UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2023

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from to

Commission File Number 001-37839

TPI Composites, Inc.

(Exact name of Registrant as specified in its charter)

Delaware	**20-1590775**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification Number)**

9200 E. Pima Center Parkway, Suite 250
Scottsdale, AZ 85258
(480) 305-8910
(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.01	**TPIC**	**NASDAQ Global Market**

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the Registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the Registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☒
Non-accelerated filer	☐	Smaller reporting company	☐
		Emerging growth company	☐

If an emerging growth company, indicate by check mark if the Registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

The aggregate market value of the shares of common stock held by non-affiliates of the Registrant, based on the closing price of the shares of common stock on June 30, 2023 as reported by the NASDAQ Global Market on such date was approximately $435 million. Shares of the Registrant's common stock held by each executive officer, director and holder of 5% or more of the outstanding common stock have been excluded in that such persons may be deemed to be affiliates. This calculation does not reflect a determination that certain persons are affiliates of the Registrant for any other purpose.

As of January 31, 2024, the Registrant had 47,240,579 shares of common stock outstanding.

Documents Incorporated by Reference

Portions of the Registrant's Definitive Proxy Statement relating to the Annual Meeting of Stockholders, scheduled to be held on May 29, 2024, are incorporated by reference into Part III of this Report.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (the Exchange Act). All statements other than statements of historical facts contained in this Annual Report on Form 10-K, including statements regarding our future results of operations and financial position, business strategy and plans and objectives of management for future operations, are forward-looking statements. In many cases, you can identify forward-looking statements by terms such as "may," "should," "expects," "plans," "anticipates," "could," "intends," "targets," "projects," "contemplates," "believes," "estimates," "predicts," "potential" or "continue" or the negative of these terms or other similar words. Forward-looking statements contained in this Annual Report on Form 10-K include, but are not limited to, statements about:

- competition from other wind blade and wind blade turbine manufacturers;
- the discovery of defects in our products and our ability to estimate the future cost of warranty campaigns;
- the sufficiency of our cash and cash equivalents to meet our liquidity needs;
- the increasing cost and availability of additional capital, should such capital be needed;
- our projected sales and costs, including materials costs and capital expenditures, during the current fiscal year;
- our projected business model during the current fiscal year, including with respect to the number of wind blade manufacturing lines we anticipate;
- our ability to service our current debt and comply with any covenants related to such debt;
- the current status of the wind energy market and our addressable market;
- our ability to absorb or mitigate the impact of price increases in resin, carbon reinforcements (or fiber), other raw materials and related logistics costs that we use to produce our products;
- our ability to absorb or mitigate the impact of wage inflation in the countries in which we operate;
- our ability to procure adequate supplies of raw materials and components to fulfill our wind blade volume commitments to our customers;
- the potential impact of the increasing prevalence of auction-based tenders in the wind energy market and increased competition from solar energy on our gross margins and overall financial performance;
- our future financial performance, including our net sales, cost of goods sold, gross profit or gross margin, operating expenses, ability to generate positive cash flow and ability to achieve or maintain profitability;
- changes in domestic or international government or regulatory policy, including without limitation, changes in trade policy and energy policy;
- changes in global economic trends and uncertainty, geopolitical risks, and demand or supply disruptions from global events;
- changes in macroeconomic and market conditions, including the potential impact of any pandemic, risk of recession, rising interest rates and inflation, supply chain constraints, commodity prices and exchange rates, and the impact of such changes on our business and results of operations;
- our ability to attract and retain customers for our products, and to optimize product pricing;
- our ability to effectively manage our growth strategy and future expenses, including our startup and transition costs;
- our ability to successfully expand in our existing wind energy markets and into new international wind energy markets, including our ability to expand our field service inspection and repair services business;

- our ability to keep up with market changes and innovations;
- our ability to successfully open new manufacturing facilities and expand existing facilities on time and on budget;
- the impact of the pace of new product and wind blade model introductions on our business and our results of operations;
- our ability to identify and execute a strategic alternative to enable the growth of our automotive business;
- our ability to maintain, protect and enhance our intellectual property;
- our ability to comply with existing, modified or new laws and regulations applying to our business, including the imposition of new taxes, duties or similar assessments on our products;
- the attraction and retention of qualified associates and key personnel;
- our ability to maintain good working relationships with our associates, and avoid labor disruptions, strikes and other disputes with labor unions that represent certain of our associates; and
- the potential impact of one or more of our customers becoming bankrupt or insolvent, or experiencing other financial problems.

These forward-looking statements are only predictions. These statements relate to future events or our future financial performance and involve known and unknown risks, uncertainties and other important factors that may cause our actual results, levels of activity, performance or achievements to materially differ from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements. We have described under the heading "Risk Factors" included in Part 1, Item 1A of this Annual Report on Form 10-K the principal risks and uncertainties that we believe could cause actual results to differ from these forward-looking statements. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, you should not rely on these forward-looking statements as guarantees of future events.

The forward-looking statements in this Annual Report on Form 10-K represent our views as of the date of this Annual Report on Form 10-K. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we undertake no obligation to update any forward-looking statement to reflect events or developments after the date on which the statement is made or to reflect the occurrence of unanticipated events except to the extent required by applicable law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date after the date of this Annual Report on Form 10-K. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures, or investments we may make.

PART I

Item 1. Business

Description of Business

TPI Composites, Inc. is the holding company that conducts substantially all of its business operations through its direct and indirect subsidiaries (collectively, the Company, TPI or we). The Company was founded in 1968 and has been producing composite wind blades since 2001. The Company is incorporated in the State of Delaware.

Discontinued Operations

In December 2022, we committed to a restructuring plan to rebalance our organization and optimize our global manufacturing footprint. Changing economic and geopolitical factors, including increased logistics costs and tariffs imposed on components of wind turbines from China, including wind blades, had an adverse impact on demand and profitability for our wind blades manufactured in our Chinese facilities. In connection with our restructuring plan, we ceased production at our Yangzhou, China manufacturing facility as of December 31, 2022 and are in the final stages of shutting down our business operations in China. Our business operations in China comprised the entirety of our Asia reporting segment. This shut down has had a meaningful effect on our global manufacturing footprint and consolidated financial results. Accordingly, the historical results of our Asia reporting segment have been presented as discontinued operations in our Consolidated Statements of Operations and Consolidated Balance Sheets. Our China operations represented a geographic operating segment that included (1) the manufacturing of wind blades at our facilities in Dafeng, China and Yangzhou, China, (2) the manufacturing of precision molding and assembly systems at our Taicang Port, China facility and (3) wind blade inspection and repair services. The following discussion reflects continuing operations only, unless otherwise indicated.

Overview

We are the only independent manufacturer of composite wind blades for the wind energy market with a global manufacturing footprint. We enable many of the industry’s leading wind turbine original equipment manufacturers (OEM) to outsource the manufacturing of a portion of their wind blades through our global footprint of advanced manufacturing facilities strategically located to serve large and growing wind markets in a cost-effective manner. Given the importance of wind energy capture, turbine reliability and cost to power producers, the size, quality and performance of wind blades is highly strategic to our OEM customers. As a result, we have become a key supplier to our OEM customers in the manufacture of wind blades and related precision molding and assembly systems. We have entered into supply agreements pursuant to which we dedicate capacity at our facilities to our customers and manufacture wind blade sets (each set consisting of three wind blades) for our customers. This collaborative dedicated supplier model provides us with contracted volumes that generate revenue visibility, drive capital efficiency and allow us to produce wind blades at a competitive cost, while ensuring critical dedicated capacity for our customers.

We also provide field service inspection and repair services to our OEM customers and wind farm owners and operators. Our field service inspection and repairs services include diagnostic, repair and maintenance service offerings for wind blades that have been installed on wind turbines located at wind farms. Our field service inspection and repair services can be performed up-tower, where a blade technician performs these services in the air or from the wind turbine tower on a wind turbine blade, or down tower, where a blade is first removed from a wind turbine and these services are performed on the ground at the wind farm site or in a repair facility.

We also leverage our advanced composite technology and history of innovation to supply high strength, lightweight and durable composite products to the automotive market. Composites offer multiple advantages to metallics in the automotive market, including strength, weight and ratio of strength to weight. We have numerous contracts with OEMs in various stages of maturity from design and development to full scale production. We are in the process of exploring strategic alternatives to ensure the automotive business is sufficiently funded to execute on its growth strategies as we intend to prioritize capital for growth opportunities in the wind blade business in the near term. We expect to complete this process no later than June 30, 2024.

Our wind blade and precision molding and assembly systems manufacturing businesses accounted for approximately 96%, 92%, and 94% of our total net sales for each of the years ended December 31, 2023, 2022 and 2021, respectively.

Financial Information about Segments and Geographic Areas

We divide our business operations into four geographic operating segments - (1) the United States (U.S.), (2) Mexico, (3) Europe, the Middle East and Africa (EMEA) and (4) India as follows:

- Our U.S. segment includes (1) the manufacturing of wind blades at our Newton, Iowa facility in which production has been shut down since the end of the fourth quarter of 2021, and is expected to resume within the next 12 to 18 months, (2) the manufacturing of precision molding and assembly systems used for our automotive business at our Warren, Rhode Island facility, (3) the manufacturing of composite solutions for the automotive industry, which we also conduct at our Warren, Rhode Island facility, (4) wind blade inspection and repair services, (5) our advanced engineering center in Kolding, Denmark, which provides technical and engineering resources to our manufacturing facilities, (6) our engineering center in Berlin, Germany and (7) our corporate headquarters.
- Our Mexico segment includes (1) the manufacturing of wind blades at our three facilities in Juárez, Mexico and two facilities in Matamoros, Mexico, (2) the manufacturing of precision molding and assembly systems and composite solutions for the automotive industry at our fourth Juárez, Mexico facility and (3) wind blade inspection and repair services.
- Our EMEA segment includes (1) the manufacturing of wind blades at our two facilities in Izmir, Türkiye, and wind blade inspection and repair services in Türkiye, (2) our wind blade inspection and repair service facility in Madrid, Spain, (3) wind blade inspection and repair services in the United Kingdom, and (4) wind blade inspection and repair services in France.
- Our India segment manufactures wind blades at our manufacturing facility in Chennai, India.

For additional information regarding our discontinued operations, and operating segments and geographic areas, see Note 2 - *Discontinued Operations*, and Note 22 – *Segment Reporting*, respectively, of the Notes to Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K.

Business Strategy

Our long-term success will be driven by our business strategy. The key elements of our business strategy are as follows:

- ***Capitalize on the long-term, global trends of decarbonization of the electric sector.*** We believe we are well-positioned to participate and benefit from the long term, global trend of decarbonization of the electric sector. Although regulatory uncertainty, as well as permitting, siting and transmission challenges in the U.S. and Europe has tempered demand for wind energy in the near term, we expect global demand for renewable energy, and wind energy in particular, will continue to grow in the long term due to a multitude of factors, including: increased cost competitiveness of wind energy compared to fossil fuel generated electricity; increased demand from corporations and utility providers for renewable energy; the need for energy independence and security and recent international policy initiatives designed to promote the growth of renewable energy. We believe our global footprint of manufacturing facilities will allow us to capitalize on the expected long term, global growth of wind energy.
- ***Grow our existing relationships and develop new relationships with leading industry OEMs.*** We plan to continue growing and expanding our relationships with existing customers who, according to data from BloombergNEF (Bloomberg), represented approximately 34% of the global onshore wind energy market, approximately 77% of that market excluding China, and 87% of the U.S. onshore wind turbine market over the three years ended December 31, 2022, based on megawatts (MWs) of energy capacity installed, as well as developing new relationships with other leading industry OEMs. We expect to be presented with opportunities to expand our existing relationships and develop new relationships with industry OEMs as they seek to capitalize on the benefits of outsourced wind blade manufacturing while

maintaining high quality customization and dedicated capacity. In December 2022, we extended our supply agreements with GE Vernova at two of our Juarez, Mexico manufacturing facilities through 2025. In December 2023, we added our third blade manufacturing facility in Juarez, Mexico to our agreement with GE Vernova for four new lines through 2025. In December 2023, we also extended our supply agreements with Vestas in Mexico and India through 2024, added two manufacturing lines with Nordex in Türkiye through 2025, and extended our other supply agreements with Nordex in Türkiye through 2024.

- ***Leverage our footprint in large and growing wind markets, capitalize on the continuing outsourcing trend and evaluate strategic acquisitions.*** As many wind turbine OEMs continue to shift towards increased outsourcing of wind blade manufacturing, we believe we are well-positioned with our global footprint. We utilize our strengths in composites technology and manufacturing, combined with our collaborative dedicated supplier model to provide our customers with an efficient solution for their expansion in large and growing onshore wind markets. In addition, our demonstrated ability to enter into new markets and the strength of our manufacturing capabilities afford us the optionality to build new factories or grow through strategic acquisitions.
- ***Continue to ensure that wind energy remains competitive with other energy sources***. We continue to work with our customers on wind blade models that maximize the capture of wind energy so that the levelized cost of energy for wind energy remains competitive with other energy sources such as solar and natural gas. We also continue to utilize our advanced technology, regional manufacturing facilities strategically located to cost effectively serve large and growing wind markets and ability to source materials globally at competitive costs to deliver high-performing, composite wind blades. Our collaborative engineering approach and our advanced precision molding and assembly systems allow us to integrate our customer's design requirements with cost-efficient, replicable and scalable manufacturing processes. This collaborative engineering approach with our customers also allows us to reduce manufacturing cycle times, new line and factory start up times and new blade model transition times. We also continue to work with our customers to minimize the impacts of inflation, including increases in the cost of materials and production in a manner that further strengthens our customer relationships and mitigates the impact to our margins.
- ***Expand our field service inspection and repair business and introduce new ancillary products and services to help our customers better manage the full life cycle of a wind blade.*** We plan to continue to expand our field service inspection and repair business by leveraging our existing wind blade manufacturing and composites expertise and global footprint. We believe there is an increasing demand and growing market for experienced wind blade inspection and repair services worldwide as the number of wind turbines installed worldwide continues to grow and the fleet of existing wind turbines continues to age. We also expect that the operating margins at our field service inspection and repair business will improve in 2024 and will be higher than the operating margins of our wind blade manufacturing business in future periods. We also are seeking to develop a more comprehensive suite of products and services to help our customers better manage the full life cycle of a wind turbine blade.
- ***Focus on continuing innovation.*** We have a history of innovation in advanced composite technologies and production techniques and use several proprietary technologies related to wind blade manufacturing. With this culture of innovation and a collaborative "design for manufacturability" approach, we continue to address increasing physical dimensions, demanding technical specifications and strict quality control requirements for our customers' most advanced wind blades.

Wind Blade Manufacturing Operations and Process

We have developed significant expertise in advanced composite technology and we use high performance composite materials, precision molding and assembly systems including modular tooling, and advanced process technology, as well as sophisticated measurement, inspection, testing and quality assurance tools, allowing us to produce over 92,000 wind blades since 2001 from our continuing and discontinued operations with a strong, long-term field performance record in a market where reliability is critical to our customers' success. We manufacture or have manufactured wind blades ranging from 30 meters to over 80 meters in length across our global facilities and have the capability to manufacture wind blades of greater lengths as required by existing or new customers. In combination with our advanced technologies, we seek to create manufacturing processes that are replicable and scalable in our manufacturing facilities located worldwide, regardless of cultural or language barriers. Using continuous improvement principles, we can customize each manufacturing step, from raw materials to finished products. This also allows us to systematically design for the entire manufacturing process so that we can achieve better quality control and increase production efficiencies. We believe that our focus on simplifying and, where feasible, automating production processes is critical to manufacturing high-precision, lightweight and durable products at a competitive cost for our customers. We produce high unit volumes of near-aerospace grade products at industrial costs.

