

2023

Summary of Environmental Social and Governance Report

Shanghai Putailai New Energy Technology Co.,Ltd.



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01

About PTL

1.1. Overview

1.2. 2023 Key Performance









About PTL

Overview

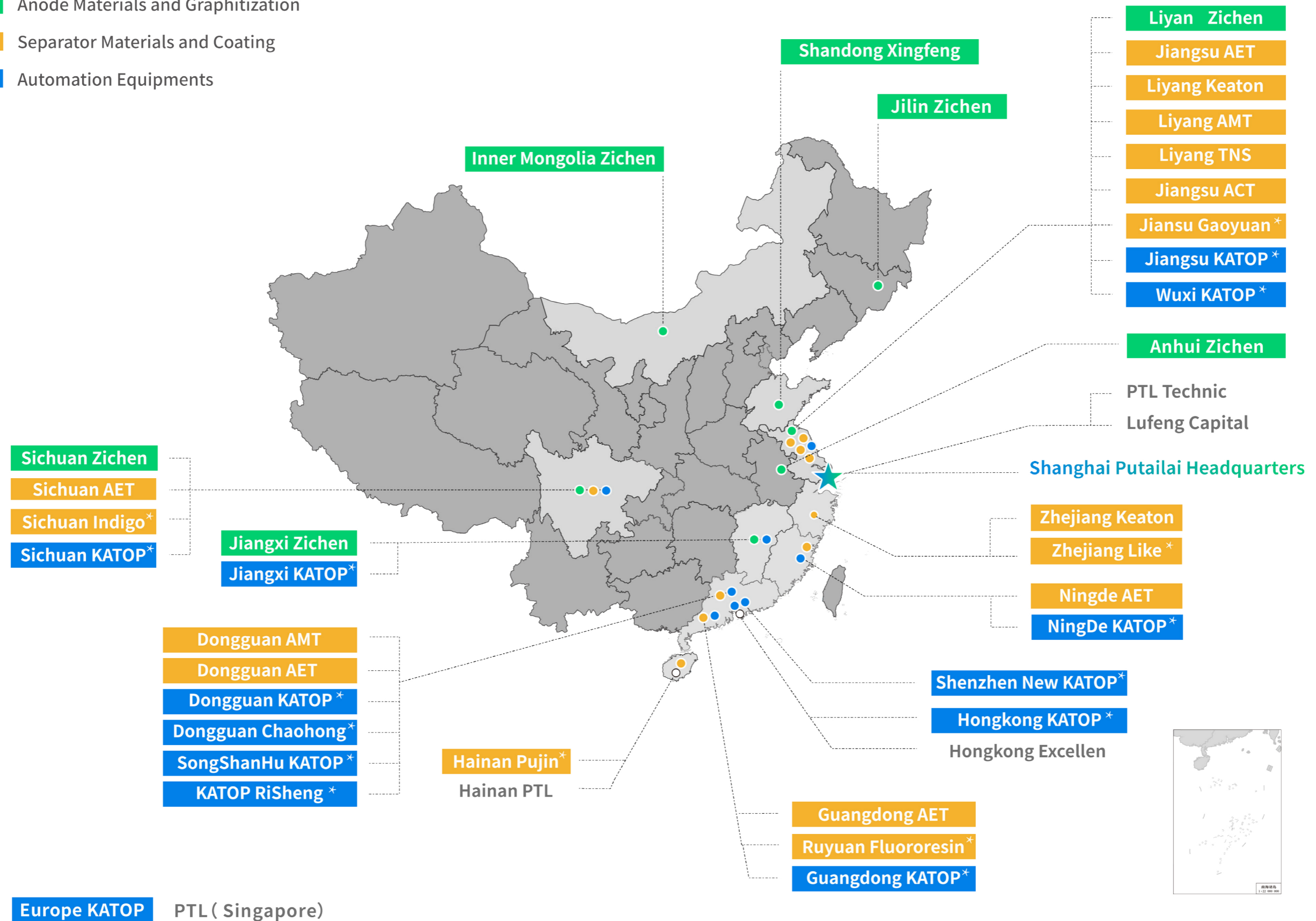
Established in 2012, PTL is headquartered in Shanghai. In 2017, PTL became publicly listed on the Shanghai Stock Exchange (stock code: 603659.SH). PTL aims to be a world-class provider of comprehensive solutions for key materials in new energy batteries and automation equipment. By the end of 2023, PTL had established over 40 wholly-owned or majority-owned subsidiaries.

PTL Basic Information

Name	Shanghai Putailai New Energy Technology Co., Ltd. (PTL)
Headquarters Address	No. 116, Lane 456, Dieqiao Road, Pudong New Area, Shanghai
Main Business	Manufacturing and processing of anode materials and graphite, separator and coating processing, PVDF and binders, composite current collectors, aluminum-plastic packaging films, nano-aluminum oxide and boehmite, as well as automation process equipment for the new energy battery industry (including lithium-ion batteries, sodium-ion batteries, photovoltaics, etc.), materials for anode and cathode electrodes, separator, and automation equipment for emerging photovoltaic fields
Operating Locations	Shanghai, Jiangxi, Guangdong, Fujian, Jiangsu, Shandong, Inner Mongolia, Sichuan, etc.

 <p>Registered Capital CNY 2.14 billion</p>	 <p>Total Assets CNY 43.68 billion</p>	 <p>Operating Revenue CNY 15.34 billion</p>	 <p>Total Employees 11,627</p>
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- Anode Materials and Graphitization
- Separator Materials and Coating
- Automation Equipments



2023 Key Performance



Economic Performance

Total Operating Revenue (CNY)

15.34 billion

R&D Expenditure (CNY)

960.65 millio

Operating Profit (CNY)

1.91 billion

Cumulative Granted Patents

1,044



Environmental Performance

Total Greenhouse Gas Emissions

915,035

Tons of carbon dioxide equivalent

Annual Environmental Investment (CNY)

153.67 million



Social Performance

Average Training Duration per Employee

30 Hours

Community Outreach Investment Sum (CNY)

2.42 million



02

ESG Management

2.1. ESG Management Structure

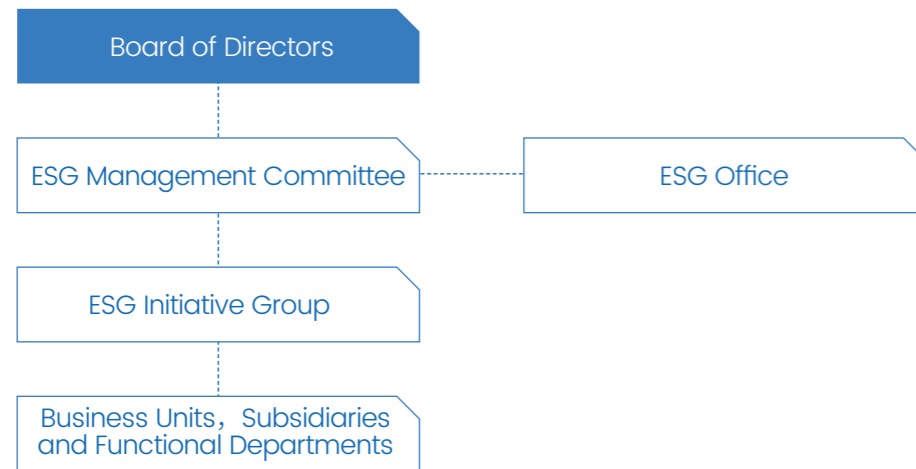
2.2. Stakeholder Communication

ESG Management

ESG Management

PTL is dedicated to advancing clean energy and environmental protection, aiming to create a better world. PTL continuously enhances environmental management, strengthens social responsibility, and improves corporate governance. In 2023, PTL established an ESG Management Committee to formulate action plans and monitor progress.

