers and relevant employees were not required to conduct regular self-inspections, nor were effective preventive and corrective measures developed based on self-inspection results.	Enhanced the business ethics management system and established an internal self-inspection and correction mechanism.
5 %	Environmental protection	Lack of operation and maintenance records for waste gas and wastewater treatment facilities.	Established operation and maintenance records for waste gas and wastewater facilities.
		Chemical MSDS[2] were not posted as required.	Trains chemical management personnel to post MSDS as required.
48 %	Health and safety	Fire protection facilities (such as fire extinguishers and fire hydrants) are not checked in time.	Improve the three-level responsibility system of safety management, comprehensively investigate the risk of fire protection system, and maintain the normal operation of the system.
		No medicine dispensing list prepared.	Set up medicine dispensing management measures.
15 %	Management system	Sub-suppliers' signing rate of the Supplier CSR Code of Conduct is less than 100%	Required suppliers to monitor sub-suppliers and sign the *CSR Code of Conduct of Suppliers*.
		Suppliers do not regularly carry out CSR risk assessment and classified management.	Mandated suppliers to conduct CSR risk assessments and management to meet LONGi's requirements.

1. The procurement spending on LONGi's significant tier 1 suppliers accounted for 85% of the total procurement budget, and 357 diversified have completed registration.
2. Chemical MSDS refers to the Material Safety Data Sheet, which includes essential information on chemical hazards, safety precautions, and measures to be taken in emergency situations.

Sustainable Procurement

Supply Chain Responsibility Management

Established a supplier CSR lifecycle management system, integrating supplier CSR management throughout the entire procurement lifecycle from supplier development to cooperation management and exit management. This promoted a sustainable and responsible supply chain.

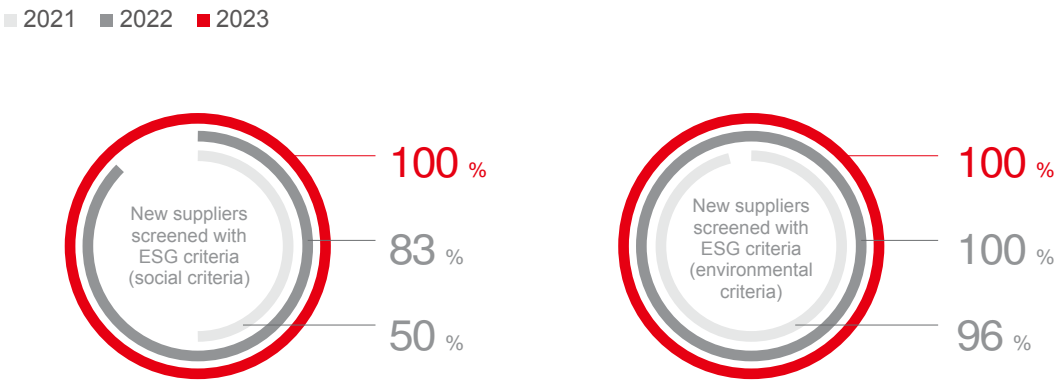
The signing rate for the *CSR Code of Conduct of LONGi Suppliers* reached 100% by the end of 2023, and the percentage of new suppliers being screened by social and environmental criteria also reached 100%.

Learn more about the *CSR Code of Conduct of LONGi Suppliers*

▼ LONGi's suppliers environmental and social management system certification

Number of suppliers certified with ISO 45001	Number of suppliers certified with ISO 14001	Number of suppliers certified with ISO 9001
2,014	2,271	3,519

LONGi's new suppliers screened with social and environmental criteria[1]



1. Social criteria include signing the *CSR Code of Conduct of LONGi Suppliers*, screening for social risks such as labor disputes, and supplier due diligence questionnaires. Environmental criteria involve the screening for certifications such as ISO 14001 environmental management system, ISO 45001 occupational health management system, ISO 50001 energy management system, or green factory certifications. Additionally, the third-party tool from the Institute of Public and Environmental Affairs (IPE) is introduced to monitor significant environmental non-compliance records.