Raw Materials

The key raw materials for the wind blades we manufacture include highly advanced fiberglass fabrics, select carbon reinforcements, foam, balsa wood, resin, adhesives for assembly of molded components, gel coat or paint for preparation of cosmetic surfaces and attachment hardware including steel components. Most of these materials are available in multiple geographic regions and in reasonably close proximity to our manufacturing facilities. Our agreements for the supply of raw materials are designed to secure volumes that we believe will be required to fulfill our customers' wind blade commitments for fixed prices with limited contractual price adjustment provisions. A portion of our raw materials are subject to price volatility, such as the resins and carbon reinforcements used in our manufacturing processes.

Although the majority of materials incorporated into our products are available from a number of sources, certain materials are available only from a relatively limited number of suppliers. We seek multiple suppliers for our raw materials and continually evaluate potential new supplier relationships. However, one of our customers sources all of the critical raw materials that we use to produce such customers' wind blades. Since we do not source procurement of these raw materials for this customer, we have fewer controls and remedies to mitigate raw material and supply chain risks and disruptions relating to such raw materials for such customer.

Precision Molding and Assembly Systems

Over the last decade, we have produced hundreds of precision molding and assembly systems, ranging from 30 meters to over 80 meters in length, to support our global operations.

Our tooling solutions include precision wind blade patterns, precision molding and assembly systems, including modular tooling techniques. We believe that our technological and production expertise are key factors in our continued competitiveness, as we address continually increasing physical dimensions, demanding technical specifications, and strict quality control requirements for wind blades.

Wind Blade Production Process

Production of wind blades requires adherence to the unique specifications of each of our customers, who design their wind turbines and wind blades to optimize performance, reliability and total delivered cost. With our culture of innovation and a collaborative "design for manufacturability" approach, we have the capability and expertise to manufacture wind blades of different designs, utilizing fiberglass, carbon fiber, or other advanced composite materials to meet unique customer specifications. We also have the flexibility to quickly transition our manufacturing facilities to produce different wind blade models and sizes using our precision molding and assembly systems, including modular tooling techniques.

We have developed a highly dependable method for making high-quality wind blades. In conjunction with our continuous improvement principles, we design our proprietary manufacturing processes to be replicable, scalable and transferable to each of our advanced manufacturing facilities worldwide. As a result, we can repeatedly move a product from its design phase to serial production while maintaining quality, even in developing regions of the world. Similarly, we have developed the manual portions of our manufacturing processes based on proven technologies and production methods that can be learned and implemented rapidly by line personnel. We focus on safety, consistency and quality control across our facilities, using hands-on training methods and employing repeatable manufacturing processes.

We use an advanced form of vacuum-assisted resin transfer tooling process to pull liquid resin into a dry lay-up, resulting in light, strong, and reliable composite structures. In our manufacturing process, fiber reinforcements and core materials are laid up in a mold while dry, followed by a vacuum bag that is placed over the layup and sealed to the mold. The wind blade component is then placed under vacuum. The resin is introduced into the wind blade component via resin inlet ports and then distributed through the reinforcement and core materials via a flow medium and a series of channels, saturating the wind blade component. The vacuum removes air and gases during processing, thereby eliminating voids. Pressure differentials drive resin uniformly throughout the wind blade component, providing a consistent laminate. By using a variety of reinforcement and core materials, the structural characteristics of the wind blade can be highly engineered to suit the custom specifications of our customers. Although only occasionally required by our customers, we are also capable of employing additional composite fabrication processes, such as pre-impregnated laminates, in addition to our vacuum infusion process.

Wind Blade Supply Agreements

Our current wind blade customers, which include Vestas, GE Vernova, Nordex, and ENERCON GmbH (ENERCON), are some of the world's largest wind turbine manufacturers. According to data from Bloomberg, our customers represented approximately 34% of the global onshore wind energy market, approximately 77% of that market excluding China, and 87% of the U.S. onshore wind turbine market over the three years ended December 31, 2022, based on MWs of energy capacity installed. In our collaborative dedicated supplier model, our customers are incentivized to maximize the volume of wind blades purchased due to pricing at higher purchase volumes. Our supply agreements generally contain liquidated damages provisions in the event of late delivery, however, we generally do not bear the responsibility for transporting the wind blades we manufacture to our customers.

Some of our supply agreements with our customers provide us with downside protection through minimum annual volume commitments, as well as encourage our customers to maximize the volume of wind blades they purchase from us, since purchasing less than a specified amount typically triggers higher pricing. Some of our supply agreements also provide for annual sales price reductions reflecting assumptions regarding improvements in our manufacturing efficiency and increases in productivity. We work to continue to drive down or minimize the impact of increases in the cost of materials and production through innovation and global sourcing, a portion of the benefit of which we share with our customers contractually, further strengthening our deep customer relationships. Similarly, we typically share any raw material price increases with our customers. However, one of our customers sources all of the critical raw materials that we use to produce such customers' wind blades and this customer assumes 100% of any such raw material price increases or decreases. Wind blade pricing is based on annual commitments of volume as established in the customer's contract, with orders less than committed volume resulting in additional costs per wind blade to the customer. Orders in excess of annual commitments may result in discounts to customers from the contracted price for the committed volume. Customers may utilize early payment discounts, which are reported as a reduction of revenue at the time the discount is taken.

Vestas

In December 2023, we extended our supply agreements with Vestas at our manufacturing facilities in India and in Matamoros, Mexico through 2024. The term of the Matamoros supply agreement will continue until the one-year anniversary of the date upon which we commence production of a new Vestas wind blade model on up to four manufacturing lines at our Matamoros manufacturing facility. We expect to commence production of this new wind blade model in July 2024. We have the right to terminate the Matamoros supply agreement as of December 31, 2024 if Vestas' projected annual demand for this new wind blade model is less than or equal to 50% of our dedicated manufacturing capacity allocated to this new wind blade model.

GE Vernova

We have two supply agreements with GE Vernova to manufacture wind blades from three manufacturing facilities in Juárez, Mexico. In October 2022, we signed an agreement with GE Vernova that enabled us to secure a ten-year lease extension of our Iowa manufacturing facility. Under the agreement, we and GE Vernova plan to develop competitive blade manufacturing options. In December 2022, we extended our supply agreements with GE Vernova for ten of our existing lines in two of our Juarez, Mexico manufacturing facilities through December 2025, and in December 2023, we added a third manufacturing facility in Juarez, Mexico for four new manufacturing lines, also through December 2025.

Nordex

Generally, our supply agreements with Nordex provide for a minimum number of wind blade sets to be purchased by Nordex each year during the term, and we commit to dedicate a specific number of manufacturing lines to Nordex for each of the years under the supply agreements. We supply wind blades to Nordex from our manufacturing facilities in Türkiye, and India, and from a manufacturing facility in Matamoros, Mexico that we took over from Nordex in July 2021, pursuant to a three-year supply agreement expiring on June 30, 2024. We are in the process of transitioning the operation of this Matamoros manufacturing facility back to Nordex. In December 2023, we extended two of our supply agreements with Nordex at our Türkiye manufacturing facilities for eight lines through the end of 2024 and added two new lines through the end of 2025.

Research and Development

We conduct research and development in close collaboration with our customers and suppliers in areas of design for manufacturing and deployment of innovative manufacturing processes, including automation, advanced materials, and emerging product quality inspection tools. We have partnered with the U.S. Department of Energy, national laboratories, universities, suppliers, and our customers to innovate through cost-sharing and funded development of advanced manufacturing, sustainability (including material recycling) and other innovative programs. During the year ended December 31, 2023, we collaborated on a variety of proposals with universities, government laboratories and private industry resulting in the award of several new projects that include inspection technologies, additive manufacturing of modular wind blades, as well as manufacturing automation applying recycled materials to ensure movement toward a more sustainable, carbon neutral future. We continue to collaborate in national consortia including the Institute for Advanced Composite Manufacturing Innovation as a premium member with responsibility to direct research activity by our industrial, government laboratory and university members. We maintain a position on the Industrial Advisory Board for WindSTAR, a National Science Foundation Industry/University Collaborative Research Consortium, and study a broad range of wind energy related technologies with our customers and wind energy owner operators. One such set of activities is an internal and external collaborative development program to create a comprehensive multi-layered Artificial Intelligence powered vision system that supports production metrics such as cycle-time and labor headcount and will also drive quality by reducing infusion defects and ensuring uniform resin process across the entire surface of the wind turbine blade.

We continue to expand our intellectual property portfolio through funding internal research and development. Our manufacturing technology team is leveraging our in-house knowledge and expertise in modeling, data analysis, machine learning, artificial intelligence, and optical vision systems to implement an engineering configuration that allows for an effective roll-out of a closed-loop blade manufacturing system which will positively impact quality, labor productivity and cycle-time. We are expanding and diversifying our Model-Based Manufacturing tools and techniques to cover broad technical areas including design, manufacturability, finishing processes and factory level repairs.

We employ a highly experienced workforce of engineers in various facets of our business, from research and development projects, to the ongoing, real-time development and implementation of incremental manufacturing and material improvements. We have an advanced engineering center based in Berlin, Germany which focuses on blade design, tooling, materials and process technology development. In addition, we have an advanced engineering center based in Kolding, Denmark which provides technical and engineering resources to our manufacturing facilities and our customers. Our research and development effort places a priority on improving quality through process and procedure improvement, in addition to reducing cost through specification changes and sourcing of more cost-effective suppliers. Other areas of emphasis include composite design, in-house fabrication of precision molding and assembly systems, prototyping, testing, optimization and volume production capabilities. We also encourage our associates to invent and develop new technologies to maintain our competitiveness in the marketplace. In addition to our internal research and development activities, from time to time, we also conduct research and development activities pursuant to funded development arrangements with our customers and other third parties and we intend to continue to seek opportunities for product development programs that could create recurring revenue and increase our overall profitability over the long term.

Competition

The wind blade market is highly concentrated, competitive and subject to evolving customer needs and expectations. Our competitors include LM Wind Power (a subsidiary of GE Vernova) and other independent wind blade manufacturers such as Sinoma Science & Technology Co. Ltd., Shanghai Aeolon Wind Energy Technology Development (Group) Co., Ltd., Aeris Industria E Comercio De Equipamentos Para Geracao De Energia S.A. and ZhongFu Lianzhong Composites Group Co., Ltd., as well as regional wind blade suppliers in geographic areas where our current or prospective manufacturing facilities are or will be located.

We also compete with vertically integrated wind turbine OEMs that manufacture their own wind blades.

The principal competitive factors in the wind blade market include reliability, total delivered cost, manufacturing capability, product quality, engineering capability and on-time delivery of wind blades. We believe we compete favorably with our competitors with respect to each of these factors. Our ability to compete will depend to a great extent upon our ongoing performance in the areas of manufacturing capability, total delivered costs, on-time delivery and product quality.

Competitive advantages in the wind blade service market include total delivered cost, speed of response, local footprint, repair quality, competitive labor pricing and capacity to work across regions as demand adapts to business seasonality. Our ability to improve our product and service offerings, including strengthening our response time, adding and managing labor resources, sourcing materials globally at competitive rates while further expanding into new countries, and offering additional value-added engineering support and technical solutions.

The automotive supply industry is highly competitive, and our composite solutions compete against alternative materials and a broad range of competitive suppliers. Our ability to compete will depend on our ability to provide superior performance attributes with our composites solutions, time to market, and continuing to provide a lower upfront investment for our customers.

Automotive Products

We believe automotive products, including buses, trucks, electric vehicles and high-performance automotive products and components, are ideally suited for our advanced composite technology because of the benefits derived from weight reduction, corrosion resistance, strength, durability and lower upfront capital costs. These benefits should allow us to develop structural composite solutions to assist our customers in developing electric vehicles, including light, medium and heavy-duty trucks, buses and automobiles with clean propulsion systems or in meeting new and developing fuel economy standards.

In addition, by producing a range of composite structures, we are able to leverage the materials and manufacturing process technology and expertise developed through one project to maximize production quality, improve performance and minimize costs across our other manufacturing efforts, including our wind blade business. Our projects for customers in the automotive market have historically generated project-related revenues for a specific duration.

Our facilities in Warren, Rhode Island and Juárez, Mexico manufacture products for customers in the automotive market using, in some cases, similar proprietary and replicable manufacturing processes that we use to produce wind blades. Our projects for customers in the automotive market include, or have included, the supply of all-composite bodies for electric buses and last-mile delivery as well as automated people mover systems for airports.

Our current principal competitors in the automotive market include suppliers of conventional steel and aluminum products and non-structural automotive fiberglass and other advanced composites-based manufacturers for automotive applications.

Intellectual Property

We have a variety of intellectual property (IP) rights, including trademarks, copyrights and patents issued, filed and applied-for in a number of jurisdictions, including the U.S., Germany, the European Union, Türkiye, India and China, trademarks and copyrights, but we believe that our continued success and competitive position depend, in large part, on our proprietary materials, tooling, process and inspection technologies and our ability to innovate and not on our IP alone. Accordingly, we take measures to protect the confidentiality and control the disclosure of our proprietary technology. We rely primarily on a combination of patents, know-how and trade secrets to establish and protect our proprietary rights and preserve our competitive position. We also seek to protect our proprietary technology, in part, by confidentiality agreements with our customers, associates, consultants and other contractors. Trade secrets, however, are difficult to protect. These agreements may be breached, and we may not have adequate remedies for any breach. In addition, our trade secrets may otherwise become known or be independently discovered by competitors. To the extent that our customers, associates, consultants or contractors use IP owned by others in their work for us, disputes may arise as to the rights in related or resulting know-how and inventions.

Backlog

As of December 31, 2023 and 2022, our backlog for wind blades and related wind products totaled $767.3 million and $919.9 million, respectively. Our backlog includes purchase orders issued in connection with our supply agreements. We generally record a purchase order into backlog when the following requirements have been met: a signed supply agreement or other contractual agreement has been executed with our customer, a purchase order has been issued by our customer and we expect to ship wind blades to or produce the related wind products for such customer in satisfaction of any purchase order within 12 months. Backlog as of any particular date should not be relied upon as indicative of our revenue for any future period.

Regulation

Wind Energy

Our operations are subject to various foreign, federal, state and local regulations related to environmental protection, health and safety, labor relationships, general business practices and other matters. These regulations are administered by various foreign, federal, state and local environmental agencies and authorities, including the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration of the U.S. Department of Labor and comparable agencies in Mexico, Türkiye, India and individual U.S. states. In addition, our manufacturing operations in Mexico, Türkiye and India are subject to those countries' wage and price controls, currency exchange control regulations, investment and tax laws, laws restricting our ability to repatriate profits, trade restrictions and laws that may restrict foreign investment in certain industries. Some of these laws have only been recently adopted or are subject to further rulemaking or interpretation, and their impact on our operations, including the cost of complying with these laws, is uncertain. We believe that our operations currently comply, in all material respects, with applicable laws and regulations. Further, as a U.S. corporation, we are subject to The Foreign Corrupt Practices Act of 1977 (FCPA), which generally prohibits U.S. companies and their intermediaries from making improper payments to foreign officials for the purpose of obtaining or keeping business. As a U.S. corporation with global operations, we are also subject to foreign antibribery laws and regulations in the countries where we conduct business, including the U.K. Bribery Act and the India Prevention of Corruption Act.

