**Shanghai Putailai New Energy Technology Co., Ltd.**

**2024 Annual Report Summary**

* 1. **Company Information**

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| --- | --- |
| Name of Putailai in Chinese | 上海璞泰来新能源科技股份有限公司 |
| Abbr. of Putailai name in Chinese | 璞泰来 |
| Name of Putailai in English | Shanghai Putailai New Energy Technology Co., Ltd. |
| Abbr. of Putailai name in English | PTL |
| Legal Representative | Liang Feng |

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| --- | --- | --- |
|  | Secretary of the Board | Representative for Securities Affairs |
| Name | Zhang Xiaoquan | Zhou Wensen |
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* 1. **Introduction to the Main Business of PTL during the Reporting Period**

In 2024, the new energy industry continued to undergo the supply side and ecosystem restructuring because of persistent intense competition. Amid these changes, PTL anchored itself in core principles —committed to technological innovation, lean management, cost optimization, and efficiency enhancements. PTL strengthened synergies across business segments and the industrial chain, accelerating development of new products and the deployment of strategic emerging business.

During the reporting period, the separator materials and coating business maintained strong sales growth in separator, coating processing, PVDF, boehmite, and other related materials, with relatively stable profitability, contributing the majority of the profits. The business made positive progress in product certification for overseas customers and achieved breakthroughs in patent approvals and collaborations with international clients.

The anode materials business faced challenges due to industry overcapacity and weak overseas demand. PTL actively reduced high-cost inventories accumulated earlier, continued to pursue process technology innovation, and achieved significant cost reductions in key energy-intensive processes such as graphitization and carbonization. New products—including high-capacity, long-cycle, and ultra-fast-charging artificial graphite received positive customer feedback and were gradually introduced into mass production. Additionally, CVD-deposited silicon-carbon anodes secured mass production orders. The integrated anode manufacturing facility in Sichuan was gradually brought online, providing strong support for cost optimization and customer market development.

The automation equipment business expanded its market shares among key customers for mid-to-late-stage production equipment such as liquid injection, formation, and wrapping machines while further consolidating its the market position and competitive advantage in coating machines. Katop actively expanded into overseas markets, and gained experienced in fulfilling overseas orders.

* 1. **Key Accounting Data and Financial Indicators in the past three years**
  2. **Key accounting data**

Unit: CNY

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Key accounting data | 2024 | 2023 | Change(%) | 2022 |
| Operation revenue | 13,448,428,962.76 | 15,340,041,057.24 | -12.33 | 15,463,905,959.37 |
| Net profits attributable to shareholders of the the listed company | 1,190,617,983.28 | 1,911,603,496.56 | -37.72 | 3,104,433,993.56 |
| Net profits attributable to shareholders of the listed company after deduction of non-recurring gains and losses | 1,063,131,777.83 | 1,780,776,488.62 | -40.30 | 2,959,051,738.74 |
| Net cash flows from operating activities | 2,371,682,508.21 | 1,117,806,387.29 | 112.17 | 1,223,361,736.87 |
|  | 31 December 2024 | 31 December 2023 | Changes of the Same Period ( % ) | 31 December 2022 |
| Net assets attributable to shareholders of the listed company | 18,387,096,048.41 | 17,774,487,767.57 | 3.45 | 13,456,926,161.06 |
| Total assets | 42,103,555,050.29 | 43,674,947,626.61 | -3.60 | 35,697,309,157.66 |

* 1. **Key Financial Indicators**

Unit: CNY

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Key Financial Indicators | 2024 | 2023 | Change (%) | 2022 |
| Basic earnings per share (CNY/share) | 0.56 | 0.95 | -41.05 | 1.54 |
| Diluted earnings per share (CNY/share) | 0.56 | 0.94 | -40.43 | 1.54 |
| Basic earnings per share after deducting non-recurring gains and losses (CNY/share) | 0.50 | 0.88 | -43.18 | 1.47 |
| Weighted average ROE (%) | 6.57 | 13.27 | -6.7 | 26.00 |
| Weighted average ROE after deducting non-recurring gains and losses (%) | 5.87 | 12.36 | -6.49 | 24.76 |