ESG Management Structure



Roles of the ESG Committee

- Develop ESG management policies, goals, strategies, and frameworks, and regularly review the company's ESG performance;
- Identify and assess ESG risks and opportunities, identify material issues, review the effectiveness of the company's management systems, and integrate ESG factors into management and business decision-making processes;
- Regularly review communication channels with stakeholders, ensure policy effectiveness, and improve the quality of ESG information disclosure;
- Review and evaluate the performance and authority scope of the ESG Committee, proposing reasonable changes for approval by the Board of Directors;

Stakeholder Communication

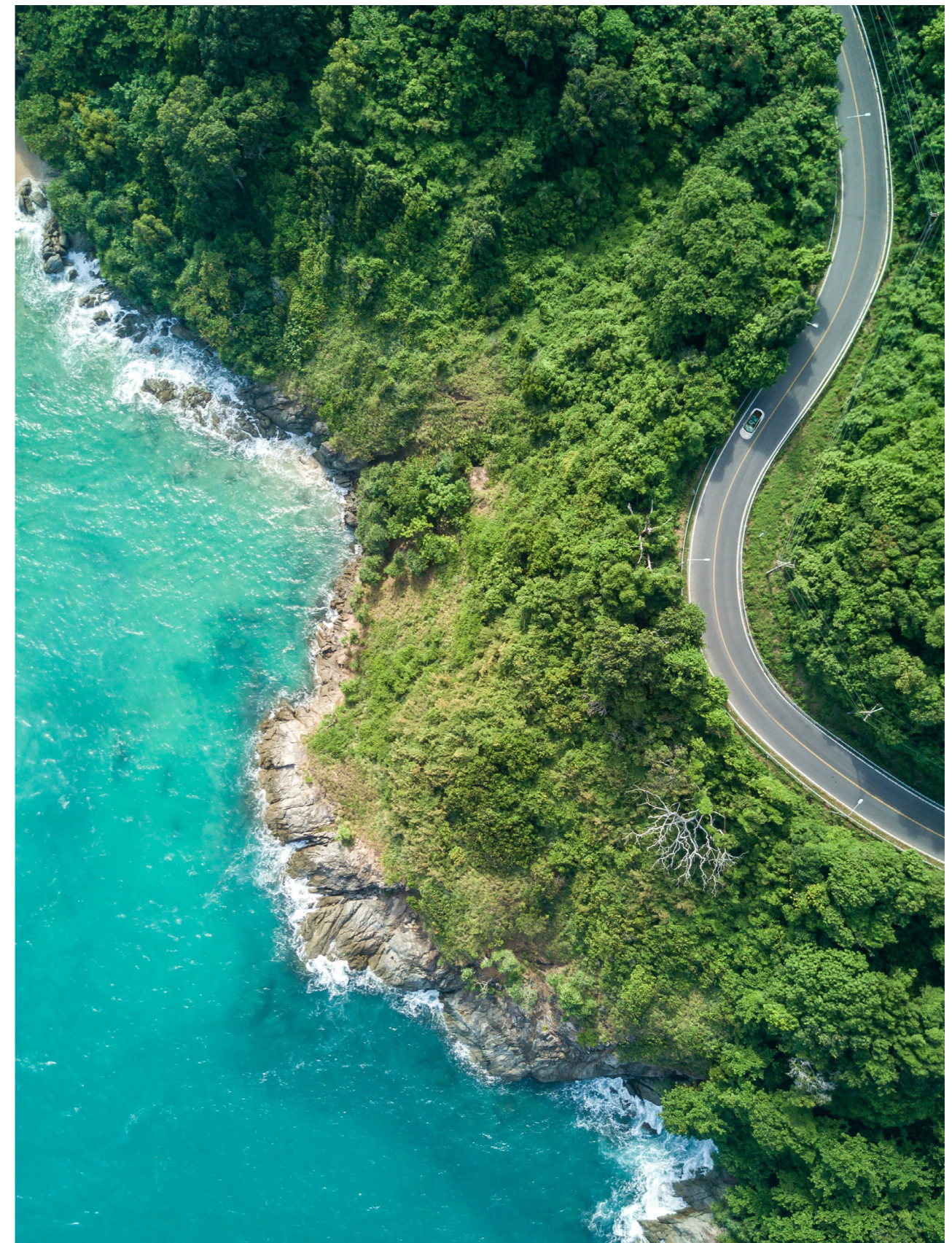
PTL integrates ESG management into the daily operational decisions, prioritizes and maintains effective communication with stakeholders, and fully considers their long-term interests.

Aligning with its development strategy and societal needs, PTL has identified six main stakeholders, including shareholders and investors, customers, employees, government and regulatory agencies, suppliers and partners, and communities.



Key Stakeholders and Communication

Key Stakeholders	Stakeholder Representatives	Concerns	Communication and Response
Investors	Company Shareholders and Potential Investors	Company Governance, Compliance and Risk Management, Business Ethics, Technological Innovation, Climate Change Adaptation, Green Products, Intellectual Property Protection	Shareholders' Meetings, Financial Reports, ESG Reports, Performance Reports, Roadshows, Surveys, Investor Hotlines and Emails, Conference Calls, etc.
Employees	General Manager, Department Heads, Employee Representatives, etc.	Occupational Health and Safety, Employee Rights and Benefits, Employee Training and Development, Energy Management, Water Resource Management, Emissions and Waste Management, Chemical Substance Management, Environmental Management Systems.	Employee Activities, Employee Representative Conference Activities, Union Activities, Company Intranet, Employee Training, Employee Handbook, etc.
Customers	New Energy Battery Manufacturers, New Energy Vehicle Manufacturers, etc.	Product Quality Management, Green Products, Chemical Substance Management, Customer Service Management, Technological Innovation, Company Governance, Energy Management.	Product Exhibitions, Customer Surveys, Technical Workshops, Customer Hotlines, Customer Satisfaction Surveys, etc.
Government and Regulatory Agencies	National/Local Governments of Operating Locations, Shanghai Stock Exchange.	Company Governance, Business Ethics, Occupational Health and Safety, Green Products, Climate Change Adaptation, Water Resource Management, Emissions and Waste Management, Energy Management.	Institutional Inspections, Policy Enforcement, Information Disclosure, etc.
Suppliers and Partners	Direct Material Suppliers, Indirect Material Suppliers, Service Suppliers, Agents, as well as National/Local Industry Associations and Collaborating Universities	Supply Chain Management, Product Quality Management, Chemical Substance Management, Technological Innovation, Climate Change Response, and Energy Management	Telephone Communication, Periodic Visits, Academic Workshops, Industry Exhibitions, Industry Training, and Exchange Meetings.
Public and Communities	Non-governmental Organizations, Charitable Organizations, Mainstream Media, and Local Community Residents	Community Development, Public Welfare and Charity, Industrial Development, Green Products, Energy Management, Water Resource Management, and Chemical Substance Management	Press releases, Social Media Engagement, Event Participation, Surveys, Community Volunteer Activities, Social Welfare Projects, and Community Support Projects



03

2023 Focus Issue (1): Addressing Climate Change

3.1.Low-carbon Production and Operations

3.2.Management System for Addressing
Climate Change



2023 Focus Issue (1): Addressing Climate Change

As a key participant in the new energy industry, PTL actively sets its own carbon neutrality goals, aligning with national goals such as "peak carbon emissions by 2030 and carbon neutrality by 2060," and contributing to the global transition to net-zero emissions. PTL has established a governance system and carbon reduction management mechanisms to address climate change, identify risks and opportunities, and continuously improve the company's climate management capabilities.

Low-carbon Production and Operations

PTL adheres to the GHG Protocol and ISO 14064 standards, regularly conducts internal greenhouse gas accounting for its subsidiaries, and gradually expands coverage by obtaining third-party certification for certain sites. In 2023, four subsidiaries Liyang Zichen, Jiangxi Zichen, Inner Mongolia Zichen Xingfeng, and Ningde AET conducted greenhouse gas inventories following ISO 14064-1:2018 guidelines and received greenhouse gas verification statements from third-party organizations. Additionally, Jiangxi Zichen conducted carbon footprint accounting for its battery materials products according to ISO 14067:2018 and obtained a carbon footprint report from a third-party organization, serving as the foundation for the company's targeted carbon reduction initiatives.

PTL's Goals in Response to Climate Change

- By 2025, PTL aims to have 50% of its energy sourced from renewable sources, increasing to 100% by 2030.
- By 2030, PTL aims to reach peak greenhouse gas emissions from its operations, with some subsidiaries leading in achieving carbon neutrality.

PTL's Climate Change Highlights and Performance in 2023

Total greenhouse gas emissions have decreased by 5.57% in 2023.