In August 2022, the U.S. Congress passed the Inflation Reduction Act of 2022 (IRA) which effectively extended the Production Tax Credit for Renewable Energy (PTC), which provides owners of wind turbines with a credit against its U.S. federal income tax obligations based on the amount of electricity generated by the wind turbine, until the later of 2032 or when greenhouse gas emissions have been reduced by 75% compared to 2022. In addition, a new advanced manufacturing production tax credit (AMPC) was created that can be claimed for the domestic production and sale of clean energy components, such as wind turbine blades. We expect to utilize the AMPC when we restart our Newton, Iowa manufacturing plant. Although the passing of the IRA is expected to provide long-term incentive certainty in the U.S. market, the U.S. wind industry is waiting on more specific and definitive guidance from the Internal Revenue Services and U.S. Treasury Department, among others, to define and clarify the implementation of this complex legislation.

At the state level, as of December 31, 2023, 30 states, the District of Columbia and Puerto Rico have implemented renewable portfolio standard (RPS) programs that generally require that, by a specified date, a certain percentage of a utility's electricity supplied to consumers within such state is to be from renewable sources (ranging from 10% to 100% and from between the present and 2050).

In addition, there are also increasing regulatory efforts globally to promote renewable power. In December 2020, the European Union (EU) agreed to reduce EU greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels. In May 2022, the EU announced the REPowerEU plan which seeks to rapidly reduce the EU's dependence on fossil fuels by 2027. Furthermore, the EU introduced the Green Deal Industrial Plan that is expected to further accelerate the expansion of renewable energy and green technologies including easing state aid rules to enable higher subsidies. A key component of the Green Deal Industrial Plan is the Net-Zero Industry Act to simplify regulations, speed up permits and promote cross-border projects to accelerate climate neutrality. In November 2023, EU's Renewable Energy Directive III entered into effect, which aims to raise the share of renewable power in the EU's overall energy consumption to 42.5% by 2030, with an additional 2.5% indicative top up that would allow the overall share to reach 45%. Similarly, in December 2020, China announced its goal to reach carbon neutrality by 2060, and in November 2021, India targeted to increase its renewable energy capacity to 500 gigawatts by 2030 and to reach carbon neutrality by 2070. Additionally, Türkiye enacted Law No. 5346 in 2005, which was amended and extended in January 2021, to promote renewable-based electricity generation within their domestic electricity market through feed-in- tariffs and purchase obligations for distribution companies requiring purchases from certified renewable energy producers.

Human Capital

As of December 31, 2023, we employed more than 12,300 full-time associates, approximately 500 of whom were located in the U.S., 6,600 in Mexico, 3,600 in Türkiye, and 1,600 in India. Certain of our associates in Türkiye and at our manufacturing facilities in Matamoros, Mexico are represented by labor unions. We believe that our relations with our associates are generally good.

Our human capital strategy focuses on creating an exceptional associate experience and ensuring that we foster a learning culture where our associates want to grow with us. Our primary focus areas of our human capital strategy are as follows:

Culture

We believe our unique culture is a key strategic advantage for us. Our associates are highly engaged, have a strong sense of inclusion and belonging, and are committed to the Company, their teams, and the jobs they perform based on our most recent associate engagement surveys. Our associate engagement is due in part to a strong sense of purpose given our role in the broader renewable energy supply chain. We believe associate engagement and feelings of inclusion and belonging translates into a strong quality focus and orientation. When we select new persons to join our team, we ensure that the individuals have high levels of commitment and adaptability in addition to the skills needed for the role. Our associates embrace our core values of safety, operational excellence, commitment, integrity and leadership. Our team members bring our values to life by applying their diverse backgrounds and skillsets to the jobs they are performing, demonstrating high discretionary effort, and embracing our values in their day-to-day lives.

Safety

Safety is our most important and first core value. We believe that all accidents are preventable and that every associate should return at the end of their shift to their families in the same healthy condition in which they showed up for work. To help drive these beliefs it is our goal to continuously improve our zero-harm culture and implement a global behavior-based safety (BBS) program resulting in zero unsafe behaviors. All of our manufacturing facilities have safety management systems in place that cover their associates and activities. We ensure the safety of our associates to support our zero-harm culture in a variety of ways, starting with safety education. Safety education is the foundation for our other safety measures. Associates receive regular training on environmental, health and safety (EHS) related topics. This training includes but is not limited to:

- general awareness EHS training
- ergonomics training
- compliance training
- hazard-specific training as required for the job or task
- fire hazard and prevention training
- hazardous material training
- equipment-specific safety training
- safety incident and corrective action training

Inclusion, Diversity, Equity and Awareness

We value diversity in all forms, especially diversity of thought, and aspire to create an environment that recognizes and celebrates the benefits that come with a diverse workforce. We know that diversity of our associate population makes us better and we strive to continue to improve and act with intention in these areas. Most importantly we strive to create a culture of inclusion where everyone has a true sense of belonging and feels they can be themselves in the workplace.

As a global business, we have an incredible opportunity to benefit from the diversity we have in our Company. We can and will do more to maximize the positive impact that inclusion, diversity, equity, awareness and a feeling of belonging can bring. We believe that this and the rest of our vision statement for inclusion, diversity, equity, and awareness is a solid representation of what we believe in, are committed to, and how we will hold associates and leaders accountable. We have made progress towards increasing our representation of women at all levels of our organization, but we recognize we have an opportunity to further increase the representation of women as well as increase overall diversity in leadership as we add more talent to our leadership levels.

Talent

We market open jobs across multiple platforms such as our website, LinkedIn, internal postings and local job boards to ensure that our candidate pool is as diverse as possible. We promote having diversity on the interviewing and selection panel to ensure different points of view are considered as part of the final selection process. We enjoy high levels of retention across all of our geographies. On a global basis, our overall turnover rate declined in 2023 after a slight increase in 2022. We facilitate an annual talent review process in all regions and functional teams to promote the internal development and promotion of internal talent. We have enjoyed high participation in associate surveys, high engagement levels against industry normative data, and facilitated an inclusion survey in 2022 and 2023.

Environmental, Health and Safety

We are subject to various environmental, health and safety laws, regulations and permit requirements in the jurisdictions in which we operate governing, among other things, health, safety, pollution and protection of the environment and natural resources, the handling and use of hazardous substances, the generation, storage, treatment and disposal of wastes, and the cleanup of any contaminated sites. We are not aware of any pending environmental compliance or remediation matters that are reasonably likely to have a material adverse effect on our business, financial position or results of operations. However, failure by us to comply with applicable environmental and other requirements could result in fines, penalties, enforcement actions, third party claims, remediation actions, and could negatively impact our reputation with customers. We have adopted environmental, health and safety policies outlining our commitment to environmental responsibility and accountability and our desire to eliminate unsafe behaviors in the workplace. These policies apply to the Company as a whole, and our vendors and suppliers and are available on our website. We have a company-wide focus on safety and have implemented a number of measures to promote workplace safety. Customers are increasingly focused on safety records in their sourcing decisions due to increased regulations to report all incidents that occur at their sites and the costs associated with such incidents.

Available Information

Our website address is *www.tpicomposites.com.* All of our filings with the Securities and Exchange Commission (SEC), including this Annual Report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, statements of changes in beneficial ownership and amendments to those reports, along with any exhibits to such reports, are available free of charge on our website as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. The information contained on our website is neither a part of, nor incorporated by reference into, this Annual Report on Form 10-K. The SEC also maintains an Internet website that contains reports, proxy and information statements, and other information regarding issuers, like us, that file electronically with the SEC. The address of that website is *www.sec.gov*.

Our investor relations website address is *https://ir.tpicomposites.com/websites/tpicomposites/English/0/investor-relations.html* and includes key information about our corporate governance initiatives, including our Nominating and Corporate Governance Committee charter, charters of the Audit and Compensation committees and our Code of Business Conduct & Ethics.

Information about our Executive Officers

The following table sets forth certain information regarding our Executive Officers as of February 22, 2024:

Name, Age	Position	Year Appointed as Executive Officer of TPI Composites, Inc.	Business Experience since January 1, 2018
William Siwek, 61	President, Chief Executive Officer and Director	2013	TPI Composites, Inc.: Chief Executive Officer since May 2020, President from May 2019 to May 2020, Chief Financial Officer from August 2013 to May 2019. American Clean Power Association: Director since March 2021.
Charles Stroo, 48	Chief Operating Officer, Wind	2023	TPI Composites, Inc.: Chief Operating Officer since November 2023. Collins Aerospace: Vice President of Power & Controls Operations from March 2023 to November 2023, Vice President of Avionics Operations from February 2020 to March 2023, Senior Director Operations from March 2019 to February 2020, Director Mexicali Operations from November 2015 to March 2019.
Ryan Miller, 49	Chief Financial Officer	2022	TPI Composites, Inc.: Chief Financial Officer since May 2022. Collins Aerospace: Vice President and Chief Financial Officer of Avionics Division from November 2018 to February 2022. Rockwell Collins: Vice President and Controller of the Commercial Systems Division from April 2017 to November 2019.
Lance Marram, 52	Chief Commercial Officer, Wind	2022	TPI Composites, Inc.: Chief Commercial Officer since January 2022, Senior Vice President, Global Service from October 2019 to January 2022. Senvion North America: Managing Director from June 2017 to July 2019.
Jerry Lavine, 55	President, Automotive	2021	TPI Composites, Inc.: President, Automotive since June 2021. Independent Consultant: From January 2021 to June 2021. Bordrin New Energy Vehicle Corporation: Chief Technology Officer and President of North America from November 2017 to January 2021.
Steven Fishbach, 54	General Counsel and Secretary	2015	TPI Composites, Inc.: General Counsel since January 2015.

Item 1A. Risk Factors

You should carefully consider the following risk factors. If any of the events contemplated by the following discussion of risks should occur, our business, results of operations, financial condition, growth prospects and cash flows could suffer significantly. Additional risks that we currently do not know about or that we currently believe to be immaterial may also impair our business. Certain statements below are forward-looking statements. See "Special Note Regarding Forward-Looking Statements" in this Annual Report on Form 10-K.

Risks Related to Our Wind Business

A significant portion of our business is derived from a small number of customers, therefore any loss of or reduction in purchase orders, failure of these customers to fulfill their obligations or our failure to secure supply agreement renewals from these customers could materially harm our business.

Substantially all of our revenues are derived from three wind blade customers. Vestas, GE Vernova and Nordex accounted for 35.8%, 24.6% and 30.3%, respectively, of our total net sales for the year ended December 31, 2023, and 36.2%, 20.8% and 32.6%, respectively, of our total net sales for the year ended December 31, 2022, and 30.9%, 29.0% and 25.4%, respectively, of our total net sales for the year ended December 31, 2021. Accordingly, we are substantially dependent on continued business from our current wind blade customers. If one or more of our wind blade customers were to reduce or delay wind blade orders, file for bankruptcy or become insolvent, fail to pay amounts due or satisfactorily perform their respective contractual obligations with us or otherwise terminate or fail to renew their supply agreements with us, our business, financial condition and results of operations could be materially harmed.

Defects in materials and workmanship or wind blade failures could harm our reputation, expose us to product warranty or other liability claims, decrease demand for wind blades we manufacture, or materially harm existing or prospective customer relationships, and our reserves for warranty expenses might not be sufficient to cover all future costs.

Defects in the wind blades we manufacture are unpredictable and an inherent risk in manufacturing technically advanced products that involve a significant amount of manual labor and processes. Defects may arise from multiple causes, including design, engineering, materials, manufacturing and component failures as well as deficiencies in our manufacturing processes. Under our supply agreements, we warranty the materials and workmanship of the wind blades while our customers are responsible for the fitness of use and design of the wind blades. We have experienced wind blade failures and defects at some of our facilities during the startup manufacturing phase of new products, and we may experience failures or defects in the future. Wind blades that we have manufactured have also failed in the field. Any wind blade failures or other product defects in the future could materially harm our existing and prospective customer relationships. Specifically, negative publicity about the quality of the wind blades we manufacture or defects in the wind blades supplied to our customers could result in a reduction in wind blade orders, increased warranty claims, product liability claims and other damages or termination of our supply agreements or business relationships with current or new customers. Any of the foregoing could materially harm our business, operating results and financial condition.

We provide warranties for all of the wind blades and precision molding and assembly systems we produce, including parts and labor, for periods that typically range from two to five years depending on the product sold. Our estimate of warranty expense requires us to make assumptions about matters that are highly uncertain, including future rates of product failure, repair costs, shipping and handling and de-installation and re-installation costs at customers' sites. Our assumptions could be materially different from the actual performance of our products and these remediation expenses in the future. The expenses associated with wind blade repair and remediation activities can be substantial and may include changes to our manufacturing processes. If our estimates prove materially incorrect, we could incur warranty expenses that exceed our reserves and we could be required to make material unplanned cash expenditures, which could materially harm our business, operating results and financial condition.

We have experienced, and could in the future experience, quality or operational issues in connection with plant construction, expansion or assumption which could result in losses and cause delays in our ability to complete our projects and may therefore materially harm our business, financial condition and results of operations.

We dedicate most of the capacity of our current wind blade manufacturing facilities to existing customers and, as a result, we may need to build additional manufacturing capacity or facilities to serve the needs of new customers or expanded needs of existing customers. We currently conduct operations at five manufacturing facilities in Mexico, one in Türkiye, and one in Chennai, India. The construction of new plants and the expansion or assumption of existing plants involves significant time, cost and other risks. We generally expect our plants to generate losses in their first 12 to 18 months of operations related to production startup costs. Additionally, numerous factors can contribute, and have in the past contributed, to delays or difficulties in the startup of, or the adoption of our manufacturing lines to produce larger wind blade models, which we refer to as model transitions, in our manufacturing facilities. These factors include permitting, construction or renovation delays, defects or issues with product tooling, the engineering and fabrication of specialized equipment, the modification of our general production know-how and customer-specific manufacturing processes to address the specific wind blades to be tested and built, changing and evolving customer specifications and expectations and the hiring and training of plant personnel. Any delays or difficulties in plant startup, expansion or assumption may result in cost overruns, production delays, contractual penalties, loss of revenues, reduced margins and impairment of customer relationships, which could materially harm our business, financial condition and results of operations. In 2022 and 2023, we experienced significant production delays at the Matamoros, Mexico manufacturing facility that we took over from Nordex in July 2021 due to the poor condition of the facility and related equipment, which adversely impacted our profitability and financial condition.

Some of our supply agreements with our customers are subject to early termination and volume reductions at the discretion of our customers, and any early termination of or reduced volumes of wind blades purchased under these agreements could materially harm our business, financial condition and results of operations.