Assisted suppliers in improving their green performance. LONGi has established a mechanism for monitoring and managing supplier environmental violations. Using the IPE platform for dynamic monitoring and, we urged suppliers to carry out environmental management rectifications and assisted them in removing negative records. In 2023, we monitored 158 key suppliers (accounting for 75% of material procurement expenditure). Of these, 30 had successfully removed negative records after rectification under the joint guidance of the monitoring platform and LONGi. By the end of the reporting period, 60 of LONGi's significant tier 1 suppliers have obtained green factory certification, representing 21% of the total number of significant suppliers.

Received awards related to green supply chain. LONGi became a founding member of SEMI China SCC&ECOPV Alliance[1] in 2023 and won the Outstanding Finalist Award of ESG China Awards Green Supply Chain in 2023.

Provided guidance on human rights due diligence for suppliers. We require module suppliers (tier 1), component suppliers (tier 2), and key raw material suppliers (tier 3) to adhere to the core conventions and fair provisions of the International Labour Organization (ILO). In 2023, through on-site audits, LONGi conducted in-depth confidential interviews with over 400 participants, including senior management, HR, administrative personnel, EHS employees, and operators.

357 suppliers registered as "diversified supplier". We initiated the "diversified supplier" program to prioritize the diversified suppliers under the same conditions, such as minority enterprises, women-owned enterprises, veteran-owned enterprises, and other socially recognized diversified enterprises.

100% of suppliers signed the integrity agreement. We and our partners are committed to build a "sunshine and transparent" supply chain, conveying business ethics and ethical bottom line of integrity to all suppliers in the supply chain. In 2023, we revisited 590 suppliers and terminated 62 suppliers due to violations of business ethics.

▼ LONGi's supplier integrity compliance training in 2023

Number of suppliers' integrity and compliance trainings

225

Hours of suppliers' integrity and compliance trainings

428

Coverage percentage of suppliers' integrity and compliance trainings

100 %

1. SEMI China SCC&ECOPV refers to the Semiconductor Climate Consortium, the climate alliance of the Semiconductor Industry Association in China, and the China ECOPV Alliance, the special committee on photovoltaics within the China Green Supply Chain Alliance.

Responsible Mineral Management

Achieved a 0% use of conflict minerals and 0 revenue from products coming from conflict minerals. We are committed to neither using nor selling any conflict minerals[1] and require all direct and indirect suppliers to ensure that their supplied products are free from conflict minerals sourced from high-risk regions.

Achieved a 100% completion rate for conflict mineral due diligence surveys for suppliers containing 3TG. Following the five-step due diligence framework of the Organisation for Economic Co-operation and Development (OECD), LONGi has covered the supply chains of all productive materials across the group. We require direct suppliers to complete the Conflict Minerals Reporting Template (CMRT) issued by the Responsible Minerals Initiative (RMI), applicable to 3TG minerals[2], to identify upstream smelters or refineries and their RMAP[3] certification results. All six smelters upstream of the 13 suppliers of tin-containing materials (including tin-coated copper belt, junction box, and grey adhesives) across the Group have obtained the RMAP certification and are not involved with conflict-affected and high-risk areas.

Supply Chain Traceability

Developed a tailored digital traceability service system for our supply chain, enabling full-chain traceability from components to silicon mines. This system utilizes key production and sales information, such as module box numbers, module pallet numbers, cell batch numbers, monocrystalline identification, and silicon material order numbers. Our traceability system has passed audits by the U.S. Customs and Border Protection (CBP) and the Canada Border Services Agency (CBSA) and is capable of customs practices.

1. Conflict minerals refers to coltan, cassiterite, gold, wolframite and cobalt mined in the Congo and any country with which the Congo has an internationally recognized border or their derivatives.
2. 3TG refers to the four minerals including Tantalum, Tin, Tungsten, and Gold.
3. RMAP, the Responsible Minerals Assurance Process, is an audit program under the Responsible Minerals Initiative.