* 1. **Discussion and Analysis of Business Situation Operations**

In 2024, PTL achieved operating revenue of CNY 13.45 billion, representing a year-on-year decrease of 12.33%. Net profit attributable to shareholders of the listed company amounted to was CNY 1.19 billion, down 37.72% year-on-year. The main business activities during the reporting period are as follows:

(I) New Energy Battery Materials and Services

During the reporting period, PTL New Energy Battery Materials and Services Business generated operating revenue of CNY 9,771.36 million. The detailed performance of each business segment is as follows:

1. Anode Materials

PTL is a global leader in mid-to-high-end artificial graphite anode materials. By the end of 2024, PTL had established an annual production capacity of 200,000 tons for anode materials, including supporting capacities of 150,000 tons each for graphitization and carbonization processing. The detailed operational performance during the reporting period includes:

(1) Market Pressure and Strategic Adjustments due to short-term mismatches in industry supply and demand capacity, anode material prices continued to decline. In addition, weaker-than-expected demand from Europe prompted the Company to reasonably adjusted its product supply and sales, PTL selectively reduced and controlled shipments of certain low-margin products to ensure healthy cash flow. As a result, anode material shipments fell to 132,000 tons, with a slight decrease in market share. Due to a higher proportion of customized anode materials for mid-to-high-end customers and ongoing inventory digestion, the Company recognized inventory write-downs in response to declining product prices.

(2) Cost Challenges and Process Optimization Evolving customer product structures and raw material attributes posed challenges to the Company’s existing production process costs structures and yield rates. Coupled with the impact of high-cost inventory, gross profit margin for anode materials remained at a relatively low level. The Company responded by upgrading raw material pretreatment processes across all stages of production, particularly focusing on technical reforms in the graphitization stage, to significantly reduce power consumption and unit costs. As process cost-reduction measures are gradually implemented and pressure from high-cost inventories eases profitability in the anode materials business is expected to improve in 2025.

(3) Advanced Capacity Construction at Sichuan Zichen, Phase I (100,000 tons) was partially commissioned in 2024. Small-batch trial production products met customer requirements, with all performance indicators reaching the target levels. Both production efficiency and product yield significantly improved. Phase II (100,000 tons) has substantially completed factory construction and is scheduled for commissioning between 2025 and 2026 based on market demand. Through the construction of advanced production capacity and the implementation of diversified raw material sourcing and process cost-reduction plans, PTL aims to serve top-tier domestic and international battery customers with differentiated products of stable, reliable quality.

(4) New Production Development and Customer Engagement: Innovative product series such as high-capacity and long-cycle anode materials have been well received by major downstream major customers and are being gradually introduced into mass production. CVD-deposited silicon-carbon anodes have secured initial mass production orders. Anhui Zichen is scheduled to start production in the second quarter of 2025, with expected scaled applications targeted in consumer electronics and drone fields.

2. Separator and Coating Processing

The Company is a leading enterprise in the separator coating processing, with industry-leading capabilities in coating technology, product development, quality control, and production efficiency. By the end of the reporting period, PTL had established an effective production capacity of 10 billion m2 for separator coating processing.

(1) In 2024, the coating processing volume (sales volume) reached 7 billion m2, accounting for 40.02% of the domestic wet-process separator shipments (17.5 billion m2) Despite intensified industry competition, PTL maintained its leading market shares in of the coating segment.

(2) PTL continued to promote cost reduction and efficiency improvement through process automation and production optimization, effectively achieving lights-out factory operations. The mass development of new-generation high-speed coating equipment further consolidated the competitive advantage.

(3) In process R&D, fluorine-free water-based coating technology progressed smoothly and is expected to be gradually scaled up for application. On the international front, PTL made significant breakthroughs in intellectual property rights, further strengthening mutual trust with international clients and laying a solid foundation for global business expansion.