Our supply agreements expire between December of 2024 and December of 2025. Some of our supply agreements contain provisions that allow for the early termination of these agreements upon the customer providing us with advance written notice and paying an early termination fee. Our supply agreements generally establish annual purchase requirements on which we rely for our future production and financial forecasts. However, the timing and volume of purchases, within certain parameters, may be subject to change by our customers. The amount of the annual purchase requirements typically declines in the later years of our supply agreements. Our customers may not continue to maintain supply agreements with us in the future. For example, Vestas terminated its Yangzhou, China supply agreement at the end of 2022, even though it was set to expire at the end of 2023, and paid to us an early termination fee. If one or more of our customers terminate or reduce the number of manufacturing lines and volumes of wind blades purchased, or fail to renew their supply agreements with us, it may materially harm our business, financial condition and results of operations.

Although a majority of our manufacturing facilities are located outside the U.S., our business is still heavily dependent upon the demand for wind energy in the U.S. and any downturn in demand for wind energy in the U.S. could materially harm our business.

We have developed a global footprint to serve the growing wind energy market worldwide and have wind blade manufacturing facilities in the U.S., Mexico, Türkiye and India. Although a majority of our manufacturing facilities are located outside of the U.S., historically more than half of the wind blades that we produced were deployed in wind farms located within the U.S. Our Iowa manufacturing facility, where production has been shut down since the end of the fourth quarter of 2021, and our Mexico manufacturing facilities manufacture wind blades that are generally deployed within the U.S. In addition, many of our wind blades are exported from our Türkiye and India manufacturing facilities to the U.S. Consequently, demand for wind energy and our wind blade sales could be adversely affected by a variety of reasons and factors, and any downturn in demand for wind energy in the U.S. could materially harm our business. We expect that demand for wind turbine blades in 2024 will be slightly down compared to 2023 due to our customers and wind farm developers continuing to defer investments into the future until inflationary pressure and global economies stabilize, and there is clearer regulatory guidance with respect to the IRA and actions proposed by the EU under the REPowerEU plan and the Green Deal Industrial Plan.

We have experienced volatility in the price and availability of raw materials and components that are critical to our manufacturing needs, as well as ongoing inflationary pressures impacting many of our labor and other costs, and we may continue to, or in the future, experience price increases, supply constraints, and inflationary pressures, which may hinder our ability to perform under our supply agreements and adversely impact our profitability and financial condition.

We rely upon third parties for raw materials, such as fiberglass, carbon fiber, resins, foam core and balsa wood, and various components for the products we manufacture. Some of these raw materials and components may only be purchased from a limited number of suppliers. Current geopolitical climate, such as the attacks on shipping vessels in the Red Sea, and the economic environment generally, including with respect to inflation, continue to evolve and affect supply chain performance and underlying assumptions in various ways – specifically with volatility in commodity, energy, and logistics costs. However, the overall pricing for the raw materials that we source decreased in 2023 compared to 2022 due to decreases in pricing and logistics costs. We expect to see a further decrease in material pricing in 2024. If the prices for these raw materials and logistics costs revert back to the levels we experienced in 2021 and 2022, such elevated price levels could have a material impact on our results of operations.

Additionally, our ability to purchase the appropriate quantities of raw materials is constrained by our customers' transitioning wind blade designs and specifications. As a result, we maintain, closely monitor and manage inventory and acquire raw materials and components as needed and with consideration to lead time factors. Due to fluctuating international demand for these raw materials from many industries, and extended logistics lead times, we may be unable to acquire sufficient quantities or secure a stable supply for our manufacturing needs. One of our customers sources all of the critical raw materials that we use to produce such customers' wind blades. Since we do not source procurement of these raw materials for this customer, we have fewer controls and remedies to mitigate raw material and supply chain risks and disruptions relating to such raw materials for such customer.

In 2023, we procured approximately 11% of our raw materials from China so any ocean logistic delays arising from attacks on shipping vessels in the Red Sea or otherwise, weather events, strikes, other force majeure events or geopolitical developments impacting China could disrupt our supply chain. In addition, a disruption in any aspect of our global supply chain caused by transportation delays, customs delays, cost issues or other factors could result in a shortage of raw materials or components critical to our manufacturing needs. Any supply shortages, delays in the shipment of materials or components from third party suppliers, or changes in the terms on which they are available could disrupt or materially harm our business, operating results and financial condition.

Ongoing inflationary pressures have caused and may continue to cause many of our material, labor, and other costs to increase, which can have adverse impacts on our results of operations. The government of Mexico increased minimum wages approximately 20% effective January 1, 2023, and an additional 20% effective January 1, 2024. The government of Türkiye increased minimum wages approximately 55%, 34% and 49%, respectively, effective January 1, 2023, July 1, 2023, and January 1, 2024. In May 2023 we agreed to an amendment to our collective bargaining agreement with our associates in Türkiye which resulted in significantly increased wages for these associates. While our customer contracts allow us to pass a portion of these increases to our customers, we will not be able to recover 100% of the wage inflation. If our manufacturing facilities in these countries continue to experience wage inflation at these levels and the increased costs in local currency are not offset with favorable foreign currency fluctuations, such elevated wages could have a material impact on our results of operations and financial condition.

Demand for the wind blades we manufacture may fluctuate for a variety of reasons, including the growth of the wind industry, and decreases in demand could materially harm our business and may not be sufficient to support our growth strategy.

Our revenues, business prospects and growth strategy heavily depend on the continued growth of the wind industry and our customers' continuing demand for wind blades. Customer demand could decrease from anticipated levels due to numerous factors outside of our control that may affect the development of the wind energy market generally, portions of the market or individual wind project developments, including:

- general economic conditions;
- the general availability and demand for electricity;

- wind energy market volatility;
- cost-effectiveness, availability and reliability of alternative sources of energy and competing methods of producing electricity, including solar and non-renewable sources such as natural gas;
- foreign, federal and state governmental tariffs, subsidies and tax or regulatory policies;
- delays or cancellations of government tenders or auctions for wind energy projects;
- the availability of financing for wind development projects;
- the development of electrical transmission infrastructure, the ability to implement a proper grid connection for wind development projects, and the ability to obtain timely permitting approvals;
- permitting and siting regulations and challenges;
- foreign, federal and state laws and regulations regarding avian protection plans, noise or turbine setback requirements and other environmental laws and regulations;
- our customers' cost of transporting wind blades from our manufacturing facilities to wind farms;
- increases in the price or lack of availability of raw materials used to produce our wind blades;
- administrative and legal challenges to proposed wind development projects; and
- public perception and localized community responses to wind energy projects.

In 2023, we experienced a decline in demand for our wind turbine blades due primarily to regulatory uncertainty as our customers and wind farm developers continued to defer investments into the future until inflationary pressure and global economies stabilize, and there is clearer regulatory guidance with respect to the IRA and actions proposed by the EU under the REPowerEU plan, which adversely impacted our operating results. We expect that demand for wind turbine blades in 2024 will remain slightly down. In addition to factors affecting the wind energy market generally, our customers' demand may also fluctuate based on other factors beyond our control. Any decline in customer demand below anticipated levels could materially harm our revenues and operating results and could delay or impede our growth strategy.

We have experienced in the past, and our future wind blade production could be affected by, operating problems at our facilities, which may materially harm our operating results and financial condition.

Our wind blade manufacturing processes and production capacity have in the past been, and could in the future be, disrupted by a variety of issues, including:

- production outages to conduct maintenance activities that cannot be performed safely during operations;
- prolonged power failures or reductions;
- breakdowns, failures or substandard performance of machinery and equipment;
- our inability to comply with material environmental requirements or permits;
- inadequate transportation infrastructure, including problems with railroad tracks, bridges, tunnels or roads;
- supply shortages of key raw materials and components;
- damage or production delays caused by earthquakes, fires, floods, tornadoes, hurricanes, extreme weather conditions such as windstorms, hailstorms, drought, temperature extremes, typhoons or other natural disasters or terrorism or health epidemics; and
- labor unrest or shortages in skilled labor.

The cost of repeated or prolonged interruptions, reductions in production capacity, or the repair or replacement of complex and sophisticated tooling and equipment may be considerable and could result in damages or the termination of our supply agreements or penalties for regulatory non-compliance, any of which could materially harm our business, operating results and financial condition.

We operate a substantial portion of our business in international markets and we may be unable to effectively manage a variety of currency, legal, regulatory, economic, social and political risks associated with our global operations and those in developing markets.

We currently operate manufacturing facilities in the U.S., Mexico, Türkiye, and India. Since the third quarter of 2016, we commenced operations at five new manufacturing facilities in Mexico, one in Türkiye, and one in Chennai, India. For the years ended December 31, 2023, 2022 and 2021, approximately 96%, 94% and 87%, respectively, of our net sales were derived from our continuing international operations. Our overall success depends, in part, upon our ability to succeed in differing legal, regulatory, economic, social and political conditions. The global nature of our operations is subject to a variety of risks, including:

- difficulties in staffing and managing multiple international locations;
- the risk of significant wage inflation in Türkiye, Mexico and other countries in which we operate, and continuing general inflationary pressures in these markets;
- increased exposure to foreign currency exchange rate risk or currency exchange controls imposed by foreign countries;
- the risk of import, export and transportation regulations and tariffs on foreign trade and investment, including boycotts and embargoes;
- taxation and revenue policies or other restrictions, including royalty and tax increases, retroactive tax claims and the imposition of unexpected taxes;
- the imposition of, or rapid or unexpected adverse changes in, foreign laws, regulatory requirements or trade policies;
- restrictions on repatriation of earnings or capital or transfers of funds into or out of foreign countries;
- limited protection for IP rights in some jurisdictions;
- inability to obtain adequate insurance;
- difficulty administering internal controls and legal and compliance practices in countries with different cultural norms and business practices;
- the possibility of being subjected to the jurisdiction of foreign courts in connection with legal disputes and the possible inability to subject foreign persons to the jurisdiction of courts in the U.S.;
- the misinterpretation of local contractual terms, renegotiation or modification of existing supply agreements and enforcement of contractual terms in disputes before local courts;
- the inability to maintain or enforce legal rights and remedies at a reasonable cost or at all; and
- the potential for political unrest, expropriation, nationalization, revolution, war or acts of terrorism in countries in which we operate.

As we continue to operate our business globally, our success will depend, in part, on our ability to anticipate and effectively manage these and other related risks. We may be unsuccessful in developing and implementing policies and strategies that will be effective in managing these risks in each country where we do business or conduct operations. Our failure to manage these risks successfully could materially harm our business, operating results and financial condition.

A drop in the price of energy sources other than wind energy, or our inability to deliver wind blades that compete with the price of other energy sources, may materially harm our business, financial condition and results of operations.

We believe that the decision to purchase wind energy is, to a significant degree, driven by the relative cost of electricity generated by wind turbines compared to the applicable price of electricity from traditional (i.e., thermal) and other renewable energy sources. Decreases in the prices of electricity from traditional or renewable energy sources other than wind energy, such as solar, could harm the market for wind energy. In particular, a drop in natural gas prices could lessen the appeal of wind-generated electricity. Technological advancements or the construction of a significant number of power generation plants, including nuclear, coal, natural gas or power plants utilizing other renewable energy technologies, government support for other forms of renewable energy or construction of additional electric transmission and distribution lines could reduce the price of electricity produced by competing methods, thereby making the purchase of wind energy less attractive. The ability of energy conservation technologies, public initiatives and government incentives to reduce electricity consumption or support other forms of renewable energy could also lead to a reduction in the price of electricity, which would undermine the attractiveness of wind energy and thus wind turbines, and, ultimately wind blades. If prices for electricity generated by wind turbines are not competitive, our business, financial condition and results of operations may be materially harmed.

We encounter intense competition for limited customers from other wind blade manufacturers, as well as in-house production by wind turbine OEMs, which may make it difficult to enter into supply agreements, keep existing customers and potentially get new customers.

We face significant competition from other wind blade manufacturers, and this competition may intensify in the future. The wind turbine market is characterized by a relatively small number of large OEMs. The competitive environment in the wind energy industry recently has become more challenging primarily due to ongoing regulatory uncertainty and supply chain constraints and significant raw material price increases. This challenging environment may lead to further consolidation in the industry, which could lead to us having even fewer customers. In addition, a significant percentage of wind turbine OEMs, including all of our current customers, produce some of their own wind blades in-house. As a result, we compete for business from a limited number of customers that outsource the production of wind blades. We also compete with a number of wind blade manufacturers in China, who are growing in terms of their technical capability and aspire to expand outside of China. Some of our competitors have more experience in the wind energy industry, as well as greater financial, technical or human resources than we do, which may limit our ability to compete effectively with them and maintain or improve our market share. Additionally, our supply agreements dedicate capacity at our facilities to our customers, which may also limit our ability to compete if our facilities cannot accommodate additional capacity. If we are unable to compete effectively for the limited number of customers that outsource production of wind blades, our ability to enter into supply agreements with potential new and existing customers may be materially harmed.

Various legislation, infrastructure, regulations including permitting and siting and incentives that are expected to support the growth of wind energy in the U.S. and around the world may not be extended or may be discontinued, phased out or changed, or may not be successfully implemented, which could materially harm wind energy programs and materially decrease demand for the wind blades we manufacture.

The U.S. wind energy industry has been dependent in part upon governmental support through certain incentives including federal tax incentives and state RPS programs and may not be economically viable if a large number of these incentives are not continued. Government-sponsored tax incentive programs including the PTC, and the Investment Tax Credit (ITC) have supported the U.S. growth of wind energy. In August 2022, the PTC was extended until the later of 2032 or when greenhouse gas emissions have been reduced by 75% compared to 2022. In addition, a new advanced manufacturing production tax credit (AMPC) was created that can be claimed for the domestic production and sale of clean energy components, such as wind turbine blades. There are also increasing regulatory efforts globally to promote renewable energy. In December 2020, the EU agreed to reduce EU greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels. In May 2022, the EU announced the REPowerEU plan which seeks to rapidly reduce the EU's dependence on fossil fuels by 2027. Furthermore, the EU introduced the Green Deal Industrial Plan that is expected to further accelerate the expansion of renewable energy and green technologies including easing state aid rules to enable higher subsidies. A key component of the Green

Deal Industrial Plan is the Net-Zero Industry Act to simplify regulations, speed up permitting and promote cross-border projects to accelerate climate neutrality in Europe. In November 2023, EU's Renewable Energy Directive III, which aims to raise the share of renewable power in the EU's overall energy consumption to 42.5% by 2030, with an additional 2.5% indicative top up that would allow the overall share to reach 45%, entered into effect. We expect that the new government policy will accelerate long-term growth in the wind industry. Despite these favorable long-term policy trends, we don't expect an increase in demand until 2025, while the wind industry awaits clarity on the implementation guidance related to key components of the IRA and clarity around more robust policies in Europe. In addition, permitting, transmission, transmission queues, the ability of the broader wind industry supply chain to ramp volume, elevated interest rates and inflation, and the cost and availability of capital are further factors limiting the timing of the wind market recovery.