Types of Emissions	Units	2022	2023
Scope 1 Greenhouse Gas Emissions	Tons of carbon dioxide equivalent	47,729.21	68,538.98
Scope 2 Greenhouse Gas Emissions	Tons of carbon dioxide equivalent	921,284.56	846,495.86
Total Greenhouse Gas Emissions	Tons of carbon dioxide equivalent	969,013.77	915,034.84

Tips:

- [1] Scope 1 emissions: the direct greenhouse gas emissions produced by sources that are owned or controlled by the company.
- [2] Scope 2 emissions: the indirect greenhouse gas emissions generated by the company's consumption of purchased electricity and other sources.



Green Energy

PTL adheres to the concept of sustainable development, focusing on optimizing energy management to reduce emissions in its operations, improving energy structure, and enhancing energy efficiency.

PTL continues to prioritize the optimization of its carbon reduction strategy through the expansion of renewable energy usage. The company actively promotes the construction of distributed photovoltaic systems. As of the end of 2023, PTL has completed rooftop photovoltaic projects that have been connected to the grid, constructed, and tendered, with an installed capacity of 72.5 MW. These projects generate about 72.09 million kilowatt hours of power per year, saving 8,860 tons of standard coal and avoiding approximately 41,113 tons of carbon dioxide emissions annually.

Through renewable energy trading, PTL achieved a renewable energy usage rate of 11.5% in 2023, with green electricity accounting for 14.06% of total electricity usage.



Digital Technology Facilitating Carbon Reduction at the Energy Front

To enhance PTL's energy and carbon emission management capabilities and facilitate data collection and emission accounting, PTL has developed the "PTL Energy and Carbon Emission Management System" on a digital platform.

This system enables one-click import of production data, automatic aggregation and calculation of activity data and emission factors, and offers analysis functions, effectively improving the accuracy and efficiency of carbon data collection and calculation. In 2023, all corporate facilities have utilized this system to conduct monthly statistical summaries of carbon emission data. PTL continuously refines the system's functionalities to enhance its monitoring, accounting, and analysis capabilities for greenhouse gas emission.



操作	年月	单位编码	单位名称	活动设施	排放范围	
<input type="checkbox"/> 编辑 更多	2023-12-25	38	东莞市惠拓自动化...	南方电网	间接温室气体排放	输入
<input type="checkbox"/> 编辑 更多	2023-12-25	08	江西嘉拓智能设备...	商务用车	直接温室气体排放	
<input type="checkbox"/> 编辑 更多	2023-12-25	08	江西嘉拓智能设备...	清扫车、叉车、内...	直接温室气体排放	
<input type="checkbox"/> 编辑 更多	2023-12-25	08	江西嘉拓智能设备...	厂区化粪池	直接温室气体排放	
<input type="checkbox"/> 编辑 更多	2023-12-25	08	江西嘉拓智能设备...	华中电网	间接温室气体排放	输入
<input type="checkbox"/> 编辑 更多	2023-12-25	15	江苏中关村嘉拓新...	商务用车	直接温室气体排放	

Green Manufacturing

PTL continues to implement energy-saving and efficiency improvement measures in production and manufacturing to improve energy utilization efficiency. In 2023, PTL executed numerous energy-saving optimization projects for both process and public auxiliary equipment, saving a total of 7.74 million kWh of electricity, 152,000 m³ of natural gas, and 10,350 tons of steam, thereby avoiding emissions of approximately 7,851 tons of carbon dioxide equivalent. In addition, PTL requires suppliers to use high energy efficiency components for newly provided equipment, ensuring energy conservation and emission reduction during the production phase.

Green Advocacy

In 2023, PTL conducted a series of themed energy-saving and carbon reduction training sessions, covering topics such as energy management, green factory construction, and carbon asset management. During the 33rd National Energy Conservation Publicity Week, PTL organized various colorful publicity activities around the theme of "Energy Saving and Carbon Reduction, Walking Together". These activities included organizing employees in prize-winning quizzes and collecting excellent energy-saving case studies to raise awareness of energy conservation and emission reduction among all staff members.



Management System for Addressing Climate Change

Climate Governance Framework

PTL has established a "Dual Carbon" joint working group, with a three-tier organizational structure comprising decision-making, execution planning, and operation. The leadership team integrates climate action resources across departments, makes decisions and deployments for major projects, and reports to the board of directors. In terms of planning and implementation, the Carbon Emission Reduction and Energy Comprehensive Management Department coordinates functional departments of various subsidiaries to execute relevant decisions.

Furthermore, PTL incorporates phased implementation performance of carbon reduction targets into the performance evaluations of relevant department heads and has established a comprehensive assessment and evaluation system.

Identification of Risks and Opportunities

Based on industry characteristics and operational geographical factors, PTL systematically identifies and evaluates climate-related risks and potential opportunities that may arise during its operations. Subsequently, the company has constructed a comprehensive climate risk and opportunity assessment matrix. PTL prioritizes these risks and opportunities by quantifying the likelihood of occurrence and the depth of impact on the enterprise. Based on this assessment, it PTL formulates targeted climate change response strategies and action plans.

04

2023 Focus Issue (2): Chemical Safety

4.1. Chemical Substance Management System

4.2. Chemical Substance Lifecycle
Management



2023 Focus Issue (2): Chemical Safety

Chemical Substance Management System

PTL adheres to the concept of continuous improvement and is committed to environmental protection advocacy. To comply with current national and industry chemical requirements, PTL strengthens the management of across their entire lifecycle. The company establishes a chemical substance management system from R&D to manufacturing, prioritizing the use of environmentally friendly and safer raw materials. Through advanced production technologies and process management measures, PTL achieves effective utilization and compliant disposal of chemicals, providing customers with greener and more environmentally friendly products and services.

PTL has established a comprehensive chemical substance management organizational structure. This includes a Chemical Substance Management Committee led by the Vice General Manager, which coordinates cooperation among various departments including environmental safety, quality, and research and development. PTL also strengthens chemical assessment, storage, and testing systems to ensure sounder, safer and more comprehensive chemical management throughout the lifecycle. PTL also establishes a transparent data and information collection and sharing archive system to promote the development and iteration of chemical substances with environmentally friendly advantages.