Supplier Collaboration and Empowerment

Supplier Communication and Collaboration

Introduced the SRM Supplier Collaboration and Coordination Survey, covering management rules, process transparency, collaboration efficiency, business ethics, and other topics. The survey collected 3,622 responses from 2,992 suppliers, showing have a high level of understanding of management rules, process transparency, and satisfaction with payment timeliness, overall satisfaction rate exceeding 95%.

Propelled the "Four New" cooperative innovation program with suppliers to promote the landing of a series of innovation achievements jointly, injecting new vitality into product upgrading and industry development.

New technologies	New materials
Introduced granular silicon certified with the French carbon footprint by overcoming technological and mass production bottlenecks; promoted new technologies such as liners, quartz boat holder, and felts to create a green, low-carbon, and eco-friendly product suite.	Collaborated on projects involving carbon fiber filaments and optimization of EVA/-POE Materials.
New processes	**New patterns**
Worked with suppliers to optimize material manufacturing process.	Cooperated with logistics suppliers to adopt innovative logistics route design involvement models, including a digital warehouse network system, logistics tracking, and multi-model transportation, effectively improving logistics efficiency.

"Four New" collaborative innovation program

Supplier Empowerment

Conducted 258 supplier training sessions and carried out on site visits to 28 significant suppliers across 8 major material categories, from silicon materials suppliers to module suppliers. We provided specialized guidance on key issues such as environment management, occupational health, production safety, and social responsibility management, enabling suppliers to develop systematic approaches to social responsibility.

Performance highlights

During the reporting period, LONGi conducted 28 on-site supplier audits, finding no violation of zero-tolerance policies on child labor or forced labor; other findings were resolved under LONGi's guidance and monitoring. Through on-site audits and remediation empowerment, we have driven:

4 suppliers
Won EcoVadis prizes

4 suppliers
Got SA 8000

1 suppliers
Passed the SMETA[1] audit

50 suppliers
Finished carbon-accounting

30 suppliers
Pushed suppliers to carry out IPE environmental violation rectification and removal

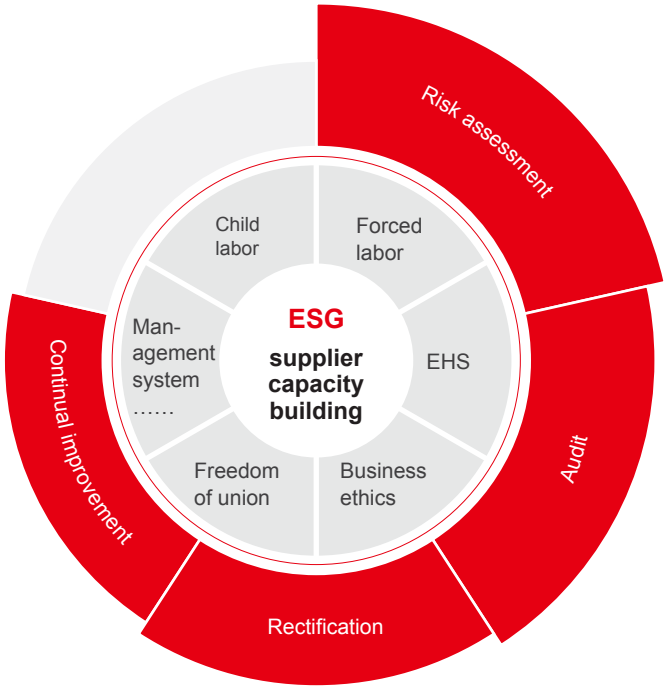
2024 target

8 significant suppliers
to obtain external SA 8000 certification

8 significant suppliers
to be audited ESG performance by the 3rd party

1. SEMTA stands for Sedex Members Ethical Trading Audit. It is an ethical trade audit standard designed to ensure ethics, labor rights, and human rights within global supply chains.

Launched the Supplier ESG Capacity Building Plan (2024-2028). Significant suppliers involved in this plan accounted for 55%[1] of the total procurement expenditure of key suppliers, and we aim to gradually increase this proportion to 80% during 2025-2028. We have established four key dimensions for this plan: compliance with social responsibility qualifications, management systems, labor rights, and EHS management capabilities, aiming to enhance our suppliers' ESG capability. Through the implementation of this plan, we aspire to encourage suppliers to proactively practice ESG management and establish a sustainable procurement system.