Because of the long lead times necessary to develop wind energy projects, including obtaining necessary permits or access to transmission infrastructure, any uncertainty or delay in reinstituting the PTC and ITC or adopting, extending or renewing other incentives promoting wind energy beyond their current or future expiration dates could negatively impact potential wind energy installations and result in industry volatility. There can be no assurance that governmental programs or subsidies for renewable energy will remain in effect in their present form or at all, or that the required transmission infrastructure expansion occurs, and the elimination, reduction, or modification of these programs or subsidies could materially harm wind energy programs in the U.S. and international markets and materially decrease demand for the wind blades we manufacture and, in turn, materially harm our business, operating results and financial condition. Although regulatory uncertainty, as well as permitting, siting and transmission challenges in the U.S. and Europe has tempered demand for wind energy in the near term, we expect global demand for renewable energy, and wind energy in particular, will continue to grow in the long term due to a multitude of factors, including: increased cost competitiveness of wind energy compared to fossil fuel generated electricity; increased demand from corporations and utility providers for renewable energy; and recent international policy initiatives designed to promote the growth of renewable energy.

Risks Related to Our Automotive Business

Our efforts to expand our automotive business or consummate a strategic transaction to further expand and fund our automotive business may not be successful.

While our primary focus has been to manufacture composite wind blades, we also serve the automotive market. We have experienced startup challenges and incurred significant losses to date in connection with our automotive business. The expansion of our automotive business and our entry into other strategic markets will require improved execution in terms of our start up activity and ongoing manufacturing performance as well as significant levels of investment. As a result, we are in the process of exploring strategic alternatives to ensure our automotive business is sufficiently funded to execute on its growth strategies. We expect to complete this process no later than June 30, 2024. There can be no assurance that we will be able to grow or adequately fund our automotive business which could adversely impact our business, financial condition and results of operations.

We may incur material losses and costs as a result of product liability and warranty claims, litigation and other disputes and claims.

We are exposed to warranty and product liability claims if our automotive products fail to perform as expected. We may in the future be required to participate in a recall of these products or the vehicles incorporating our products. If public safety concerns are raised, we may have to participate in a recall even if our products are ultimately found not to be defective. Vehicle manufacturers have experienced increasing recall campaigns in recent years. Our customers may look to us for contribution when faced with recalls and product liability claims. If our customers demand higher warranty-related cost recoveries, or if our automotive products fail to perform as expected, our business, financial condition and results of operations could materially suffer.

Risks Related to Our Business as a Whole

Our financial position, revenue, operating results, profitability and cash flows are difficult to predict and may vary from quarter to quarter, which could cause our share price to decline significantly.

Our quarterly revenue, operating results, profitability and cash flows have varied in the past and are likely to vary significantly from quarter to quarter in the future. The factors that are likely to cause these variations include:

- warranty expense;
- associate wage levels and wage inflation in Türkiye, Mexico and other countries in which we operate, and continuing general inflationary pressures in these markets;
- operating and startup costs of new manufacturing facilities;
- wind blade model transitions;
- differing quantities of wind blade production;
- unanticipated contract or project delays or terminations;
- changes in the costs of raw materials or disruptions in raw material supply;
- scrap of defective products;
- payment of liquidated damages to our customers for late deliveries of our products;
- availability of qualified personnel;
- costs incurred in the expansion of our existing manufacturing capacity;
- volume reduction requests from our customers pursuant to our customer agreements;
- damage or production delays caused by earthquakes, fires, floods, tornadoes, hurricanes, extreme weather conditions such as windstorms, hailstorms, drought, temperature extremes, typhoons or other natural disasters or terrorism or health epidemics such as the COVID-19 pandemic;
- changes in our effective tax rate;
- general economic conditions; and
- the complexity of the financial assumptions we must use for forecasting our revenue, profitability and operating results under the revenue recognition standard and the impact that unanticipated blade transitions have on those estimates.

As a result, our revenue, operating results, profitability and cash flows for a particular period are difficult to predict and may decline in comparison to corresponding prior periods regardless of the strength of our business. It is also possible that in some future periods our revenue, operating results and profitability may not meet the expectations of securities analysts or investors. If this occurs, the trading price of our common stock could fall substantially, either suddenly or over time, and our business, operating results and financial condition would be materially harmed.

Our Credit Agreement with Oaktree contains, and any future loan agreements we may enter into may contain, operating and financial covenants that restrict our business and financing activities.

As of December 31, 2023, we had outstanding $395.0 million of senior, secured indebtedness under the Credit Agreement and Guaranty, dated as of December 14, 2023, between the Company and Oaktree Fund Administration, LLC (the Credit Agreement) and total outstanding indebtedness of $606.1 million. Our obligations under the Credit Agreement are secured by substantially all of our assets. In addition, from time to time, we enter into various loan, working capital and accounts receivable financing facilities to finance the construction and ongoing operations of our advanced manufacturing facilities and other capital expenditures. The Credit Agreement contains various financial covenants and other restrictions regarding, among other things, maintaining minimum cash balances, making capital expenditures and other restricted payments, incurring additional indebtedness, creating liens, and paying dividends. The operating and financial restrictions and covenants contained in the Credit Agreement, as well as our other existing and any future financing agreements that we may enter into, may restrict our ability to finance our operations, engage in business activities, expand or fully pursue our business strategies or respond to changing business and economic conditions. Our ability to comply with these covenants may be affected by events beyond our control. A breach of any of these covenants could result in a default under the Credit Agreement or one or more of our other loan facilities, which could cause all of the outstanding indebtedness under such agreements to become immediately due and payable by us and/or enable the applicable lender to terminate all commitments to extend further credit. If we are forced to refinance these borrowings on less favorable terms or if cannot refinance these borrowings, our results of operations and financial condition could be adversely affected. In addition, if we were unable to repay the outstanding indebtedness upon a default, our lenders could proceed against the assets pledged as collateral to secure that indebtedness. Any acceleration of the amounts due under the Credit Agreement, or the exercise by the applicable lenders or agent of their rights under the related security documents, would likely have a material adverse effect on our business.

Our indebtedness may adversely affect our business, results of operations and financial condition.

Our indebtedness could adversely affect our business, results of operations and financial condition by, among other things:

- requiring us to dedicate a substantial portion of our cash flow from operations to pay principal and interest on our debt, which would reduce the availability of our cash flow to fund working capital, capital expenditures, acquisitions, execution of our growth strategy and other general corporate purposes;
- limiting our ability to borrow additional amounts to fund debt service requirements, working capital, capital expenditures, acquisitions, execution of our growth strategy and other general corporate purposes;
- making us more vulnerable to adverse changes in general economic, industry and regulatory conditions and in our business by limiting our flexibility in planning for, and making it more difficult to react quickly to, changing conditions;
- placing us at a competitive disadvantage compared with those of our competitors that have less debt and lower debt service requirements; and
- making it more difficult for us to satisfy our financial obligations.

In addition, we may not be able to generate sufficient cash flow from our operations to repay our outstanding indebtedness when it becomes due and to meet our other cash needs or to comply with the financial covenants set forth therein. If we are not able to pay our debts as they become due, we could be in default of the Credit Agreement or other indebtedness. We might also be required to pursue one or more alternative strategies to repay indebtedness, such as selling assets, refinancing or restructuring our indebtedness or obtaining additional debt financing or selling equity securities on terms that may be onerous or highly dilutive. We may not be able to refinance our debt or sell additional debt or equity securities or our assets on favorable terms, if at all, and if we must sell assets, it may negatively affect our ability to generate revenues.

The fluctuation of foreign currency exchange rates could materially harm our financial results.

Since we conduct a significant portion of our operations internationally, our business is subject to foreign currency risks, including currency exchange rate fluctuations. The exchange rates are affected by, among other things, changes in political and economic conditions. For example, an increase in our Türkiye sales and operations will result in a larger portion of our net sales and expenditures being denominated in the Euro and Turkish Lira. Significant fluctuations in the exchange rate between the Turkish Lira and the U.S. dollar, the Turkish Lira and the Euro or the Euro and the U.S. dollar may adversely affect our revenue, expenses, as well as the value of our assets and liabilities. To the extent our future revenues and expenses are generated outside of the U.S. in currencies other than the U.S. dollar, including the Euro, the Turkish Lira, Mexican Peso or India Rupee, among others, we will be subject to increased risks relating to foreign currency exchange rate fluctuations which could materially harm our business, financial condition and operating results.

Our manufacturing operations and future growth are dependent upon the availability of capital, which may be insufficient to support our capital expenditures.

Our current wind blade manufacturing activities and future growth will require substantial capital investment. For the years ended December 31, 2023 and 2022, our capital expenditures, including those related to discontinued operations, were $36.1 million and $18.8 million, respectively, including assets acquired under finance leases in 2023 and 2022 of $0.8 million and $0.2 million, respectively. We plan to make continued investments in our U.S., Türkiye, Mexico, and India facilities. Our ability to grow our business is predicated upon us making significant additional capital investments to expand our existing manufacturing facilities and build and operate new manufacturing facilities in existing and new markets or access capital to acquire new businesses. We may not have the capital to undertake these capital investments. In addition, our capital expenditures may be significantly higher if our estimates of future capital investments are incorrect and may increase substantially if we are required to undertake actions to comply with new regulatory requirements or compete with new technologies. The cost of some projects may also be affected by foreign exchange rates if any raw materials or other goods must be paid for in foreign currency. We cannot assure you that we will be able to raise funds on favorable terms, if at all, or that future financings would not be dilutive to holders of our capital stock. We also cannot assure you that completed capital expenditures will yield the anticipated results. The Credit Agreement contains covenants that limit the amount of capital expenditures that we can make, and if we raise additional funds by obtaining loans from third parties, the terms of those financing arrangements may include negative covenants, or other restrictions on our business that could impair our operational flexibility and would require us to fund additional interest expense. If we are unable to obtain sufficient capital at a reasonable cost or at all, we may not be able to expand our business to take advantage of changes in the marketplace or may be required to delay, reduce or eliminate some or all of our current operations, which could materially harm our business, operating results and financial condition.

Our business and reputation could be adversely impacted by any violations of the FCPA, the U.K. Bribery Act, and other foreign anti-corruption laws.

As a U.S. corporation, we are subject to the FCPA, which generally prohibits U.S. companies and their intermediaries from making improper payments to foreign officials for the purpose of obtaining or keeping business. Other countries in which we operate also have anti-corruption laws, some of which prohibit improper payments to government and non-government persons and entities, and others extend their application to activities outside their country of origin. We have manufacturing facilities in Mexico, Türkiye and India, countries with a fairly high risk of corruption. Those facilities are subject to routine government oversight. In addition, a number of our raw materials and components suppliers are state-owned, particularly in China. Moreover, due to our need to import raw materials across international borders, we also routinely have interactions, directly or indirectly, with customs officials. In many foreign countries, under local custom, businesses engage in practices that may be prohibited by the FCPA or other similar laws and regulations. Additionally, we continue to hire associates around the world to support our international operations. Although we have implemented certain policies, procedures and controls designed to ensure compliance with the FCPA and similar laws, there can be no guarantee that all of our associates and agents, as well as those companies to which we outsource certain of our business operations, have not taken and will not take actions that violate our policies and the FCPA or other anti-corruption laws, which could subject us to fines, penalties, disgorgement, and loss of business, harm our reputation and impact our ability to compete in certain jurisdictions. In addition, these laws are complex and far-reaching in nature, and, as a result, we may be required in the future to alter one or more of our practices to be in compliance with these laws or any changes in these laws or the interpretation thereof. Moreover, our competitors may not be subject to the FCPA or similar laws, which could provide them with a competitive advantage in some jurisdictions.

Effective internal controls are necessary for us to provide reliable financial reports and effectively address fraud risks.

We maintain a system of internal controls to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles (GAAP). The process of designing and implementing effective internal controls is a continuous effort that requires us to anticipate and react to changes in our business and the economic and regulatory environments and to expend significant resources to establish and maintain a system of internal controls that will be adequate to satisfy the reporting obligations of a public company. The effectiveness of our internal controls depends in part on the cooperation of senior managers worldwide.

Any system of controls, however well designed and operated, can provide only reasonable, and not absolute, assurance that the objectives of the system are met. Any failure to maintain that system, or consequent inability to produce accurate financial statements on a timely basis, could increase our operating costs and harm our business, and lead to our becoming subject to litigation, sanctions or investigations by The NASDAQ Global Market (NASDAQ), the SEC or other regulatory governmental agencies and bodies. Furthermore, investors' perceptions that our internal controls are inadequate or that we are unable to produce accurate financial statements on a timely basis may harm our stock price.

Much of our intellectual property consists of trade secrets and know-how that is very difficult to protect. If we experience loss of protection for our trade secrets or know-how, our business would be substantially harmed.

We have a variety of IP rights, including patents, trademarks and copyrights, but much of our most important IP rights consist of trade secrets and know-how and effective IP protection may be unavailable, limited or outside the scope of the IP rights we pursue in the U.S. and in foreign countries where we operate. Although we strive to protect our IP rights, there is always a risk that our trade secrets or know-how will be compromised or that a competitor could lawfully reverse-engineer our technology or independently develop similar or more efficient technology. We have confidentiality agreements with each of our customers, suppliers, key associates and independent contractors in place to protect our IP rights, but it is possible that a customer, supplier, associate or contractor might breach the agreement, intentionally or unintentionally. It is also possible that our confidentiality agreements with customers, suppliers, associates and contractors will not be effective in preserving the confidential nature of our IP rights. The patents we own could be challenged, invalidated, narrowed or circumvented by others and may not be of sufficient scope or strength to provide us with any meaningful protection or commercial advantage. Once our patents expire, or if they are invalidated, narrowed or circumvented, our competitors may be able to utilize the inventions protected by our patents. Additionally, the existence of our IP rights does not guarantee that we will be successful in any attempt to enforce these rights against third parties in the event of infringement, misappropriation or other misuse, which may materially and adversely affect our business. Because our ability to effectively compete in our industry depends upon our ability to protect our proprietary technology, we might lose business to competitors and our business, revenue, operating results and prospects could be materially harmed if we suffer loss of trade secret and know-how protection or breach of our confidentiality agreements.

We may be subject to significant liabilities and costs relating to environmental and health and safety requirements.

We are subject to various environmental, health and safety laws, regulations and permit requirements in the jurisdictions in which we operate governing, among other things, health, safety, pollution and protection of the environment and natural resources, the handling and use of hazardous substances, the generation, storage, treatment and disposal of wastes, and the cleanup of any contaminated sites.

We have incurred, and expect to continue to incur, capital and operating expenditures to comply with such laws, regulations and permit requirements. While we believe that we currently are in material compliance with all such laws, regulations and permit requirements, any noncompliance may subject us to a range of enforcement measures, including the imposition of monetary fines and penalties, other civil or criminal sanctions, remedial obligations, and the issuance of compliance requirements restricting our operations.

There can be no assurance that we will not in the future become subject to compliance requirements, obligations to undertake cleanup or related activities, or claims or proceedings relating to environmental, health or safety matters, hazardous substances or wastes, contaminated sites, or other environmental or natural resource damages, that could impose significant liabilities and costs on us and materially harm our business, operating results and financial condition.

Work disruptions resulting from our collective bargaining agreements could result in increased operating costs and materially harm our business, operating results and financial condition.

Certain of our associates in Türkiye and Matamoros, Mexico, which in the aggregate represented approximately 37% of our workforce as of December 31, 2023, are covered by collective bargaining agreements.

We have separate collective bargaining agreements for each of our Matamoros, Mexico manufacturing facilities. Our collective bargaining agreement at one of our Matamoros, Mexico manufacturing facilities is in effect through March 2025. Our collective bargaining agreement for our other facility in Matamoros, Mexico that we took over from Nordex in July 2021, pursuant to a 3-year supply agreement, is in effect through April 2025.