Chemical Substance Lifecycle Management

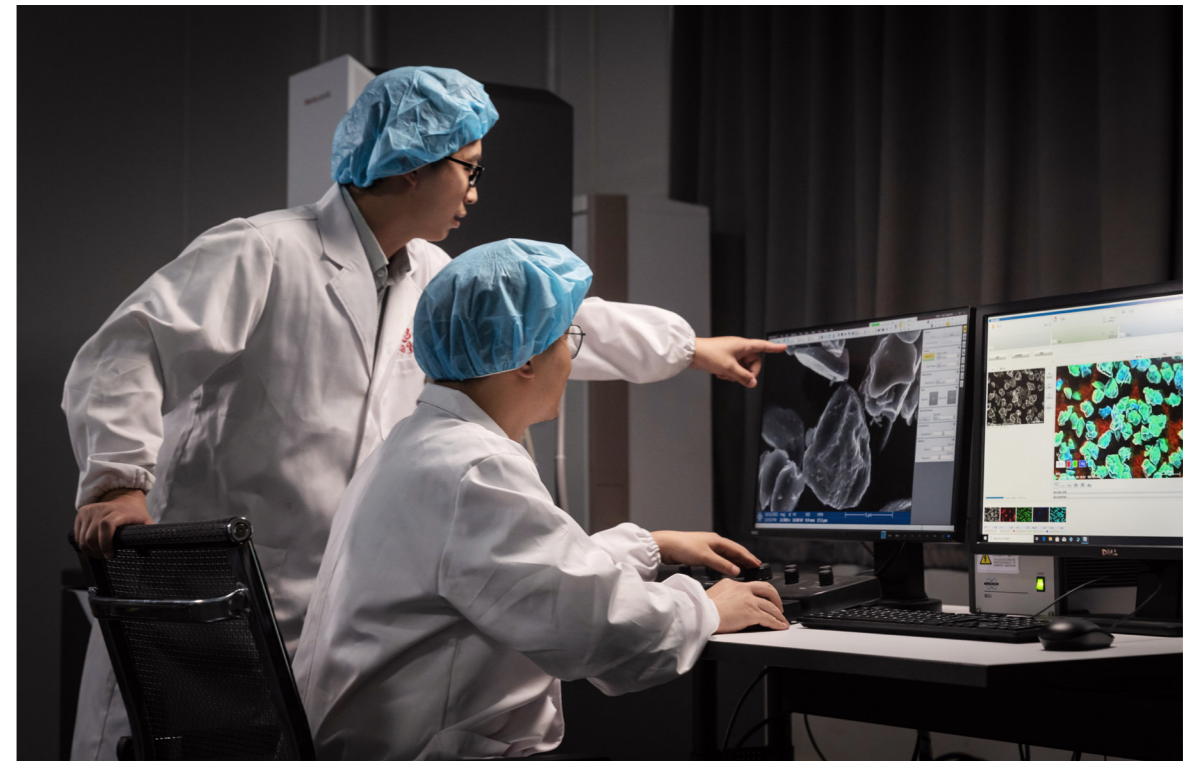
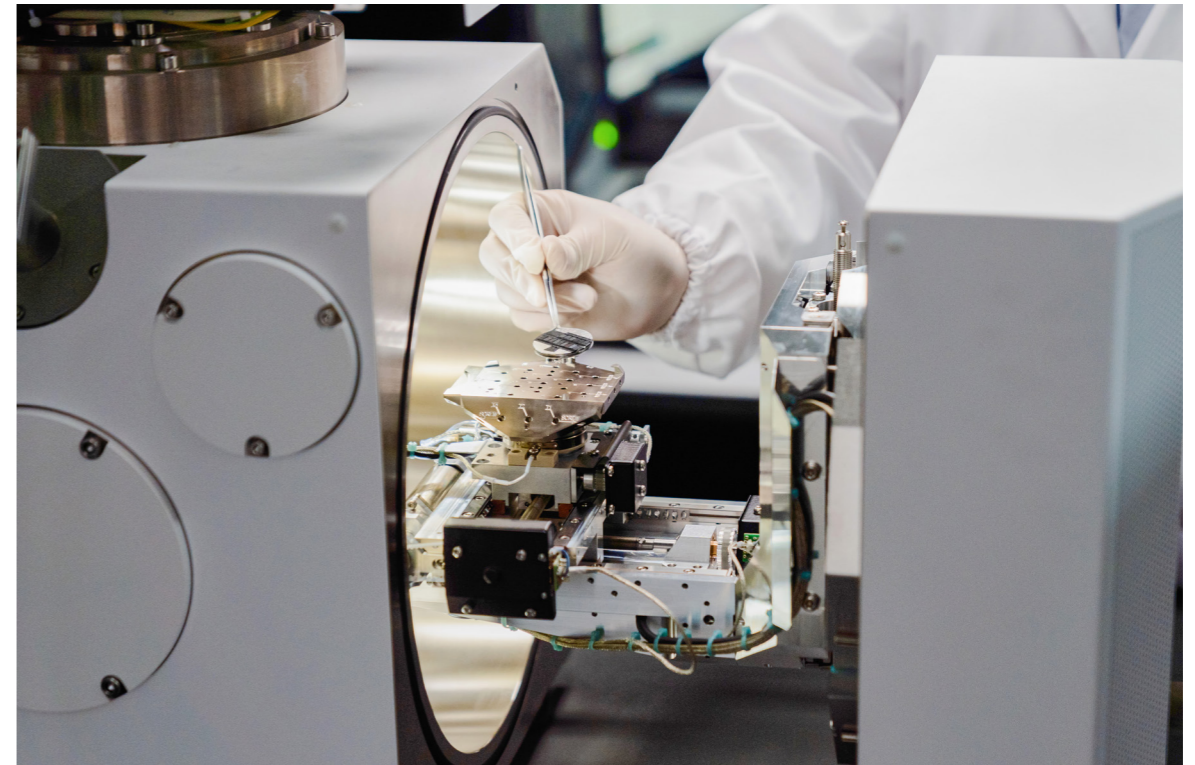
PTL has implemented a closed-loop chemical substance management system that covers the entire product lifecycle, from development and procurement to production, shipping, and testing, to classify and control harmful substances and banned substances throughout the production process.

PTL's Closed-loop Chemical Substance Management Across Product Lifecycle

	Anode Material	Separator and Coating
Management System	<ul style="list-style-type: none"> Management of Prohibited Substances 	<ul style="list-style-type: none"> Hazardous Substance Management Procedure
Product Development	<ul style="list-style-type: none"> Establishment of an independent research institute responsible for conducting hazardous substance compliance assessments during product design, eliminating any harmful substances that do not meet regulations. "Introduction of Environmental Design Concepts for Products, Continuously Optimizing Procedures to Incorporate Environmental Impact Factors into Product Design and Development Activities". 	<ul style="list-style-type: none"> Establishment of Polymer Film Synthesis Laboratory, Polymer Film Coating Laboratory, Optical Film Laboratory, and Materials Analysis Center to Support Product Research and Development, Production, and Quality Testing Work. According to customer requirements for environmental management substances, conduct Advanced Product Quality Planning (APQP) or reviews for products. When exempt materials are used, an implementation plan for reducing or eliminating hazardous management substances is required.
Raw material procurement	<ul style="list-style-type: none"> Require raw material suppliers to sign the Toxic and Hazardous Substances Management Agreement and the Certificate of Non-Use of Prohibited Substances. Regularly conduct audits on suppliers related to hazardous substance management to prevent non-environmentally friendly materials from entering the company's product chain. 	<ul style="list-style-type: none"> Require suppliers to provide a 'Certificate of Non-Use of Hazardous Substances' and third-party testing reports on material composition/hazardous substance content compliance for new materials or rectified materials (rectified materials refer to those that require an 8D corrective action report and have been accepted upon inspection) before supplying them.
Production Process	<ul style="list-style-type: none"> Provide training to personnel in storage and production areas on the 'Requirements for Hazardous Substance Management. Utilize environmentally friendly facilities and equipment. Conduct compliance confirmation of hazardous substances for raw materials and packaging materials. 	<ul style="list-style-type: none"> Implement comprehensive quality control of product quality throughout the process according to procedures such as 'Production Process Control Procedure, Monitoring and Measurement Control Procedure, Non-conforming Product Control Procedure, and Product Release Control Procedure.
Product Shipping	<ul style="list-style-type: none"> Provide customers with product material composition information and hazardous substance test reports upon product shipment. 	<ul style="list-style-type: none"> Verify the 'Restricted Substance Ingredient Investigation Form' and test reports for hazardous substance content.
Hazardous Substance Testing	<ul style="list-style-type: none"> Commission third-party testing agencies to annually test finished products for compliance with hazardous substances, minimizing environmental risks associated with materials. 	<ul style="list-style-type: none"> Conduct semi-annual and annual third-party testing to confirm compliance with type tests.

Green Innovation Practice: Replacement of Harmful Substances in Products

PTL keeps exploring solutions to replace harmful substances in raw materials to protect the environment. Research is underway to de-fluorinate polyvinylidene fluoride (PVDF) materials. In the production processes of anode materials, PTL is studying resin and biomass environmentally friendly materials as alternatives to asphalt, aiming to reduce the emission of benzene-containing substances. During the reporting period, PTL continued to strengthen technological innovation. In some processes, non-toxic and non-hazardous solvents are used instead of organic solvents to minimize environmental pollution and safety risks. By replacing solvent systems and using more environmentally friendly water-based binders instead of volatile oil-based binders, PTL reduced the total amount of oil-based binders by 38% and 52% in these processes, respectively, while ensuring product quality remains unchanged.