3. Separator Materials

(1) Separator

The production speed, width and efficiency of Sichuan AET separator lines are among the highest in the industry. By the end of 2024, PTL had established an annual separator production capacity of 700 million m2. The specific operational performance during the reporting period is as follows:

The Company’s separator products were successfully introduced to major downstream customers and achieved large-scale shipments, and the competitive advantages and equipment integration capabilities have been recognized by the market. Annual sales in 2024 reached 570 million m2, making a significant year-on-year increase. With the gradual commissioning of Phase II production lines at Sichuan AET, the Company’s self-sufficiency rate and competitiveness in separator are expected to further improve.

The separator industry is currently experiencing rapid equipment upgrades and iterations. Amid the risk of over - capacity and intensifying competition, enterprises equipped with high - efficiency production lines hold a distinct competitive advantage. At present, the designed annual capacity of a single new production line has soared to 200 million m2. Moreover, the R&D of the next - generation production lines has already commenced. The profound technological expertise in separator equipment lays a solid foundation for a sustainable competitive advantage.

In new product: 5μm, 7μm, and 9μm separator products have already entered mass production, featuring strong cost advantages. In 2024, PTL accelerated R&D of second-generation ultra-thin, high-strength 3.5μm and 5μm separator, while also developing a series of high-porosity, high-strength products. Overall testing has progressed smoothly, maintaining an industry-leading position.

(2) Ceramic Coating Materials

PTL’s effective production capacity for boehmite and alumina has reached 30,000 tons. The specific operational performance during the reporting period is as follows:

1) In 2024, while guaranteeing internal supply, PTL successfully introduced coating materials like boehmite and alumina to dozens of external customers, including high - end overseas clients. With outstanding production management, meticulous foreign matter control, and well - established system construction, PTL won high recognition from customers. As a result, both internal and external customers kept increasing their orders, which led to a substantial rise in the annual shipment volume.

2) During the reporting period, the gross profit margin of for boehmite products decreased due to a sharp rise in raw material costs and price reductions from downstream customers. The Company partially offset cost pressures through measures such as BOM optimization, energy recovery, and process equipment improvements, effectively ensuring relatively stable profit margins.

3) In terms of new products:

Ultrafine alumina and boehmite products were successfully applied in 1μm separator coatings, meeting thermal shrinkage performance requirements.

Porous ceramic products were introduced to customers, offering excellent wetting and liquid retention performance.

Boehmite for cathode edge coating completed mass production delivery for overseas customers and achieved profitability.

Solid electrolytes (such as LATP, LLZO, etc.) are ready for mass production.

Low-α radiation spherical alumina completed sample preparation, and showed with smooth progress in R&D.

(3) PVDF and Its Derivatives

In the second half of 2024, Ruyuan Fluororesin completed the capacity expansion for Phase II of PVDF production. By the end of the reporting period, the effective production capacity reached 25,000 tons. The specific operational performance during the reporting period is as follows:

1) With the new capacity successfully adopted by to downstream customers, annual cumulative PVDF sales reached 20,700 tons, representing a significant year-on-year increase of 95.23%, and the market share in lithium battery-grade PVDF exceeded 30%.

2) Despite a substantial increase in overall industry supply and a year-on-year decline in lithium battery-grade PVDF prices, the substantial sales growth helped partially offset the decline in unit price and gross margin, thereby maintaining relatively stable overall earnings.

3) Ruyuan Fluororesin established three R&D platform binders, separators, and lithium battery functional materials—and an application evaluation center. R&D focuses include PVDF binders for different chemical systems, separator coating, and fluorine-containing functional materials for lithium batteries, continuously enhancing product competitiveness.

(4) Current Collectors and Composite Current Collectors

In terms of composite copper foil, the Company actively collaborated with downstream customers on product improvements. Certifications for both consumer and power batteries are progressing smoothly, with large-scale mass production expected in 2025.

For composite aluminum foil:

- The first-generation product, positioned for fast-charging digital batteries, has secured small-scale mass production orders.

- The second-generation product, featuring improved consistency and targeting high-energy-density and high-safety power batteries, is undergoing customer validation.

In traditional current collectors, the Company developed ultra-strong foils and mesh-punched copper foils, proactively laying the groundwork for high-silicon anode and dry-process anode markets. The current collector and composite current collector businesses are poised to become new growth drivers.