In July 2022, we experienced a brief labor disruption in our Türkiye manufacturing facilities as we worked with the union to address the inflationary pressures on wages. Our Türkiye manufacturing facilities have experienced significant wage inflation over the course of the past year. For example, the government of Türkiye increased minimum wages approximately 55%, 34% and 49%, respectively, effective January 1, 2023; July 1, 2023; and January 1, 2024. Our collective bargaining agreement for our Türkiye facilities is in effect through December 2024.

Additionally, our other associates working at other manufacturing facilities may vote to be represented by a labor union in the future. There can be no assurance that we will not experience labor disruptions such as work stoppages or other slowdowns by workers at any of our facilities. Should significant industrial action, threats of strikes or related disturbances occur, or other challenges with negotiating and extending our collective bargaining agreements with our unionized associates, we could experience further disruptions of operations and increased labor costs in Türkiye, Mexico or other locations, which could materially harm our business, operating results or financial condition. Any such work stoppage or slow-down at any of our facilities could also result in additional expenses and possible loss of revenue for us.

Our information technology infrastructure could experience serious failures or cyber security attacks, the failure of which could materially harm our business, operating results and financial condition.

Information technology is part of our business strategy and operations. It enables us to streamline operation processes, facilitate the collection and reporting of business data, and provide for internal and external communications. There are risks that information technology system failures, network disruptions, breaches of data security and phishing and ransomware attacks could disrupt our operations. Any significant disruption or breach may materially harm our business, operating results and financial condition.

Risks Related to Ownership of Our Common Stock

The price of our common stock may fluctuate substantially and your investment may decline in value.

The market price of our common stock is likely to be highly volatile and may fluctuate substantially due to many factors, including:

- actual or anticipated fluctuations in our results of operations;
- our ability to provide products due to shipments subject to delayed delivery and deferred revenue arrangements;
- loss of or changes in our relationship with one or more of our customers;
- failure to meet our earnings estimates;
- conditions and trends in the energy and manufacturing markets in which we operate and changes in estimates of the size and growth rate of these markets;
- announcements by us or our competitors of significant contracts, developments, acquisitions, strategic partnerships or divestitures;
- availability of equipment, labor and other items required for the manufacture of wind blades;

- changes in governmental policies;
- our ability to successfully grow our automotive business;
- additions or departures of members of our senior management or other key personnel;
- changes in market valuation or earnings of our competitors;
- sales of our common stock, including sales of our common stock by our directors and officers or by our other principal stockholders;
- the trading volume of our common stock; and
- general market, industry and economic conditions.

These broad market and industry factors may materially harm the market price of our common stock, regardless of our operating performance. In the past, securities class-action litigation has often been instituted against a company following periods of volatility in the market price of that company's securities. Securities class-action litigation, if instituted against us, could result in substantial costs or damages and a diversion of management's attention and resources, which could materially harm our business and operating results.

A significant portion of our total outstanding shares may be sold into the public market in future sales, which could cause the market price of our common stock to drop significantly, even if our business is doing well.

Sales of a substantial number of shares of our common stock in the public market can occur at any time. These sales, or the market perception that the holders of a large number of shares intend to sell shares, could reduce the market price of our common stock. As of December 31, 2023, we had 46,471,131 shares of common stock outstanding. In addition, Oaktree owns approximately 9.9% of our outstanding common stock. All of the shares held by Oaktree can now be sold, subject to any applicable volume limitations under federal securities laws. We may issue debt or equity securities in other registered or unregistered convertible debt or equity offerings.

In the future, we may also issue our securities in connection with investments or acquisitions. The amount of shares of our common stock issued in connection with an investment or acquisition could constitute a material portion of our then-outstanding shares of our common stock. Any issuance of additional securities in connection with investments or acquisitions may result in additional dilution to you and may cause the market price of our common stock to drop significantly.

The exercise of options and warrants and other issuances of shares of common stock or securities convertible into common stock under our equity compensation plans will dilute your interest.

Under our existing equity compensation plans, as of December 31, 2023, we had outstanding options to purchase 1,212,503 shares of our common stock, 1,516,377 restricted stock units and 308,741 performance stock units to our associates and non-employee directors. From time to time, we expect to grant additional options and other stock awards. The exercise of options at prices below the market price of our common stock could adversely affect the price of shares of our common stock. Additionally, any issuance of our common stock that is not made solely to then-existing stockholders proportionate to their interests, such as in the case of a stock dividend or stock split, will result in dilution to each stockholder by reducing their percentage ownership of the total outstanding shares. If we issue options or warrants to purchase our common stock in the future and those options or warrants are exercised or we issue stock, stockholders may experience further dilution.

We have indebtedness in the form of convertible senior notes, which could adversely affect our financial health and our ability to respond to changes in our business.

In March 2023, we issued and sold an aggregate of $132.5 million principal amount of convertible senior unsecured notes due in 2028 (the Notes) in a private placement offering. Our ability to repay our indebtedness, including the Notes, is significantly dependent on our generation of cash flow. Our indebtedness could have significant negative consequences for our security holders and our business, results of operations and financial condition by, among other things:

- increasing our vulnerability to adverse economic and industry conditions;
- limiting our ability to obtain additional financing;
- requiring the dedication of a substantial portion of our cash flow from operations to service our indebtedness, which will reduce the amount of cash available for other purposes;
- limiting our flexibility to plan for, or react to, changes in our business;
- diluting the interests of our existing stockholders as a result of issuing shares of our common stock upon conversion of the notes; and
- placing us at a possible competitive disadvantage with competitors that are less leveraged than us or have better access to capital.

Our business may not generate sufficient funds, and we may otherwise be unable to maintain sufficient cash reserves, to pay amounts due under our indebtedness, including the notes, and our cash needs may increase in the future.

Conversions or exchanges of our convertible senior notes may dilute the ownership interest of our stockholders or may otherwise affect the market price of our Common Stock.

The conversion of some or all the Notes will dilute the ownership interests of our stockholders to the extent we deliver shares of common stock upon conversion of any of the Notes. The notes may from time to time be convertible at the option of their holders prior to their scheduled terms under certain circumstances. On conversion of the Notes, we have the option to pay or deliver, as the case may be, cash, shares of our common stock, or a combination of cash and shares of our common stock. If we elect to settle our conversion obligation in shares of our common stock or a combination of cash and shares of our common stock, any sales in the public market of our common stock issuable on such conversion could adversely affect prevailing market prices of our common stock. In addition, the existence of the Notes may encourage short selling by market participants because the conversion of the Notes could be used to satisfy short positions, or anticipated conversion of the Notes into shares of our common stock, any of which could depress the market price of our common stock.

The Capped Call Transactions may affect the value of the Notes and our common stock.

In connection with the Notes' issuance, we entered into capped call transactions with certain financial institutions (option counterparties). The capped call transactions are generally expected to reduce the potential dilution of our common stock upon any conversion of the Notes and/or offset any cash payments we are required to make in excess of the principal amount of converted Notes, with such reduction and/or offset subject to a cap. From time to time, the option counterparties or their respective affiliates may modify their hedge positions by entering into or unwinding derivative transactions with respect to our common stock and/or purchasing or selling our common stock or other securities of ours in secondary market transactions before the maturity of the Notes. This activity could cause a decrease in the market price of our common stock.

We are subject to counterparty risk with respect to the capped call transactions.

The counterparties to the capped call transactions entered into in connection with the offering of the Notes are financial institutions, and we are subject to the risk that one or more of the counterparties may default or otherwise fail to perform, or may exercise certain rights to terminate, their obligations under the capped call transactions. Our exposure to the credit risk of the counterparties will not be secured by any collateral. Global economic conditions have in the past resulted in the actual or perceived failure or financial difficulties of many financial institutions. If a counterparty to one or more capped call transactions becomes subject to bankruptcy or other insolvency proceedings, we will become an unsecured creditor in those proceedings with a claim equal to our exposure at the time under such transactions. Our exposure will depend on many factors but, generally, our exposure will increase if the market price or the volatility of our common stock increases. In addition, upon a default or other failure to perform, or a termination of obligations, by a counterparty, the counterparty may fail to deliver the shares of our common stock or cash required to be delivered to us under the capped call transactions and we may suffer adverse tax consequences or experience more dilution than we currently anticipate with respect to our common stock. We can provide no assurances as to the financial stability or viability of the counterparties.

Provisions of Delaware law or our charter documents could delay or prevent an acquisition of our Company, even if the acquisition would be beneficial to our stockholders and could make it more difficult for you to change management.

Provisions of Delaware law and our amended and restated certificate of incorporation and amended and restated by-laws may discourage, delay or prevent a merger, acquisition or other change in control that stockholders may consider favorable, including transactions in which stockholders might otherwise receive a premium for their shares. These provisions may also prevent or delay attempts by stockholders to replace or remove our current management or members of our board of directors. These provisions include: a classified board of directors; limitations on the removal of directors; advance notice requirements for stockholder proposals and nominations; the inability of stockholders to act by written consent or to call special meetings; the ability of our board of directors to make, alter or repeal our amended and restated by-laws; and the authority of our board of directors to issue preferred stock with such terms as our board of directors may determine.

The affirmative vote of the holders of at least 75% of our shares of capital stock entitled to vote, and not less than 75% of the outstanding shares of each class entitled to vote thereon as a class, is necessary to amend or repeal the above provisions that are contained in our amended and restated certificate of incorporation. In addition, absent approval of our board of directors, our amended and restated by-laws may only be amended or repealed by the affirmative vote of the holders of at least 75% of our shares of capital stock entitled to vote.

In addition, we are subject to the provisions of Section 203 of the Delaware General Corporation Law, which limits business combination transactions with stockholders of 15% or more of our outstanding voting stock that our board of directors has not approved. These provisions and other similar provisions make it more difficult for stockholders or potential acquirers to acquire us without negotiation. These provisions may apply even if some stockholders may consider the transaction beneficial to them.

As a result, these provisions could limit the price that investors are willing to pay in the future for shares of our common stock. These provisions might also discourage a potential acquisition proposal or tender offer, even if the acquisition proposal or tender offer is at a premium over the then current market price for our common stock.

Item 1B. Unresolved Staff Comments

None.

Item 1C. Cybersecurity

Risk Management and Strategy

We have instituted policies and processes dedicated to assessing, identifying, and managing risks from cybersecurity threats. Cybersecurity risks are managed as part of our enterprise risk management program. We are committed to safeguarding our critical information assets and data and have implemented a defense-in-depth strategy that is informed by industry standard cybersecurity frameworks. We benchmark against these frameworks and our internal risk assessment process to inform how we identify, protect, detect, respond to, and recover from risks, threats, vulnerabilities, and cybersecurity incidents across our information assets.

We incorporate reputable third-party vendors and solutions into our cyber risk management strategies to fortify our cyber defense mechanisms. We collaborate with internal stakeholders across the Company to integrate cybersecurity principles into our operations, including deployment of multiple layers of cybersecurity defenses, restricted access based on business need, and integrity of our business information. We also train our employees during onboarding and annually thereafter on matters including cybersecurity awareness, confidential information protection, and phishing attacks.

We actively enhance our cybersecurity program through testing by third-party assessors and measure the results against industry standards. We also have standing engagements with incident response experts and external counsel to provide timely support to our incident response capabilities, and we regularly engage with external experts to analyze the threat landscape.

Our cybersecurity risk management is integrated into our business continuity program and enterprise risk management framework, which promotes proactive planning and preparedness to address potential threats. Members of our global information security team collaborate with subject matter experts within our organization to assess and refine our cybersecurity posture and incident response and preparedness, including evaluating and updating contingency plans, participating in tabletop exercises, threat hunting, red team engagements, and simulating real-world scenarios related to cyber incidents.

Although risks from cybersecurity threats have to date not materially affected us, and we do not believe they are reasonably likely to materially affect our Company, business strategy, results of operations or financial condition, we could, from time to time, experience threats and security incidents relating to our and our third party vendors' information systems. For more information, please see the section entitled "Risk Factors" included in Part I, Item 1A of this Annual Report on Form 10-K.

Governance

Our board of directors is responsible for monitoring and assessing strategic risk exposure, and administers its cybersecurity risk oversight function through the Audit Committee. The Audit Committee receives quarterly updates on our enterprise risk management program, including information on cybersecurity risks and initiatives undertaken to identify, assess and mitigate such risks.

Our chief information security officer is the senior director responsible for the cybersecurity organization, which has primary oversight of material risks from cybersecurity threats. Our chief information security officer reports to our chief information officer. Our chief information officer is responsible for the overall Information Technology (IT) organization.

Our chief information officer and chief information security officer assess our cybersecurity readiness through internal assessment tools, as well as third-party assessments, audits, penetration tests, and evaluation against industry standards. We have governance and compliance structures that are designed to elevate issues relating to cybersecurity to our chief information officer and chief information security officer, as appropriate.

Our chief information officer meets with the Audit Committee each quarter to review our information technology systems and discuss key cybersecurity risks. In addition, at least annually, the chief financial officer reviews with the board of directors our global enterprise risk management program, which includes cybersecurity risks.