05

Standardized Governance: Exchanging Stable Growth with Integrity Management

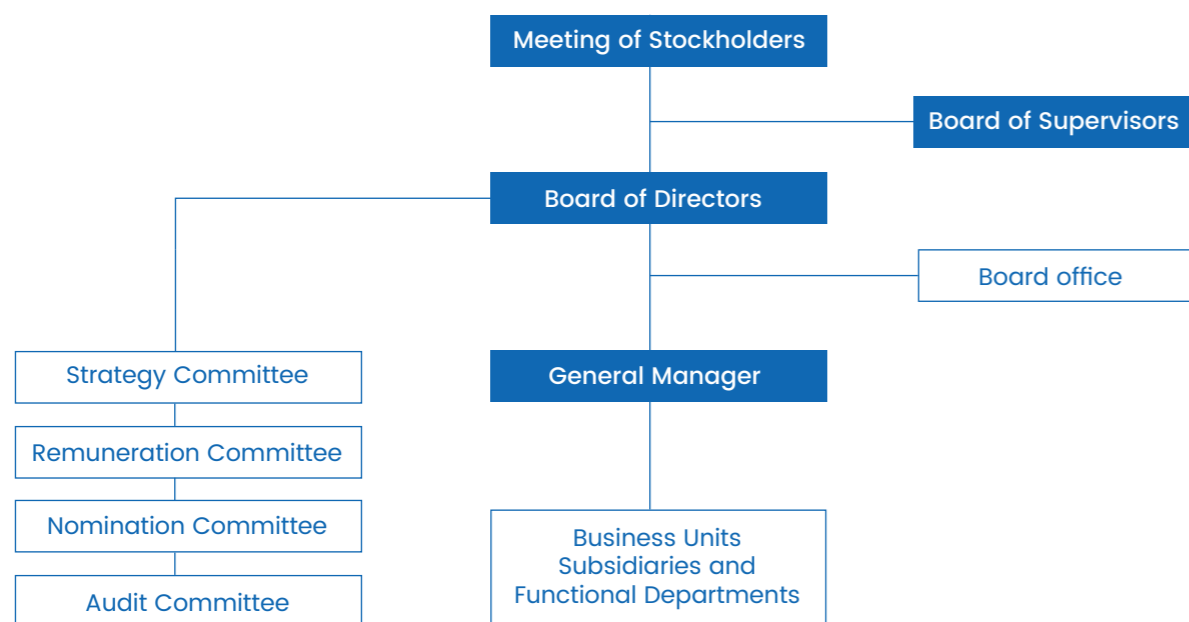
- 5.1. Corporate Governance
- 5.2. Compliance Operations and Risk Management
- 5.3. Business Ethics
- 5.4. Intellectual Property Protection

Standardized Governance: Exchanging Stable Growth with Integrity Management

Corporate Governance

PTL prioritizes corporate governance to ensure stable operations and protect shareholder interests. PTL adhere strictly to legal requirements and guidelines, fostering a high-standard governance structure to manage risks effectively and create value. PTL's streamlined governance mechanisms ensure coordination and balance among key bodies, promoting sound decision-making, supervision, and operation.

Governance Structure of Putailai



Directors and Supervisory Board and Overview of Related Meetings



Management of Related Party Transactions

To improve operational standards and protect the company and shareholders' rights, PTL has created the "Related Party Transaction Decision-making System" to regulate related-party transactions strictly. The audit committee confirms related-party lists and promptly reports any such relationships to the board and supervisory board for disclosure.

Performance and Compensation for Directors, Supervisors, and Senior Management

PTL implements rigorous compensation decision-making processes to ensure that the remuneration of directors, supervisors, and senior management aligns with the company articles. Compensation plans are formulated by the Compensation and Appraisal Committee and require approval from the Board of Directors and Shareholders' Meeting before implementation. The Supervisory Board and Independent Directors provide oversight and have the authority to offer opinions on compensation plans.



Compliance Operations and Risk Management

PTL prioritizes compliance and risk management, strictly adhering to applicable laws and regulations in all business activities. Operating under the principle of aligning internal regulations with external requirements, PTL ensures that its operations comply with laws such as the Company Law and Securities Law of China, as well as internal rules like the Articles of Association and meeting regulations. Clear decision-making authorities are established for financial management, fund management, related-party transactions, information disclosure, and investor relations across Shareholders' Meetings, Board Meetings, and the General Manager's Office. Additionally, PTL has developed risk management systems like the Internal Control System to continually enhance its ability to manage and address both internal and external risks, ensuring the company's sustained development.

Effective risk management is vital for PTL's stable operations and sustainable growth. PTL has built a risk management framework to support strategy implementation and integrity.



PTL Risk Identification and Mitigation Measures

Risk	Mitigation Measures
Strategic Planning Risks	PTL formulates strategic objectives, decomposes appropriately them and implements them into specific business modules to ensure the achievement of strategic goals.
Operational Management Risks	Talent reserves, sales and procurement supervision, information security, R&D investment, intellectual property framework.
Financial Risks	Strict control of cash flow, closely monitoring exchange rate fluctuations.
Environmental and Safety	Emphasizing environmental protection and implementing safety inspections

In 2023, PTL conducted specialized compliance training for key departments. Contract security training was provided for sales, procurement, and other business personnel to mitigate compliance and business risks related to accounts receivable.

To further enhance the company's risk management capabilities and strengthen internal controls, PTL implemented an internal control evaluation system comprised of five elements: internal environment, risk assessment, control activities, information and communication, and internal supervision, aiming to implement risk management effectively.

Internal Control Evaluation System

The Five Elements of Internal Control Evaluation System

Internal Environment	Evaluation of Organizational Structure, Development Strategy, Human Resources, Corporate Culture, and Social Responsibility
Risk Assessment	Identification and Evaluation of Goal Setting, Risk Identification, Risk Analysis, and Response Strategies in Daily Operations Management Processes
Control Activities	Identification and Evaluation of the Effectiveness of Design and Operation of Control Measures and Processes for Various Business Operations within the Company
Information and Communication	Identification and Evaluation of Timeliness in Information Collection, Processing, and Transmission, Integrity of Anti-Fraud Mechanisms, Accuracy of Financial Reports, Security of Information Systems, and Effectiveness of Internal Control Implementation Utilizing Information Systems
Internal Monitoring	Identification and Evaluation of Management's Tone for Internal Oversight, Effectiveness of Supervision, and the Scientific, Objective, and Rational Identification of Internal Control Deficiencies

In 2023, PTL completed a total of 62 audits, including 12 routine audits, 33 special audits, and 17 infrastructure audits, covering both the company and its 26 subsidiaries. Based on the significance of identified issues, PTL developed risk rectification and follow-up plans, conducting spot checks to track the progress of rectification measures. Additionally, PTL organized learning sessions on typical cases and risk response methods, continuously optimizing risk management processes, revising and improving risk management policies, and consistently enhancing the company's risk management capabilities to prevent the recurrence of related issues in operations.

Business Ethics

PTL is committed to fostering an honest, fair, and non-corrupt business environment and continually enhancing its and employees' business ethics standards. PTL strictly complies with laws and regulations, outlining norms and standards for employees and suppliers in its "Business Code of Conduct" and "Anti-Fraud Reporting Procedures." Through preventive measures, accessible reporting channels, and employee awareness programs, the company establishes a positive internal ethics environment and promotes a culture of integrity.

PTL actively promotes a transparent, honest, and trustworthy business philosophy to customers, refraining from false advertising and ensuring accurate information dissemination. It also publicly discloses anti-fraud reporting contacts and establishes anti-corruption supervision and reporting procedures to handle reports effectively.



PTL Report Email and Address

- Report Email: afi@putailai.com
- Report Address: Audit Department, No. 116, Lane 456, Dieqiao Road, Pudong New Area, Shanghai

PTL prioritizes whistleblower protection, safeguarding their personal, property, work, democratic, reputation, and other legal rights to ensure their identity protection and prevent retaliation. It establishes clear rules for legally protected anonymous reporting in the "PTL's Business Code of Conduct", ensuring confidentiality. Additionally, PTL conducts regular integrity training and activities to strengthen employees' legal and compliance awareness. In 2023, anti-corruption training was provided to board members and all employees to enhance their adherence to business ethics standards.



PTL Business Ethics Initiative



Intellectual Property Protection

As an innovative enterprise, PTL is dedicated to establishing a robust intellectual property protection system, adhering to relevant laws and regulations. Subsidiaries develop policies under the company's guidance to ensure smooth intellectual property protection. In 2023, KATOP Intelligent and Liyang Zichen obtained the GB/T 29490 Enterprise Intellectual Property Management System certification. The company has streamlined workflows for patent application, evaluation, rewards, and risk management, facilitated by an intellectual property information system for comprehensive management.

PTL Intellectual Property Protection Measures in 2023

Measures	Progress in 2023
Protection of Intellectual Property for Innovative Achievements	The company proactively focuses on technology innovation and safeguarding proprietary intellectual property rights. It conducts pre-research risk assessments on intellectual property for new products and closely tracks patent applications and protection during the research and development process.
Intellectual Property Infringement Risk Assessment	PTL commissions third-party professional organizations to conduct intellectual property infringement risk assessments on key products and prepare infringement comparative analysis reports. For significant projects and products, the company conducts dual assessments, both internal and external, to ensure thorough evaluation.
Employee Agreement Signing	The company signs confidentiality agreements with each new employee upon hire, including inquiries about intellectual property matters and signing non-compete agreements as part of due diligence for research and development, supply chain, and certain functional positions.
Intellectual Property Protection Training	PTL conducts intellectual property training for the R&D and Technology departments annually. In 2023, a total of 3 intellectual property training sessions were held, covering 140 participants.