Qualification compliance

- Completion acceptance reports for the main buildings and subsidiary facilities like factories, canteens, and dormitories.
- Environmental and occupational health systems.
- Three-simultaneous Safety Approval (including fire safety, i.e. simultaneous design, simultaneous construction, simultaneously putting into service)

System capacity building

- **Management systems:** management manuals, risk management, legal regulation identification, supplier/subcon-tractor management.
- **Labor rights policies:** child labor remedy and protection policy for underage workers, policy against forced labor, anti-discrimination policy, anti-harassment and abuse policy, freedom of union policy, reward and punishment policy, protection policy for female employees, etc.
- **Environmental and safety policies:** occupational health, hazardous sources, labor protection, hazardous opera-tions, special equipment, work-related injuries, etc.
- **Business ethics**

On-site EHS management

- **Safety of People:** labor protection, safe exits, safe fire facilities, emergency drills, occupational health, etc.
- **Safety of things:** machinery, chemical, solid and hazardous waste safety, etc.
- **Safety of the Environment:** safe discharge of waste water and gas, toxic and harmful post safety.
- **Site management:** reasonable shifts, safety training, daily supervision.

Supplier ESG Capacity Building Plan (2024-2028)

1. Significant suppliers also include those identified as posing a significant negative ESG impact risk to the Company or having substantial business relevance to the Company.

LONGi's supplier training performance (2022-2023)

Total training sessions

258 times

vs

2022	YoY
108 times	2.4 times

Total hours of training

608 hours

vs

2022	YoY
230 times	2.6 times

Suppliers participated in training

5,993 person-times

vs

2022	YoY
397 person-times	15.1 times

LONGi's "Supply Chain Green Partner Empowerment Program" for supplier carbon management training

In April 2022, LONGi initiated the Supply Chain Green Partner Empowerment Program, partnering with collaborators to advance energy-saving and emission-reduction goals. In 2023, LONGi conducted carbon management empowerment training, assisting suppliers in analyzing energy use and carbon accounting, and sharing insights from energy-saving technological improvement projects. By the end of the reporting period, the program had completed two sessions, attracting over 550 supply chain personnel to participate.

Carbon management empowerment training of LONGi's Supply Chain Green Partner Empowerment program

04

People and Community

Topics covered in this chapter:

Labor Rights and Interests	44
Employee Development	45
Health and Safety	50
Community Engagement	52

In response to SDGs:

Highlight in this chapter:

75,066 24%	Total full-time employees 75,066 YoY increase of 24%
9,872 508%	Overseas employees 9,872 YoY increase of 508%
2.27 30%	Total annual training hours 2.27 million hours YoY increase of 30%.
2.90 31%	Total hours of EHS training 2.90 million hours YoY increase of 31%.
100%	100% of production bases have been certified with ISO45001 occupational health and safety management systems.
1,798,615.71 19%	Value of charitable donations USD 1,798,615.71 YoY increase of 19%
48 36,000	Carried out 48 charitable donation projects benefiting nearly 36,000 people.

Labor Rights and Interests

Since 2020, LONGi has embraced the United Nations Global Compact's call to action, championing its principles across human rights, labor, environment, and anti-corruption.

LONGi strictly adheres to labor protection laws and regulations both nationally and in the regions it operates. We also comply with labor practice standards, including the United Nations Guiding Principles on Business and Human Rights (UNGPs) and Fundamental Conventions of the International Labor Organization (ILO) by formulating the LONGi Human Rights Policy to **respect and protect human rights throughout our value chain.** To proactively identify and assess potential impacts and risks related to human rights protection, LONGi has implemented company-wide risk-detection procedures and conducts regular reviews.

For more information about LONGi Human Rights Policy, please refer to

LONGi held a training session on the UNGPs

On Dec 28 2023, LONGi invited human rights experts to train employees on the UNGPs. A total of 90 employees attended the hybrid session, which offered systematic information on human rights, including fundamental concepts and practices such as human rights due diligence procedure. This training contributed to a holistic enhancement of our workforce's understanding of human rights due diligence.