Item 2. Properties

Our headquarters is located in Scottsdale, Arizona, and we own or lease various other facilities in the U.S., Mexico, Türkiye, India, Denmark, Germany and Spain. We believe that our properties are generally in good condition, are well maintained and are generally suitable and adequate to carry out our business at expected capacity for the foreseeable future. The table below lists various information regarding our facilities as of February 22, 2024:

Location	Operating Segment	Year Commenced	Leased or Owned	Approximate Square Footage	Description of Use
Newton, IA, U.S.	U.S.	2008	Leased	337,922	Wind Blade Manufacturing Facility
Juárez, Mexico	Mexico	2013	Leased	345,984	Wind Blade Manufacturing Facility
Juárez, Mexico	Mexico	2016	Leased	453,096	Wind Blade Manufacturing Facility
Juárez, Mexico	Mexico	2016	Leased	339,386	Wind Blade Manufacturing Facility
Matamoros, Mexico	Mexico	2017	Leased	527,442	Wind Blade Manufacturing Facility
Juárez, Mexico	Mexico	2018	Leased	300,277	Precision Molding Manufacturing and Automotive Manufacturing Facility
Matamoros, Mexico	Mexico	2021	Leased	557,491	Wind Blade Manufacturing Facility
Izmir, Türkiye	EMEA	2012	Leased	343,000	Wind Blade Manufacturing Facility
Izmir, Türkiye	EMEA	2015	Leased	817,078	Wind Blade Manufacturing Facility
Warren, RI, U.S.	U.S.	2004	Leased	108,750	Precision Molding Manufacturing, Research and Development, and Automotive Manufacturing Facility
Santa Teresa, NM, U.S.	Mexico	2014	Leased	503,710	Wind Blade Storage Facility
Kolding, Denmark	U.S.	2018	Leased	2,583	Advanced Engineering Center
Chennai, India	India	2019	Leased	776,280	Wind Blade Manufacturing Facility
Madrid, Spain	EMEA	2021	Leased	26,124	Wind Blade Services Facility
Scottsdale, AZ, U.S.	U.S.	2023	Leased	12,993	Corporate Headquarters
Berlin, Germany	U.S.	2023	Leased	4,239	Engineering Center
Des Moines, IA, U.S.	U.S.	2023	Leased	26,640	Wind Blade Services Facility

Item 3. Legal Proceedings

For a discussion of our legal proceedings, refer to Note 17 – Commitments and Contingencies – Legal Proceedings of the Notes to Consolidated Financial Statements in Part II, Item 8 of this Annual Report on Form 10-K.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

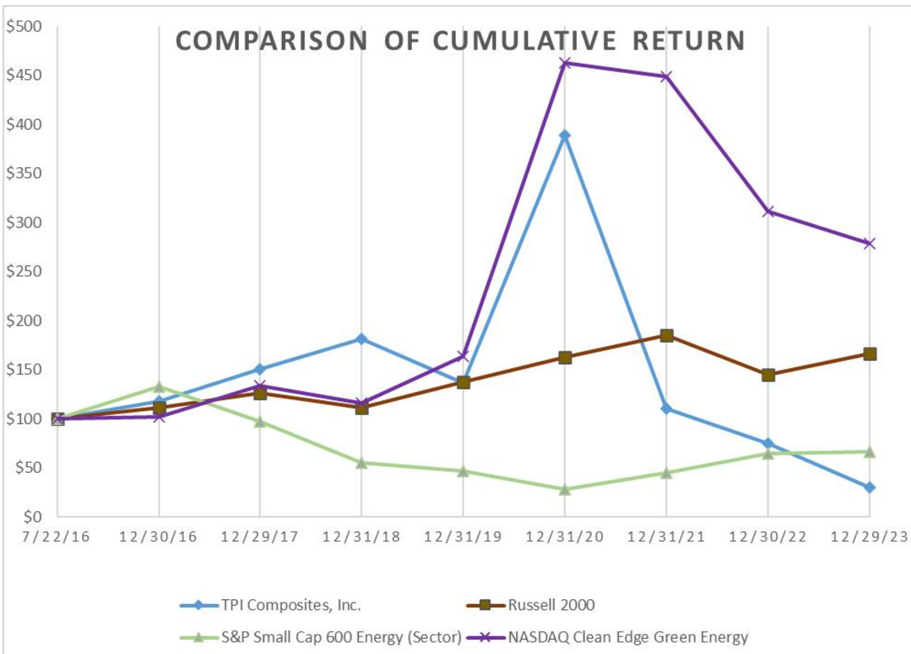
Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information

On July 22, 2016, our common stock began trading on NASDAQ under the symbol "TPIC." Prior to that time, there was no public market for our stock.

Performance Graph

The following graph and table illustrate the total stockholder return from July 22, 2016 through December 31, 2023, on our common stock, the Russell 2000 Index, the S&P Small Cap 600 Energy (Sector) Index and the NASDAQ Clean Edge Green Energy Index, assuming an investment of $100.00 on July 22, 2016 including the reinvestment of dividends.



	Base Period 7/22/16	12/30/16	12/29/17	12/31/18	12/31/19	12/31/20	12/31/21	12/30/22	12/29/23
TPI Composites, Inc.	$ 100.00	$ 118.29	$ 150.88	$ 181.27	$ 136.50	$ 389.23	$ 110.32	$ 74.78	$ 30.53
Russell 2000	100.00	111.89	126.60	111.19	137.56	162.82	185.12	145.21	167.13
S&P Small Cap 600 Energy (Sector)	100.00	133.11	97.60	55.64	47.19	28.17	44.86	65.17	66.48
NASDAQ Clean Edge Green Energy	100.00	102.59	134.16	116.50	163.93	462.91	448.76	311.51	278.55

Holders

As of January 31, 2024, there were five stockholders of record of our common stock, although there is a much larger number of beneficial owners.

Dividends

We have never declared or paid any cash dividends on shares of our capital stock. We currently intend to retain earnings, if any, to finance the development and growth of our business and do not anticipate paying cash dividends on the common stock in the future. Any payment of any future dividends to holders of our common stock, will be at the discretion of the board of directors and subject to compliance with certain covenants in our loan agreements, after taking into account various factors, including our financial condition, operating results, capital requirements, restrictions contained in any future financing instruments, growth plans and other factors the board of directors deems relevant. See "Management's Discussion and Analysis of Financial Condition and Results of Operations – Liquidity and Capital Resources" included in Part II, Item 7 of this Annual Report on Form 10-K.

Securities Authorized for Issuance under Equity Compensation Plans

The information required in response to Item 201(d) of Regulation S-K is set forth in Part III, Item 12 of this Annual Report on Form 10-K which is incorporated herein by reference.

Recent Sales of Unregistered Securities

There were no unregistered sales of equity securities during the year ended December 31, 2023 and from the period from December 31, 2023 to the filing date of this Annual Report on Form 10-K which have not previously been disclosed in a Quarterly Report on Form 10-Q or in a Current Report on Form 8-K.

Use of Proceeds from Registered Securities

None.

Purchases of Equity Securities by the Issuer

During the three months ended December 31, 2023 we did not repurchase any shares of our common stock.

Item 6. [Reserved]

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

You should read the following discussion and analysis of our financial condition and results of operations together with our consolidated financial statements and the related notes included in Part II, Item 8 of this Annual Report on Form 10-K and other financial information appearing elsewhere in this Annual Report on Form 10-K. Some of the information contained in this discussion and analysis or set forth elsewhere in this Annual Report on Form 10-K, including information with respect to plans and strategy for our business and related financing, includes forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those described in or implied by these forward-looking statements as a result of various factors, including those discussed below and elsewhere in this Annual Report on Form 10-K, particularly those under "Risk Factors" included in Part I, Item 1A of this Annual Report on Form 10-K.

OVERVIEW

Our Company

We are the only independent manufacturer of composite wind blades for the wind energy market with a global manufacturing footprint. We deliver high-quality, cost-effective composite solutions through long term relationships with leading original equipment manufacturers in the wind and automotive markets. We also provide field service inspection and repair services to our OEM customers and wind farm owners and operators, and we supply high strength, lightweight and durable composite products to the automotive market. We are headquartered in Scottsdale, Arizona and operate factories in the U.S., Mexico, Türkiye, and India. We operate additional engineering development centers in Denmark and Germany and a services facility in Spain. For a further overview of our Company, refer to the discussion in "Business—Overview" included in Part I, Item 1 of this Annual Report on Form 10-K.

In December 2022, the Company committed to a restructuring plan to rebalance our organization and optimize our global manufacturing footprint. Changing economic and geopolitical factors, including increased logistics costs and tariffs imposed on components of wind turbines from China, including wind blades, has had an adverse impact on demand and profitability for our wind blades manufactured in our Chinese facilities. In connection with our restructuring plan, we ceased production at our Yangzhou, China manufacturing facility as of December 31, 2022 and are in the final stages of shutting down our business operations in China. Our business operations in China comprised the entirety of our Asia reporting segment. This shut down had a meaningful effect on our global manufacturing footprint and consolidated financial results. Accordingly, the historical results of our Asia reporting segment have been presented as discontinued operations in our Consolidated Statements of Operations and Consolidated Balance Sheets. Our China operations represented a geographic operating segment that included (1) the manufacturing of wind blades at our facilities in Dafeng, China and Yangzhou, China, (2) the manufacturing of precision molding and assembly systems at our Taicang Port, China facility and (3) wind blade inspection and repair services. The following discussion reflects continuing operations only, unless otherwise indicated. For further information regarding our discontinued operations, refer to Note 2 – Discontinued Operations of the Notes to Consolidated Financial Statements in Part II, Item 8 of this Annual Report on Form 10-K.

Our business operations are defined geographically into four operating segments - (1) the U.S., (2) Mexico, (3) Europe, the Middle East and Africa (EMEA) and (4) India. For further information regarding our operating segments, refer to Note 22 – Segment Reporting of the Notes to Consolidated Financial Statements in Part II, Item 8 of this Annual Report on Form 10-K.

KEY TRENDS AND RECENT DEVELOPMENTS AFFECTING OUR BUSINESS

Geopolitical events around the world have accelerated regional needs for energy independence and security. Climate change also continues to drive the need for renewable energy solutions and net-zero carbon emissions. Over the course of the past few years, we have seen numerous government policy initiatives aimed at expanding the use of renewable energy, including the passing of the Inflation Reduction Act of 2022 (IRA) in the U.S. and several policy initiatives in the European Union (EU) that are expected to simplify regulations, speed up permitting and promote cross-border projects to accelerate climate neutrality. We expect these recent trends in governmental policy will enable long-term revenue growth in the wind industry. As the majority of our wind blades are installed in the

U.S. and Europe, these policy trends are expected to have a material impact on our business and the pace of long-term growth.

Despite these favorable long-term policy trends, we expect reduced demand in the near term while the wind industry awaits clarity on the implementation guidance related to key components of the IRA and clarity around more robust policies in the EU. In addition, permitting, transmission, transmission queues, the ability of the broader wind industry supply chain to ramp volume, elevated interest rates and inflation, and the cost and availability of capital are further factors limiting the timing of the wind market recovery. Specific to our customers and our manufacturing lines, we ended 2023 with 37 dedicated manufacturing lines and expect to end 2024 with 36 dedicated manufacturing lines. We expect to have six manufacturing lines in startup and four manufacturing lines in transition during 2024 as our customers prepare for anticipated stronger demand beginning in 2025. Four of the manufacturing lines in startup will be in Juarez, Mexico at a previously idle manufacturing facility and two of the manufacturing lines in startup will be in Türkiye where two longer blade lines will replace three blade lines due to space considerations. The four manufacturing lines in transition will all occur in one of our Matamoros, Mexico manufacturing facilities. For the other Matamoros, Mexico facility, which is a four-line manufacturing facility we took over from Nordex in July 2021, we plan to exit this location at the end of the three-year contract on June 30, 2024. The impact of all these changes, along with near term demand reductions from one of our customers as they consider existing inventory levels and contemplate changes in geographic demand, is expected to result in 2024 sales down slightly from 2023. We expect the first half of 2024 will be down more than the second half of 2024 as the manufacturing lines in startup or transition will be ramping throughout the year.

While the accelerated pace of new product introductions within the industry over the last five years and along with the push for larger wind turbines getting to market quicker has significantly reduced the levelized cost of wind energy, it is also a contributing factor to quality issues that have surfaced in the wind industry. In early 2023, we started to see increased inspection and repair costs due to enhanced customer inspection criteria requirements. With the quality issues in the wind industry that have been in the public eye over the course of this last year, most of our customers, and some of their customers, are requiring additional quality control checks and measures that are adding cost and time to the production process. In 2023, the Company was impacted by the following costs related to quality issues:

- We recorded a $42.7 million charge for a single warranty campaign with a current customer.
- Manufacturing costs increased by $17.0 million due to increased inspection and repair activities due to enhanced customer requirements.
- We diverted many of our field services technicians from revenue-generating work to warranty inspection and repair, resulting in Field Services sales down 31% in 2023 compared to 2022.

Our results of operations have been adversely impacted by the performance of our Matamoros, Mexico manufacturing facility that we took over from Nordex in July 2021. For example, during 2023, production had to be temporarily paused due to extreme heat and humidity issues at this facility. Net sales for the year ended December 31, 2023 were negatively impacted by approximately $17.3 million due to these lost production days. We experienced a loss from operations of $45.6 million and $40.8 million at this facility, for the years ended December 31, 2023 and 2022, respectively.

During 2023, the overall pricing for raw materials that we source modestly decreased compared to 2022. We expect raw materials pricing to continue its downward trend in 2024. With our contract structure and shared cost approach with our customers, we expect to have a net benefit from this reduction in material pricing in 2024 as compared to 2023.

Ongoing inflationary pressures have caused and may continue to cause many of our production expenses to increase, which adversely impacts our results of operations. The government of Mexico increased minimum wages approximately 20% effective January 1, 2023, and an additional 20% effective January 1, 2024. The government of Türkiye increased minimum wages approximately 55% and 34%, respectively, effective January 1, 2023 and July 1, 2023. In May 2023 we agreed to an amendment to our collective bargaining agreement with our associates in Türkiye which resulted in significantly increased wages for these associates. During 2023, these total wage increases in Türkiye have increased our labor costs at these facilities by approximately 64%, net of favorable foreign currency fluctuations, compared to the same period in 2022. The government of Türkiye further increased minimum wages 49% effective January 1, 2024. While our customer contracts allow us to pass a portion of these increases to our customers, we will not be able to recover 100% of the increased labor costs caused by this wage inflation. If our manufacturing facilities in these countries continue to experience wage inflation at these levels and the increased costs in local currency are not offset with favorable foreign currency fluctuations, such elevated wages will have a material impact on our results of operations.

We have made significant investments to expand the automotive business during the last several years. While we believe there is increasing demand for composite products for electric vehicles and we have made much progress with the automotive business, we intend to prioritize capital for growth in the wind blade business in the near term. As a result, we are in the process of exploring strategic alternatives to ensure our automotive business is sufficiently funded to execute on its growth strategies. We expect to complete this process no later than June 30, 2024.

We were notified on August 7, 2023 that Proterra Inc. (Proterra), one of our customers in our automotive business line, filed for bankruptcy protection under Chapter 11 of the U.S. bankruptcy code, and that Proterra had rejected its bus body supply agreement with us as part of its bankruptcy reorganization. Net sales from this bus body supply agreement were less than 2% of our consolidated net sales prior to the bankruptcy filing. As a result of the bankruptcy filing by Proterra, we recorded a charge for credit losses on contract assets of $12.8 million, a charge for credit losses on accounts receivable of $8.1 million, a charge for inventory of $1.7 million, an impairment charge of $0.7 million related to fixed assets, and severance charges totaling $0.4 million.

COMPONENTS OF RESULTS OF OPERATIONS

Net Sales

We recognize revenue from the majority of our manufacturing services over time as our customers control the product as it is produced, and we may not use or sell the product to fulfill other customers' contracts. Net sales include amounts billed to our customers for our products, including wind blades, precision molding and assembly systems and other products and services, as well as the progress towards the completion of the performance obligation for products in progress, which is determined on a ratio of direct costs incurred to date in fulfillment of the contract to the total estimated direct costs required to complete the performance obligation.

Cost of Goods Sold

Cost of goods sold includes the costs we incur at our production facilities to make products saleable on both products invoiced during the period as well as products in progress towards the satisfaction of the related performance obligations for which we have an enforceable right to payment upon termination and we may not use or sell the product to fulfill other customers' contracts. All costs incurred at our production facilities, as well as the allocated portion to our production facilities of costs incurred at our corporate headquarters and our research facilities, are directly or indirectly related to the manufacturing of products or services and are presented in cost of goods sold. Cost of goods sold includes such items as raw materials, direct and indirect labor and facilities costs, including purchasing and receiving costs, plant management, inspection costs, production process improvement activities, product engineering and internal transfer costs. In addition, all depreciation associated with assets used in the production of our products is also included in cost of goods sold. Direct labor costs consist of salaries, benefits and other personnel related costs for associates engaged in the manufacturing of our products and services. All direct labor costs, excluding non-productive labor costs, are included in the measure of progress towards completion of the relevant performance obligation when determining revenue to be recognized during the period.