In 2023, PTL did not encounter any illegal or non-compliant events related to intellectual property, nor did such matters result in any litigation. As of December 31, 2023, PTL had obtained 1,044 patents and 52 software copyrights.

06

Product First, Value Chain Partners Rewarded with Quality Service

- 6.1.Product Innovation in Technology
- 6.2.Product Quality Management
- 6.3.Customer Service Management
- 6.4.Supply Chain Management

Product First, Value Chain Partners Rewarded with Quality Service

Product Technology Innovation

Leading in Products Technological Innovation

PTL is committed to leading the industry through its R&D, quality, and customer service. With a keen insight into new energy trends, PTL prioritizes development of excellent new materials, processes, and products. In 2023, PTL invested CNY 960.65 million in R&D, accounting for 6% of its revenue.

PTL combines independent and collaborative R&D efforts. With a team over 1,300 experts and research institutions like the Anode Material Research Institute, it accelerates innovation. The company collaborates with leading industry players to drive cutting-edge technology development.

By empowering the new energy sector, PTL not only maintains its industry-leading position but also offers competitive products and services to customers while supporting raw material suppliers, contributing to industry progress. In 2023, PTL participated in the 15th China International Battery Fair (CIBF2023) and co-hosted the "2023 High-tech Lithium Battery Materials Conference," sharing insights and fostering industry innovation.



Green Product Innovation

As a comprehensive solution provider committed to becoming a global leader in key materials for new energy batteries and automation equipment, PTL continuously strives to enhance product efficiency and reduce environmental footprint. The company strengthens its technological research and development capabilities in clean technologies, focusing on green innovation in product development, material research, production process optimization, waste reduction, and other dimensions. This effort helps PTL and its customers establish an environmentally friendly corporate image.

PTL Clean Technology Innovation and Development System

Incorporating Environmental Factors into Product Development

After assessment, it was found that product development and production processes have minimal environmental impact and involve fewer harmful substances. If production materials pose significant risks, they are replaced with harmless substances or production techniques are adjusted for improvement.

Promoting Research and Application of Eco-friendly Materials

Actively developing silicon-carbon anode materials and promoting the use of renewable biomass to reduce reliance on fossil fuels. Additionally, PTL keeps promoting the development of non-fluorinated coating products.

Strengthening Development of Novel Production Processes and Automated Manufacturing

Strengthening the development of new processes like graphitization and high-speed coating, along with integration of automated equipment to reduce waste and enhance product performance and battery lifespan.

Product Quality Management

Enhanced Quality Management System

PTL adheres to a quality policy centered on customer satisfaction, quality excellence, and innovative services. Complying with relevant laws and standards, PTL has established rigorous internal management systems to ensure product quality. In 2023, PTL set quality objectives to further enhance quality management. Utilizing modern tools and international standards, PTL has implemented a comprehensive quality management system, employing methods such as APQP, SPC, FMEA, MSA, and PPAP to minimize quality risks and meet high standards throughout the product lifecycle.

PTL undergoes regular audits of its product quality management system. In 2023, PTL had 20 subsidiaries certified with ISO 9001:2015 Quality Management System, 9 subsidiaries certified with IATF 16949:2016 Automotive Industry Quality Management System, and 2 subsidiaries certified with ISO 22301:2012 Business Continuity Management.



Improving Quality Standards

PTL continuously enhances its quality control capabilities and management efficiency by improving its in-house laboratories and implementing digital quality management systems.

The laboratories strictly follow ISO 17025:2017 standards for testing and adhere to rigorous inspection procedures for incoming materials, semi-finished, and finished products. Non-conforming items are handled according to established protocols. Subsidiaries' laboratories hold CNAS certification.

The company conducts regular internal audits and 5S inspections, analyzes testing processes, and provides training. It also undergoes customer and third-party supervision to ensure effective laboratory operations.

In 2023, PTL integrates digital systems into product quality management to enhance efficiency and create value.

Digital Systems	Management Content
Laboratory Information Management System (LIMS)	used for laboratory testing to help identify, track, store, allocate, and manage samples, as well as record experimental data and analysis results. It facilitates the generation of reports and charts, thereby enhancing laboratory testing efficiency.
Warehouse Management System (WMS)	used for laboratory testing to help identify, track, store, allocate, and manage samples, as well as record experimental data and analysis results. It facilitates the generation of reports and charts, thereby enhancing laboratory testing efficiency.
Manufacturing Execution System (MES)	employed for production process management, aiding production departments in automating data analysis for incoming inspection, warehousing, material requisition, various assembly stages, spot checks, transfers, Factory Acceptance Testing (FAT), and product anomaly reviews. It facilitates effective traceability throughout the entire process.

Cultivating Quality-centric Culture

Promoting a quality-focused culture is vital for the company's sustainability. PTL is dedicated to fostering a culture that everyone values quality. Through performance assessments, incentives, training, and initiatives like Quality Culture Month, PTL encourage collaboration and learning across departments. The company ties quality objectives to employee KPIs, boosting motivation and efficiency. PTL's annual training plan ensures all staff understand the importance of quality, supported by regular updates on the quality progress.

Overview of PTL Quality Training

Training Participants	Training Overview
Technical and quality department personnel	Regularly conduct themed training sessions such as CAPA and APQP, and periodically encourage employee participation in knowledge-sharing activities.
Internal auditors from each department responsible for quality management systems.	Organize annually, according to the guidelines outlined in the Automotive Industry Quality Standard Part 3: Process Audit (VDA6.3) developed by the German Association of the Automotive Industry (VDA).
Production personnel	Quarterly, organize training sessions covering operational skills for various production positions.
Laboratory personnel	Annual training sessions are organized, covering topics such as laboratory granular testing and trace element quality testing.