LONGi's UNGPs Training

Employee Development

Talent acquisition

Employ various strategies to attract and recruit skilled professional while also promoting internal mobility. To facilitate internal mobility and better deploy our human resources, we have established an internal talent market mechanism and created the "Job Posting."

Ensure equality throughout the hiring and work process. LONGi is dedicated to providing equal development opportunities for employees of both genders and has established the Female Employee Committee. As of the end of the reporting period, 10% of our engineers were female.

In the executive management team stood at

20.27 %

Female representation in junior management was

20.86 %

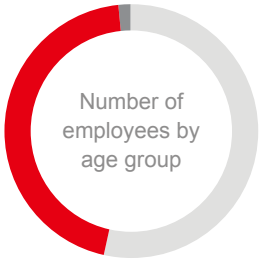
In profit-generating departments (e.g., sales), it was

25.21 %

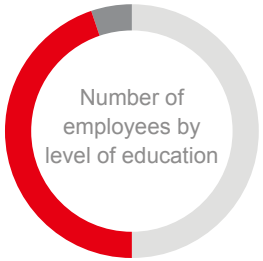
LONGi's employee structure in 2023(Unit: person)

Male	55,033
Female	20,033

Chinese mainland	64,971
Hong Kong, Macao and Taiwan regions of China	7
Overseas	10,088



Below 30	39,861
31-50	34,834
51 and above	371



Below junior college degree	39,821
Junior college or bachelor's degree	32,115
Master degree or above	3,130

Gender diversity	Celebrating workplace gender diversity, equality, and creating equal development platform and opportunities for male and female employees.
Age diversity	Celebrating workplace gender diversity, equality, and creating equal development platform and opportunities for male and female employees.
Region diversity	Actively attracting global talent and hiring employees from over 150 countries and regions.

LONGi's DEI culture

Number of high-level talent LONGi attracted

2023 96 Person

2022 83 Person

Number of international (i.e. non-China) employees LONGi attracted

2023 10,088 Person

2022 1,706 Person

Total number of local hires in overseas bases

2023 9,872 Person

2022 1,623 Person

Number of local hires in Malaysia

2023 5,452 Person

2022 471 Person

Number of local hires in Vietnam

2023 4,420 Person

2022 1,152 Person

LONGi's performance on employee region diversity (2022-2023)

LONGi's round table discussion themed "Accelerating Gender Equality for a Sustainable Future" at COP28

In December, LONGi hosted the "Accelerating Gender Equality for a Sustainable Future" discussion at COP28 Solar+Pavillion and invited representatives from UN Women. As a global solar technology firm, LONGi has witnessed the contributions of numerous outstanding women to the development of clean energy.

LONGi hosting the round table discussion

Provide diversified employee care. We offer a variety of compensation and non-compensation benefits to our employees, adopting a differentiated distribution plan. We have established a two-tier staff council system to listen to employees' demands and opinions in a timely manner. Additionally, we provide group purchase benefits for commercial insurance, adopting a model that includes both critical illness insurance and universal insurance, as well as both benefit type and reimbursement type coverage.

	Employee symposium	Employee symposium participation	Number of feedback raised by employees
Senior employees	140 Times	3,599 Person/times	588
Junior employees	125 Times	2,124 Person/times	540