(II) New Energy Automation Equipment and Services

The Company possesses a mature and advanced production technologies and processes, with its product lines covering key front-end, mid-end, and back-end processes in lithium battery production. PTL has formed comprehensive product service capabilities across core cell production processes, including coating, slitting, winding, stacking, liquid injection, formation and grading, helium detection, etc.

During the reporting period, the automation equipment and services business generated operating revenue (including internal sales) of CNY 3,768.59 million, maintaining overall stability. Although new orders decreased temporarily due to cyclical reductions in capital expenditures by customers, a recovery is anticipated, as downstream customers resume capacity expansion and overseas demand grows.

The specific operational performance is as follows:

1. Front-End Equipment

The company's high-speed and wide -width double-sided coater has significant competitive advantages, with its pole coater holding a leading market share domestically. Market penetration continued to improved.

During the reporting period, PTL pushed forward cost reduction and efficiency improvement through technical upgrades, refined management, new technology applications, centralized material procurement. These measures helped partially offset, rising material costs and allowed the coating equipment business to maintain relatively stable gross profit margins.

2. In mid- and back-end processes:

- Market share of for liquid injection and helium detection equipment increased significantly.

- Customer expansion for stacking and coating equipment progressed in an organized way.

- In the consumer electronics sector, PTL’s formation and stacking equipment have established a solid market position, which is expected to further diversify the Company’s revenue sources in the automation business.

3. In overseas business development: By

PTL successfully delivered products and services to European and other international customers, gaining valuable experience in overseas delivery and services. These efforts laid a solid foundation for expanding into overseas markets.

4. Integrated Equipment -Materials Innovation

PTL equipment team has actively engaged in the R&D and application of production equipment for graphite, silicon-carbon, separator, composite current collectors, etc., fully leveraging the synergistic advantages between the equipment and materials teams. Based on its industrial experience in lithium battery equipment, PTL is expanding into emerging technology domains such as dry-process electrodes, solid-state batteries, sodium batteries, silicon-based and perovskite solar cells, and hydrogen energy, driving product innovation and industrial upgrading.

* 1. **Shareholdings of the Top Ten Shareholders**

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| --- | --- | --- | --- | --- | --- | --- |
| Shareholdings of the Top Ten Shareholders | | | | | | |
| Shareholder n\Name  (full name) | Increase or Decrease during the Reporting Period | Number of Shares held at the Period-End | Shareholding Ratio(%) | Shares  Subject to Sales Restrictions | Shares in Pledge, Marked or Frozen | |
| Share Status | Quantity |
| Liang Feng | 0 | 531,510,881 | 24.87 | 0 | In pledge | 244,260,000 |
| Ningbo Shengyue Venture Capital Partnership (Limited Partnership) | 0 | 230,261,325 | 10.77 | 0 | In pledge | 93,000,000 |
| Ningbo Kuoneng Venture Capital Partnership (Limited Partnership) | 0 | 199,799,546 | 9.35 | 0 | none |  |
| Chen Wei | 755,935 | 176,698,100 | 8.27 | 0 | none |  |
| HKSCC | -59,914,816 | 101,839,433 | 4.77 | 0 | none |  |
| Chengdu Advanced Capital Management Co., Ltd. - Chengdu Major Industrialization Project Phase I Equity Investment Fund Co., Ltd. | 0 | 43,177,892 | 2.02 | 0 | none |  |
| Qi Xiaodong | 0 | 37,990,000 | 1.78 | 0 | none |  |
| Postal Savings Bank of China Co., Ltd. - Orient Growth Small and Medium Cap Hybrid Open-Ended Securities Investment Fund | -1,409,657 | 30,552,405 | 1.43 | 0 | none |  |
| China Construction Bank Corporation – China AMC Energy Innovation Equity Securities Investment Fund | -7,999,153 | 21,957,914 | 1.03 | 0 | none |  |
| Industrial and Commercial Bank of China Limited - Huatai-PB CSI 300 Trading Open-Ended Index Securities Investment Fund | 11,889,541 | 18,424,554 | 0.86 | 0 | none |  |

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