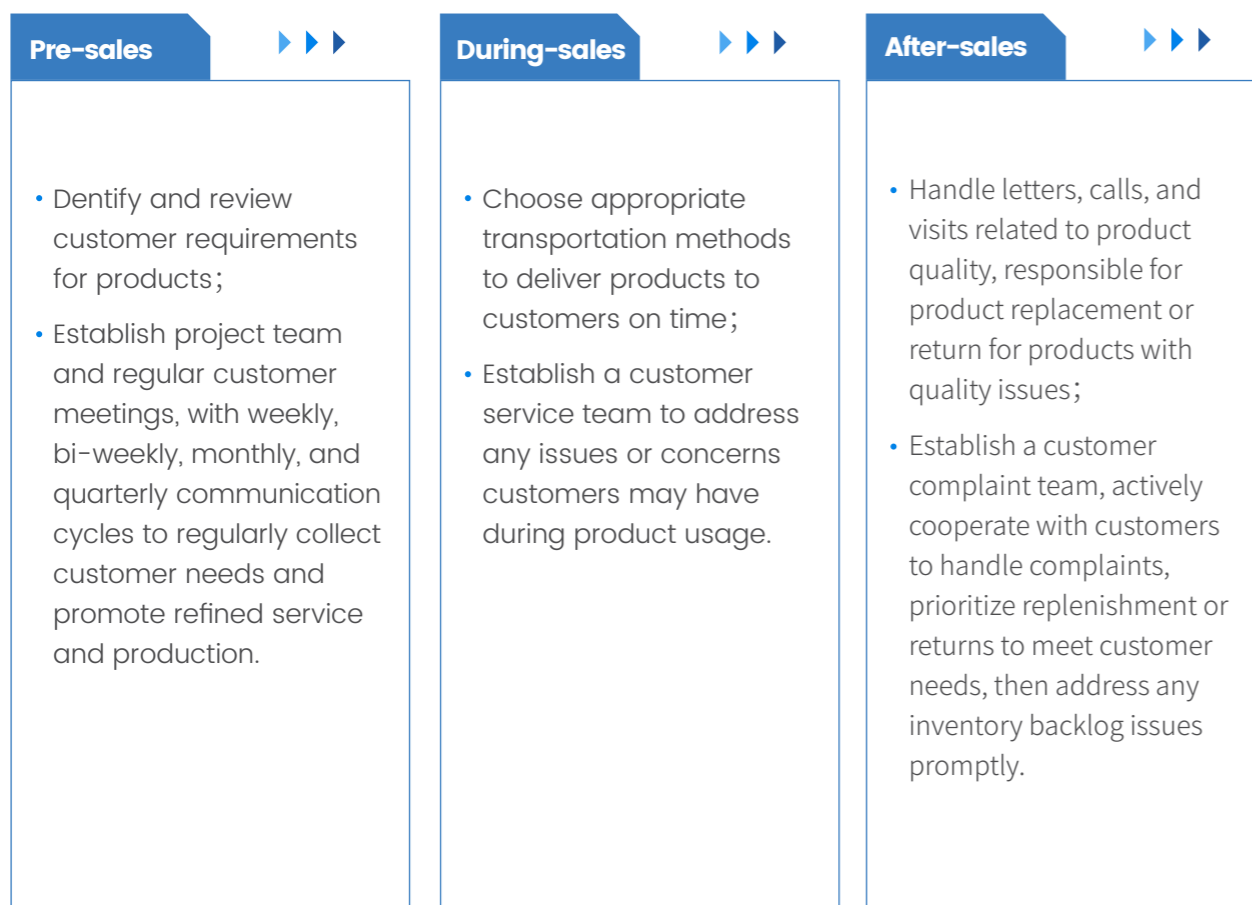
Customer Service Management

PTL prioritizes customer satisfaction, fostering a meticulous service system. With a focus on "total staff customer relationship management" and "managing customer relationship throughout the product lifecycle," PTL aims to refine customer service management. It has established system documents to standardize requirements and ensure excellent service standards. Continuously optimizing customer service processes ensures effective feedback on customer needs.

PTL employs various channels such as on-site visits, tours, customer communication meetings, emails, phone calls, and WeChat to ensure open communication with customers. Sales leadership contact information is publicly available to all customers, facilitating easy access for complaints. Additionally, PTL has established a standardized customer complaint process, categorizing complaints into three levels and providing tailored solutions accordingly to optimize the customer service experience. In 2023, PTL achieved a 100% resolution rate for addressing product complaints.

PTL constantly improves its service system, focusing on customer satisfaction and feedback. Through annual surveys and performance evaluations, it refines its services and enhances quality. Each unit follows internal protocols for tailored satisfaction surveys. For example, the Equipment Division promptly addresses feedback. In 2023, units using quantitative metrics achieved high customer satisfaction scores.

Pre-sales, during-sales, and after-sales customer service processes



Supply Chain Management

Supply Chain Quality Management

PTL adheres to the principles of "Fairness and Transparency" in procurement, establishes a comprehensive supplier management system, and formulates systems such as "Supplier Management Regulations" and "Procurement and Supplier Management Control Procedures". It standardizes the supply management at all procurement stages and controls the quality of products provided by suppliers to ensure that product procurement consistently meets customer needs.

Supplier admission review is the first step to ensure effectively supplier management performance. PTL has established a comprehensive supplier admission management process to identify qualified suppliers.



PTL requires qualified suppliers to sign a Quality Assurance Agreement, which clarifies quality standards and delivery criteria, quality problem handling methods, quality responsibility attribution, as well as quality claims and penalties, to reduce production risks caused by quality issues in purchased products.

Supplier performance evaluation is an important means to conduct daily supervision of suppliers. The company has formulated the Supplier Assessment Management Specification and conducts performance evaluations on suppliers on a monthly, quarterly, and annual basis. The assessment content includes aspects such as qualification rate, process, supply price, delivery on-time rate, etc., and the results are jointly evaluated by members of the company's "Supplier Assessment Management Team". Based on the assessment results of suppliers, PTL divides them into different levels and implements reward and punishment measures to enhance their enthusiasm and supply quality.

Supply Chain Sustainable Development Management

PTL collaborates with suppliers to create a sustainable supply chain, promoting the improvement of supplier management in areas such as business ethics, environmental protection, and labor rights. The company has introduced a series of environmental and social responsibility management measures and indicators in the supplier management process, actively implementing environmental and social responsibility risk management for suppliers.

PTL has signed an "Integrity Agreement", "Environmental Protection Agreement", "Social Responsibility Commitment Letter", "Safety and Environmental Protection Civilized Service Agreement", "Contractor EHS Management Regulations", and "Contractor Safety Responsibility Notification Letter" with suppliers to ensure that both parties reach consensus in promoting sustainable development of the supply chain and establish a positive cooperation model.

In addition, PTL organizes logistics, construction, and other outsourced suppliers to complete safety training upon entry, familiarize themselves with safety production regulations and operating procedures, ensuring safe operations within the factory.



07

Environmental Friendliness, Green Ecology

- 7.1. Environmental management system
- 7.2. Water Resource Management
- 7.3. Emissions and Waste Management

Environmental Friendliness, Green Ecology

Environmental management system

PTL strictly complies with relevant laws and regulations such as the Environmental Protection Law of the People's Republic of China, carries out environmental management system construction, and ensures its effective operation.

In 2023, PTL revised and updated the "Safety, Environmental Protection and Occupational Health Management Manual" and "Environmental Protection Management System" based on its own actual situation, clarifying the inclusion of environmental inspections in annual internal audits. It conducted environmental-related internal audits and "look back" work on 100% of its subsidiaries that have been put into operation, issued audit reports, and tracked and urged each company to implement rectification according to the opinions proposed in the audit, promoting the management goal of "avoiding various environmental pollution accidents". In 2023, 100% of the production subsidiaries under the company that meet the certification requirements have passed the ISO 14001:2015 environmental management system certification, and the ongoing or newly built bases are also actively carrying out environmental management system construction in accordance with ISO 14001 requirements.

In 2023, PTL invested a total of CNY 153.67 million in environmental compliance, environmental technology development, updating of environmental protection and energy-saving equipment, construction and operation of environmental facilities.

Water Resource Management

PTL's water resources come from municipal water supply and rainwater collection, mainly used for the production water, the office water, and the employee living water.

PTL's Water Resource Usage

Water resource utilization		Technological exploration and refinement
Production water	Anode Material	The water used for desulfurization tower, cooling system, and cleaning is relatively minimal.
	Separator and Coating	Cleaning of slurry preparation, preparation of pure water, analysis and water sealing in base film manufacturing, cleaning of PVDF manufacturing, and cooling process.
	Automation Equipment	Water consumption for workshop floor cleaning is relatively low.
Domestic water		Water for employee restaurants, dormitories, and offices.



In the planning and construction process of new subsidiaries and production bases, PTL takes regional water pressure as an important reference factor in site selection, and tries to avoid building new subsidiaries or production bases in areas with extremely high water pressure whenever possible. In 2023, none of the subsidiaries under construction were located in areas with extremely high water pressure.

In addition, to continuously improve the company's water usage performance and enhance the comprehensive utilization efficiency of water resources, PTL and its related subsidiaries have formulated and updated water-saving related systems. For instance, Liyang Zichen has formulated the "Resource Conservation Management Procedure", while Inner Mongolia Zichen Xingfeng has revised its "Water Management System", aiming to reduce the company's water resource consumption through source control and process management.

In 2023, the total water resource consumption of the company was 2.60 million tons, of which 1.12 million tons were recycled water, accounting for 43.18% of the total annual water consumption.



II Emissions and Waste Management

PTL strictly complies with laws and regulations, including the Water Pollution Prevention and Control Law of the People's Republic of China, the Air Pollution Prevention and Control Law of the People's Republic of China, and the Solid Waste Pollution Prevention and Control Law of the People's Republic of China. PTL has formulated internal systems and management procedures such as the Environmental Protection Management System and the Waste Gas, Wastewater, and Noise Management Procedure, and has set emission and waste targets. The company strictly controls the generation of pollution sources, ensures the normal operation of environmental protection facilities and equipment, and ensures the compliant discharge and disposal of wastewater, exhaust gas, and solid waste.

Emissions and Waste Targets

In 2024, the total emissions of various types of pollutants by the company is below 90% of the total approved environmental impact assessment amount



08

Human-centric, Fostering Collaboration through Empathy and Understanding

8.1.employee recruitment and employment

8.2.Employee Rights and Benefits

8.3.Safety Production and Occupational
Health

8.4.Employee Training and Development

Human-centric, Fostering Collaboration through Empathy and Understanding

Employee Recruitment and Employment

A high-quality talent team is an indispensable cornerstone of the company's sustainable development. PTL strictly adheres to relevant laws and regulations such as the Labor Law of the People's Republic of China, the Labor Contract Law of the People's Republic of China, and the Social Insurance Law of the People's Republic of China for recruitment and employment. Adhering to the talent concept of "putting talent first, putting people first", PTL actively build a high-quality talent team to provide talent security for the company's development.