Share of feedback addressed

100%

100%

Number of feedback received in Chairman's mailbox

235

Share of feedback in Chairman's mailbox addressed

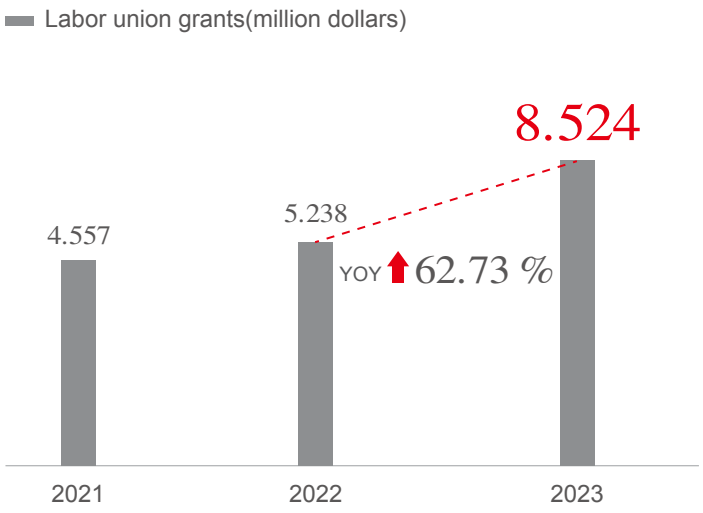
100 %

Employee representatives' meeting

Average communication	Issues collected	Issues closed	Share of issues closed
1.79 Person/times	7,654	7,314	96 %

LONGi's performance on communication with employees in 2023

LONGi's performance in employee care (2021-2023)



Talent cultivation

Offer employees the most suitable career development options and training plans, depending on their performances and stages of development. We established a performance appraisal mechanism, where we regularly confirm the achievement of performance targets with employees prior to assessments. This helps them identify potential risk points and deviations in a timely manner. After the appraisal, we provide communication on their performance rating and further action plans.

During the reporting period,

USD 2,572,632.83

was invested in employee training.

Place great emphasis on the continuous learning and personal growth of employees. In 2023, 7 of our subsidiaries became certified professional skills certifying institutions, and we have reimbursed employees who continued their education with USD12,828.04. A total of 82 employees received additional degrees, and 1,079 obtained professional titles. LONGi has also built a comprehensive talent training system that spans doctoral and post-doctoral education, becoming the Xi'an City Talent Exchange Base and the National Scientific Research Workstation. This forsters the deep integration of talent cultivation, the value chain, and innovation. Our employees participated in the three programs: the UN Global Compact Climate Ambition Accelerator, Target Gender Equality Accelerator, and SDG Innovation Accelerator for Young Professionals, earning certifications in the first two accelerators.

LONGi's performance in talent cultivation in 2023

Total

1,234 Sessions

Wafer Business Unit	1,214
Cell Manufacturing Center	20

Total

20,498 Person

Wafer Business Unit	19,615
Cell Manufacturing Center	883

Total

715 Person

Total

7

Module Manufacturing Center	5
Cell Manufacturing Center	2

LONGi's performance in employee training in 2023

Total training sessions	Total numbers of employees trained	Total employee training attendance[1]	Annual training hours
14,070 Times	75,066 Person	1,278,230 Person	226.99 10 thousand hours
VS 2022 ↑ 368 %	VS 2022 ↑ 24 %	VS 2022 ↑ 167 %	VS 2022 ↑ 30 %

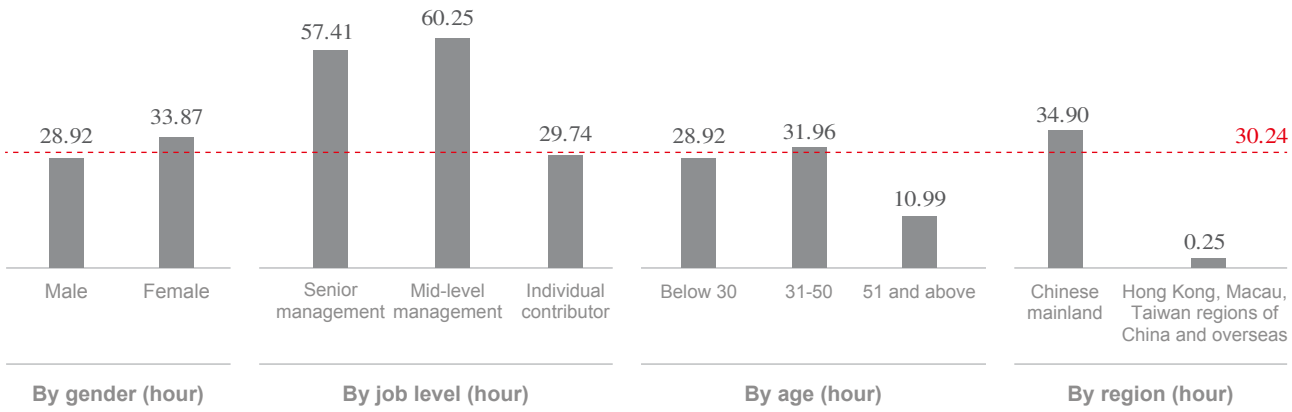
LONGi's average employee training hours in 2023