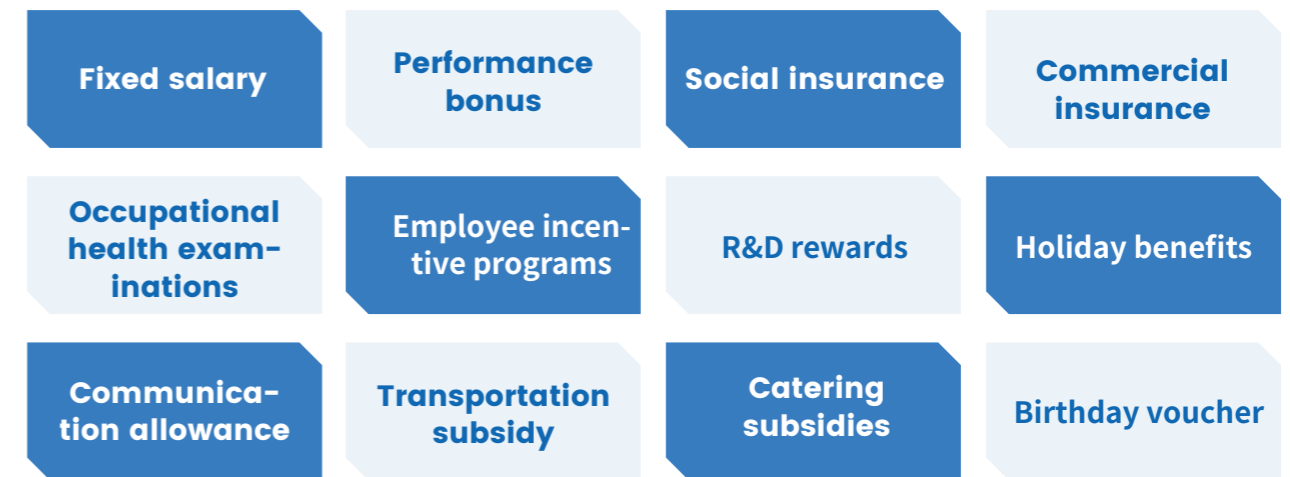
PTL formulates the "Employee Handbook" based on relevant laws and regulations, internal regulations, and actual circumstances, to establish legal, compliant, and harmonious labor relations with employees. The company signs labor contracts with employees in accordance with the law and implements a system of full-contract management for all employees. It firmly opposes employment discrimination and workplace harassment, strictly prohibits the employment of child labor and forced labor, and implements equal pay for equal work, treating every employee equally.

Employee Rights and Benefits

Rights and Benefits System

PTL pays close attention to the well-being of its employees, fully rewarding their labor contributions with comprehensive rights protection, and enhancing their sense of belonging and happiness with good welfare benefits.

PTL Employee Rights and Welfare System (Part)

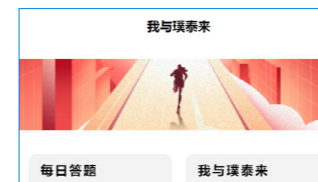


Employee Activities and Care

PTL focuses on ensuring the work life balance of employees, promoting their physical and mental health through a variety of online and offline activities, and encouraging communication and interaction among employees.



PTL 2023 Employee Activities (Part)



PTL has launched the PTL online interactive mini-program, featuring the company mascot "Xiao Lai" and related merchandise. Employees can record their daily steps, participate in quizzes, and earn points to redeem "Xiao Lai" items. This encourages low-carbon travel and fosters employee interaction.



PTL organized its inaugural long-distance running competition to encourage employees to enjoy healthy exercise and foster communication among different departments. The competition featured seven districts, including Shanghai, Dongguan, and Liyang, with over 600 participants. Ultimately, 55 finalists were selected to compete in the Shanghai finals.



To enrich employees' leisure time and showcase their hobbies and talents, the subsidiary Ningde Zhuogao organized a night market event. Employees utilized their cooking, handicraft, and other skills to set up various booths, selling their own DIY creations. The activity attracted active participation from employees and garnered high praise.

|| Safety Production and Occupational Health

Safety Production

PTL formed a Safety and Environmental Protection Committee (referred to as the "Safety Committee") to oversee EHS efforts. The general manager leads as the committee's director and holds ultimate responsibility for safety, environmental protection, and occupational health. Division/subsidiary leaders serve as committee members. In 2023, a professional technical sub-committee was established to provide support and guidance for EHS improvement across the company.

To implement safety production, PTL regularly organizes various safety inspections, including daily inspections, special inspections, holiday inspections, etc. At the same time, PTL formulates emergency plans for production safety accidents, standardizes emergency management work, continuously improves the speed and coordination level of emergency response for production safety accidents, and effectively prevents and reduces the occurrence of production safety accidents. In 2023, PTL increased its attention and investment in emergency drills for safety accidents. A total of 270 emergency drills, including fire accident drills and limited space accident drills, were organized and carried out, with 14,128 employees participating.

Establish a VR training site and empower safety education with digital technology

In 2023, Ningde Zhuogao introduced VR training for safety education and training. This VR technology provided realistic simulations to enhance safety knowledge and awareness among employees. The training was well-received, with 96% of participants finding it more effective than traditional methods.



Occupational Health

PTL is committed to ensuring a safe and healthy workplace for its employees by reducing occupational health risks. In 2023, PTL revised and improved its safety, environmental protection, and occupational health management manual in accordance with relevant laws and regulations.

In 2023, PTL has conducted EHS internal audits on all subsidiary companies that have already been put into operation, review the environmental, health, and safety elements of each unit within the audit scope, and issue audit reports to promote the headquarters and subsidiaries to improve their environmental, health, and safety performance as required.

PTL regularly entrusts professional third-party organizations to conduct occupational disease hazard factor testing in the workplace, identifying occupational disease hazard factors, including dust, high temperature noise, etc. In response to these hazardous, the company posts occupational hazard warning signs at the workplace, takes protective measures, and provides employees with corresponding labor safety protective equipment.

Employee Promotion and Development

In 2023, PTL conducted a talent inventory to understand its workforce better and develop tailored talent strategies. PTL has established clear pathways for employee advancement, with well-defined promotion criteria. Employees can progress along managerial or professional tracks based on their performance, skills, and career plans. Promotions area determined through Annual performance reviews.

Public Welfare, Warm Community

PTL pays high attention to social needs, actively participates in charitable activities, and, based on its own development characteristics and resource advantages, provides infrastructure construction for the community, creates job opportunities in the communities where it operates, and actively supports educational charities.

PTL also actively supports local community development by contributing to infrastructure construction and local employment opportunities.

Employee Training and Development

Employee Training



PTL Employee Training System

Section	Project	Content
External training	Professional	Based on the current business and future development of the company, PTL customizes a series of professional skills training for employees to enhance their professional knowledge and practical operational abilities.
	Management	PTL provides management training courses for the managers, aiming to help them cope with new challenges, adapt to new changes, learn new concepts, and apply new methods.
	Industry training	PTL regularly provides industry knowledge training to employees, disseminates industry update, strengthens their ability to analyze industry trends, and enhances their industry awareness.

Internal training	Comprehensive quality training Management trainee	PTL provides training to all employees on values, corporate culture, business philosophy, team spirit, organizational communication, and other aspects.
	Management trainee	Provides training to relevant personnel on management communication skills, management principles, organizational coordination, motivating subordinates, and project management.
	Performance improvement training	PTL provides centralized training and one-on-one mentorship to the newly recruited, enabling them to possess the comprehensive qualities and professional skills of grassroots management backbone.
	New employee onboarding training	During the work process, superiors actively provide performance coaching and resource support to employees to ensure that goals can be achieved.
	Employee knowledge sharing	PTL provides three-level training for new employees, including training on company rules and regulations, industry knowledge, job skills, workplace safety, etc., to help employees quickly integrate into the team and perform their job duties.
	Building Talent echelon	In addition, PTL has established mentorship programs, and management trainee programs to help employees shorten their adaptation period, improve the retention rate of new employees, and enhance job fit.
	Internal lecturer system	PTL regularly organizes internal knowledge and experience sharing among outstanding employees to enhance their influence within the company, while also enhancing the knowledge and experience level of other employees.

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Shanghai Putailai New Energy Technology Co., Ltd.