Average amount spent on training per employee

33.17 USD

Average training hours

30.24 Hour



1. All trainings in 2023 were logged to the online system, indicating a more comprehensive statistics and leading to a more drastic change from the previous year of 2022.

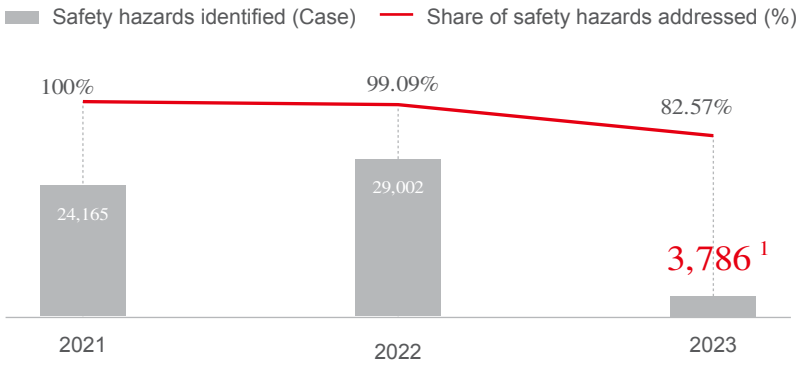
Health and Safety

Build a comprehensive and standardized production safety system. We have established the EHS Committee, representing all employees, overseeing our corporate efforts in occupational health and safety. We have engaged all employees in the identification and assessment of safety hazards to ensure that risks at stages, including engineering, silicon wafers, batteries, PV modules, and power plants, are identified and controlled. Moreover, we have instructed frontline teams to carry out risk control measures, emergency drills, examinations, and training to prevent accidents and incidents. We have established a three-level management system for occupational health and conduct regular monthly and bi-weekly sessions to collect employee feedback.

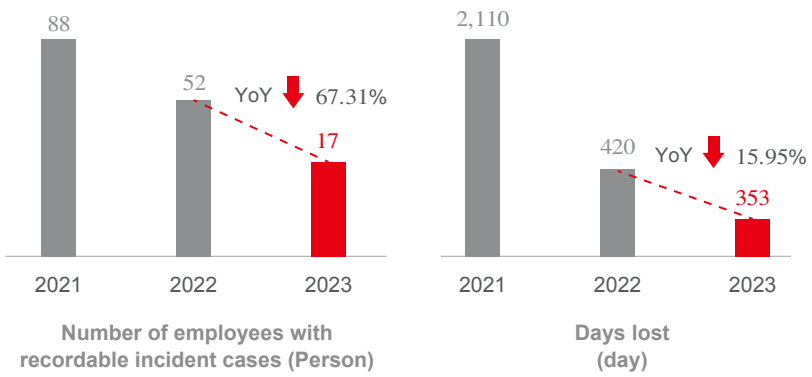
The Group Environment Safety Department	Be responsible for coordinating, organizing, and planning of environment safety work. Develop efficient processes, design enablement plans, oversee, evaluate, and provide profession support to departments under.
Environment Safety Departments in BUs and centers	Be responsible for implementing, organizing, and overseeing environment health work. Provide comprehensive business support and fill the gaps to ensure smooth business operations.
Environment Safety Departments in subsidiaries	Be responsible for implementing environment health tasks. Give timely feedback and show initiative and strict discipline.

LONGi's three-level occupational health management structure

LONGi's performance in production safety (2021-2023)



LONGi's performance in production safety (2021-2023)



1. Prior to 2022, numbers of safety hazards were reported by each manufacturing base. In 2023, LONGi introduced a new practice where department heads in the Group inspect manufacturing bases. As a result of the updated approach, numbers in 2023 look quite different from those in 2022.

LONGi's occupational health and safety performance (2022-2023)

Total hours of occupational health and safety training

2,898,914

Hours

VS 2022 ↑ 31 %

Average EHS training hour

37.38

Hours per person

VS 2022 ↑ 2 %

Total number of occupational health and safety training

4,831

Sessions

VS 2022 ↑ 54 %

Number of emergency drills

2,005

Times

VS 2022 ↑ 71 %

In the past year,

443 emergency drills and risk examinations were conducted

156 improvements were made to EHS technologies

188 production safety activities were carried out

the attendance at production safety training reached

189,600

LONGi's innovative Fire Prevention Month activities

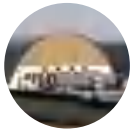
From November to December, to enhance employees' skills in health and safety protection and emergency response, LONGi, in collaboration with the local government held a fight fighting-themed sports meeting. Through an innovative model incorporating advocacy, training, competition, practice, and inspection, we engaged 87,603 individuals in the project, with 97.7% of them passing the review. Additionally, 67,154 individuals participated in the firefighting skill competition, covering 89.8% of all activity participants. We conducted 58 emergency drills and 110 topic-centered inspections, achieving a 100% coverage rate for both.

LONGi's fire prevention month activity in 2023

Community Engagement

1 PV module products donated by LONGi to AL Zaharaa hospital in Lebanon

In March 2023, LONGi donated 20kW of its highly efficient Hi-MO X6 module products to Al Zaharaa hospital in Beirut, the capital of Lebanon, alleviating the pressure on the hospital's energy supply.



2 Cooperation with UNHCR at COP28

In December 2023, LONGi announced a partnership with UNHCR at COP28.

3 Build a "Zero-Carbon Village"

In April 2023, LONGi introduced the "LONGi Sunflower" one-stop digital household solutions equipped with PV technology in Yaozhou District, Tongchuan City, Shaanxi Province.

4 A Thai island illuminated by LONGi off-grid PV system

LONGi launched the project "Lighting up Koh Jik" in 2020 and has completed the development, financing, installation and operation of the project by the end of 2023.

5 Training of technical personnel

In January 2024, Malaysian government officials from Selangor state visited the LONGi solar module plant in Serendah.

Value of charitable donations USD	Carried out
1,798,615.71	48 charitable donation projects
YoY ↑ 19 %	YoY ↑ about 60%

Promotion of “low-carbon” concept

LONGi partners with ATP for Zero Carbon Race Program: LONGi and the ATP Tour organized tournaments in 11 regions, including Madrid, Halle, Shang Hai, Tokyo and Turin, where a global energy initiative called "PLAN GET" was launched to pioneer the sustainable development of green sports and promote the "low-carbon" concept within communities.

“Breathing New Life into Old Items”

- At the tournaments in Madrid, Halle, Shanghai, Turin and other regions, LONGi set up green energy zones for exhibition and interaction, where recycling stations were placed so that the audience of the tournaments could deposit used balls and other PVC/PET products in exchange for beautiful and exclusive gifts.
- Those recycled old items will then be processed into environmentally friendly products for those in need.

The Zero-Carbon PV cabin

- LONGi set up a zero-carbon PV cabin near the arena of the Rolex Shanghai Masters.
- The cabin featured a variety of photovoltaic products for its energy supply, offering the audience an experience of a green, low-carbon life.
- LONGi also prepared a rest and charging area outside the arena, equipped with PV power generation technology to meet the fans' mobile phone charging needs.

Your Feedback

Dear readers,
Thank you for reading the *LONGi Green Energy 2023 Sustainability Report*. In our continuous efforts to elevate LONGi's sustainability practices and the quality of our report preparation, we invite you to scan the QR code to fill out a feedback form. If you have any questions or suggestions about the report, please don't hesitate to reach out and contact us.

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