Startup and transition costs are primarily unallocated fixed overhead costs and underutilized direct labor costs incurred during the period production facilities are transitioning wind blade models and ramping up manufacturing. The cost of sales for the initial products from a new model manufacturing line is generally higher than when the line is operating at optimal production volume levels due to inefficiencies during ramp-up related to labor hours per blade, cycle times per blade and raw material usage. Additionally, these costs as a percentage of net sales are generally higher during the period in which a facility is ramping up to full production capacity due to underutilization of the facility. Manufacturing overhead at each of our facilities includes virtually all indirect costs (including share-based compensation costs) incurred at the plants, including engineering, finance, information technology, human resources and plant management.

General and Administrative Expenses

General and administrative expenses primarily relate to the unallocated portion of costs incurred at our corporate headquarters and our research facilities and include salaries, benefits and other personnel related costs for associates engaged in research and development, engineering, finance, internal audit, information technology, human resources, business development, global operational excellence, global supply chain, in-house legal and executive management. Other costs include outside legal and accounting fees, risk management (insurance), share-based compensation and certain other administrative and global resources costs.

The unallocated research and development expenses incurred at our Warren, Rhode Island location as well as at our Kolding, Denmark advanced engineering center and our Berlin, Germany engineering center are also included in general and administrative expenses. For the years ended December 31, 2023, 2022 and 2021, research and development expenses totaled $1.4 million, $1.1 million and $1.0 million, respectively.

Loss on Sale of Assets and Asset Impairments

Loss on sale of assets represents the losses on the sale of certain receivables, on a non-recourse basis under supply chain financing arrangements with our customers, to financial institutions and losses on the sale of other assets at our corporate and manufacturing facilities. Asset impairments represent the losses on the impairment of our assets at our corporate and manufacturing facilities.

Gain on extinguishment of Series A Preferred Stock

Gain on extinguishment of Series A Preferred Stock, par value $0.01 per share (the Series A Preferred Stock), represents the gain recognized as a result of the cashless exchange of all of the outstanding Series A Preferred Stock for the new senior secured term loan (the Term Loan) under the Credit Agreement that we entered into in December 2023. See Note 12, *Debt* and Note 15, *Mezzanine Equity* for further discussion of the gain recognized.

Restructuring Charges

Restructuring charges primarily consist of associate severance, one-time termination benefits and ongoing benefits related to the reduction of our workforce and other costs associated with exit activities, which may include costs related to leased facilities to be abandoned and facility and associate relocation costs.

Other Income (Expense)

Other income (expense) consists of interest expense on our debt borrowings and the amortization of deferred financing costs on such borrowings, foreign currency income and losses, interest income, losses on extinguishment of debt and miscellaneous income and expense.

Income Taxes

Income taxes consists of federal, state, provincial, local and foreign taxes based on income in jurisdictions in which we operate, including in the U.S., Mexico, Türkiye, India and various countries within Europe. The income tax rate, tax provisions, deferred tax assets and liabilities vary according to the jurisdiction in which the income or loss arises. Tax laws are complex and subject to different interpretations by management and the respective governmental taxing authorities and require us to exercise judgment in determining our income tax provision, our deferred tax assets and liabilities and the valuation allowance recorded against our net deferred tax assets.

KEY METRICS USED BY MANAGEMENT TO MEASURE PERFORMANCE

In addition to measures of financial performance presented in our consolidated financial statements in accordance with GAAP, we use certain other financial measures and operating metrics to analyze our performance. These "non-GAAP" financial measures consist of EBITDA, adjusted EBITDA, free cash flow and net cash (debt), which help us evaluate growth trends, establish budgets, assess operational efficiencies, oversee our overall liquidity, and evaluate our overall financial performance. The key operating metrics consist of wind blade sets produced, estimated megawatts of energy capacity to be generated by wind blade sets produced, utilization, dedicated manufacturing lines, and manufacturing lines installed, which help us evaluate our operational performance. We believe that these measures are useful to investors in evaluating our performance.

Key Financial Measures

The following discussion reflects continuing operations only, unless otherwise indicated. Certain prior period amounts have been reclassified to conform to the current period's presentation.

The key financial measures as of and for the years ended December 31 are as follows:

	2023	2022	2021
		(in thousands)	
Net sales	$ 1,455,183	$ 1,522,741	$ 1,472,386
Net loss from continuing operations	(196,453)	(55,550)	(155,894)
EBITDA[1]	(127,910)	17,864	(74,818)
Adjusted EBITDA[1]	(85,920)	37,857	(20,055)
Capital expenditures[2]	36,137	18,832	37,119
Free cash flow[1][2]	(117,109)	(81,104)	(62,644)
Total debt, net of debt issuance costs and debt discount	485,193	61,173	74,646
Net cash (debt)[1]	(323,218)	82,042	167,519

(1) See below for more information and a reconciliation of EBITDA, adjusted EBITDA, free cash flow and net cash (debt) to net loss from continuing operations attributable to common stockholders, net cash provided by (used in) operating activities and total debt, net of debt issuance costs and debt discount, respectively, the most directly comparable financial measures calculated and presented in accordance with GAAP.

(2) Capital expenditures and free cash flow include amounts from discontinued operations. Refer to Consolidated Statements of Cash Flows for more information.

EBITDA and adjusted EBITDA

We define EBITDA, a non-GAAP financial measure, as net income or loss from continuing operations plus interest expense, income taxes and depreciation and amortization. We define adjusted EBITDA as EBITDA plus any share-based compensation expense, plus or minus any foreign currency losses or income, plus or minus any losses or gains from the sale of assets and asset impairments, plus any restructuring charges. Adjusted EBITDA is the primary metric used by our management and our board of directors to establish budgets and operational goals for managing our business and evaluating our performance. We monitor adjusted EBITDA as a supplement to our GAAP measures, and believe it is useful to present to investors, because we believe that it facilitates evaluation of our period-to-period operating performance by eliminating items that are not operational in nature, allowing comparison of our recurring core business operating results over multiple periods unaffected by differences in capital structure, capital investment cycles and fixed asset base. In addition, we believe adjusted EBITDA and similar measures are widely used by investors, securities analysts, ratings agencies, and other parties in evaluating companies in our industry as a measure of financial performance and debt-service capabilities.

Our use of adjusted EBITDA has limitations as an analytical tool and you should not consider it in isolation or as a substitute for analysis of our results as reported under GAAP. Some of these limitations are:

- adjusted EBITDA does not reflect the net income or loss from discontinued operations;

- adjusted EBITDA does not reflect changes in, or cash requirements for, our working capital needs;
- adjusted EBITDA does not reflect our cash expenditures for capital equipment or other contractual commitments;
- adjusted EBITDA does not reflect the interest expense or the cash requirements necessary to service interest or principal payments on our indebtedness;
- adjusted EBITDA does not reflect the dividends to our now extinguished Series A Preferred Stockholders or accretion of the Series A Preferred Stock;
- adjusted EBITDA does not reflect the gain on extinguishment of our Series A Preferred Stock;
- adjusted EBITDA does not reflect losses on extinguishment of debt relating to prepayment penalties, termination fees and the write off of any remaining debt discount and debt issuance costs upon the repayment or refinancing of our debt;
- adjusted EBITDA does not reflect tax payments that may represent a reduction in cash available to us;
- although depreciation and amortization are non-cash charges, the assets being depreciated and amortized may have to be replaced in the future, and adjusted EBITDA does not reflect capital expenditure requirements relating to the future need to augment or replace those assets;
- adjusted EBITDA does not reflect share-based compensation expense on equity-based incentive awards to our officers, associates, directors and consultants;
- adjusted EBITDA does not reflect the foreign currency income or losses in our operations;
- adjusted EBITDA does not reflect the gains or losses on the sale of assets and asset impairments;
- adjusted EBITDA does not reflect restructuring charges; and
- other companies, including companies in our industry, may calculate EBITDA and adjusted EBITDA differently, which reduces their usefulness as comparative measures.

In evaluating EBITDA and adjusted EBITDA, you should be aware that in the future, we will incur expenses similar to the adjustments noted herein. Our presentations of EBITDA and adjusted EBITDA should not be construed as suggesting that our future results will be unaffected by these expenses or any unusual or non-recurring items. When evaluating our performance, you should consider EBITDA and adjusted EBITDA alongside other financial performance measures, including our net income (loss) and other GAAP measures.

Free cash flow

We define free cash flow as net cash provided by (used in) operating activities less capital expenditures. We believe free cash flow is a useful measure for investors because it portrays our ability to generate cash from our business for purposes such as repaying maturing debt and accrued interest paid in kind on debt and funding business acquisitions.

Net cash (debt)

We define net cash (debt) as total unrestricted cash and cash equivalents less the total principal amount of debt outstanding. The total principal amount of debt outstanding is comprised of the long-term debt and current maturities of long-term debt as presented in our consolidated balance sheets adding back any debt issuance costs. We believe that the presentation of net cash (debt) provides useful information to investors because our management reviews net cash (debt) as part of our oversight of overall liquidity, financial flexibility and leverage. Net cash (debt) is important when we consider opening new manufacturing facilities and expanding existing manufacturing facilities, as well as for capital expenditure requirements.

The following tables reconcile our non-GAAP key financial measures to the most directly comparable GAAP measures:

EBITDA and adjusted EBITDA for the years ended December 31 are reconciled as follows:

	2023	2022	2021
		(in thousands)	
Net loss attributable to common stockholders	$ (177,612)	$ (124,208)	$ (165,588)
Net loss from discontinued operations	5,326	9,755	3,654
Net loss from continuing operations attributable to common stockholders	(172,286)	(114,453)	(161,934)
Preferred stock dividends and accretion	58,453	58,903	6,040
Gain on extinguishment of Series A Preferred Stock	(82,620)	—	—
Net loss from continuing operations	(196,453)	(55,550)	(155,894)
Adjustments:			
Depreciation and amortization	38,869	38,772	37,606
Interest expense, net	12,112	5,029	13,644
Income tax provision	17,562	29,613	29,826
EBITDA	(127,910)	17,864	(74,818)
Share-based compensation expense	9,916	14,459	7,814
Foreign currency loss (income), net	5,162	(4,571)	21,970
Loss on sale of assets and asset impairments	21,862	9,842	12,436
Restructuring charges, net	5,050	263	12,543
Adjusted EBITDA	$ (85,920)	$ 37,857	$ (20,055)

Free cash flow, which includes discontinued operations, for the years ended December 31 is reconciled as follows:

	2023	2022	2021
		(in thousands)	
Net cash used in operating activities	$ (80,972)	$ (62,272)	$ (25,525)
Less capital expenditures	(36,137)	(18,832)	(37,119)
Free cash flow	$ (117,109)	$ (81,104)	$ (62,644)

Net cash (debt) as of December 31 is reconciled as follows:

	2023	2022	2021
		(in thousands)	
Cash and cash equivalents	$ 161,059	$ 133,546	$ 216,236
Cash and cash equivalents of discontinued operations	916	9,669	25,929
Total debt, net of debt issuance costs and debt discount	(485,193)	(61,173)	(74,646)
Net cash (debt)	$ (323,218)	$ 82,042	$ 167,519

Key Operating Metrics [1]

The key operating metrics as of and for the year ended December 31 are as follows:

	2023	2022	2021
Sets	2,584	2,441	2,674
Estimated megawatts	11,382	10,736	10,607
Utilization	82 %	80 %	77 %
Dedicated manufacturing lines	37	36	46
Manufacturing lines installed	37	36	46

(1) See below for more information on each of our key operating metrics.

Sets represents the number of wind blade sets, consisting of three wind blades each, which we produced worldwide during the period. We monitor sets and believe that presenting sets to investors is helpful because we believe that it is the most direct measurement of our manufacturing output during the period. Sets primarily impact net sales.

Estimated megawatts are the energy capacity to be generated by wind blade sets produced during the period. Our estimate is based solely on name-plate capacity of the wind turbine on which the wind blades we manufacture are expected to be installed. We monitor estimated megawatts and believe that presenting estimated megawatts to investors is helpful because we believe that it is a commonly followed measurement of energy capacity across our industry and provides an indication of our share of the overall wind blade market.

Utilization represents the percentage of the number of wind blades produced during the period compared to the total potential wind blade capacity of the manufacturing lines installed during the period. We monitor utilization because we believe it helps investors to better understand how close we are to operating at maximum production capacity.

Dedicated manufacturing lines are the number of wind blade manufacturing lines that we have dedicated to our customers pursuant to our supply agreements at the end of the period. We monitor dedicated manufacturing lines and believe that presenting this metric to investors is helpful because we believe that the number of dedicated manufacturing lines is the best indicator of demand for the wind blades we manufacture for customers under our supply agreements in any given period. Lines become dedicated upon the execution of a supply agreement; this means that lines are typically dedicated before they are installed.

Manufacturing lines installed represents the number of wind blade manufacturing lines installed and either in operation, startup or transition during the period. We believe that total manufacturing lines installed provides an understanding of the number of manufacturing lines installed and either in operation, startup or transition. From time to time, we have manufacturing lines installed that are not dedicated to our customers pursuant to a supply agreement.

RESULTS OF OPERATIONS

Year Ended December 31, 2023 Compared to Year Ended December 31, 2022

The following table summarizes certain of our operating results as a percentage of net sales for the years ended December 31 that have been derived from our consolidated statements of operations:

	2023	2022
Net sales	100.0 %	100.0 %
Cost of sales	104.5	97.4
Startup and transition costs	1.5	1.7
Total cost of goods sold	106.0	99.1
Gross profit (loss)	(6.0)	0.9
General and administrative expenses	3.4	2.1
Loss on sale of assets and asset impairments	1.5	0.6
Restructuring charges, net	0.3	—
Loss from continuing operations	(11.2)	(1.8)
Total other income (expense)	(1.1)	0.1
Loss before income taxes	(12.3)	(1.7)
Income tax provision	(1.2)	(1.9)
Net loss from continuing operations	(13.5)	(3.6)
Preferred stock dividends and accretion	(4.0)	(3.9)
Gain on extinguishment of Series A Preferred Stock	5.7	—
Net loss attributable to common stockholders from continuing operations	(11.8)	(7.5)
Net loss from discontinued operations	(0.4)	(0.6)
Net loss attributable to common stockholders	(12.2)%	(8.1)%

Net sales

Consolidated discussion

The following table summarizes our net sales by product/service for the years ended December 31:

	2023	2022	Change $	Change %
		(in thousands)		
Wind blade, tooling and other wind related sales	$ 1,394,316	$ 1,423,824	$ (29,508)	(2.1)%
Automotive sales	22,775	44,002	(21,227)	(48.2)
Field service, inspection and repair services sales	38,092	54,915	(16,823)	(30.6)
Total net sales	$ 1,455,183	$ 1,522,741	$ (67,558)	(4.4)%

The decrease in net sales of wind blades, tooling and other wind related sales (collectively, Wind) for the year ended December 31, 2023, as compared to the same period in 2022, was due primarily to a reduction in wind blade inventory included in contract assets driven by working capital initiatives and the wind down of lines in transition at the end of the year. The inventory reduction significantly impacted net sales of Wind for the year ended December 31, 2023 as lower blade inventory costs directly correlate to lower revenue under the cost-to-cost revenue recognition method for our blade contracts. These decreases were offset by an increase in the number of wind blades produced, increased average sales prices, favorable foreign currency fluctuations, and an increase in tooling sales. The decrease in automotive sales for the year ended December 31, 2023, as compared to the same period in 2022, was primarily due to a decrease in the number of composite bus bodies produced as a result of Proterra's bankruptcy during the third quarter of 2023 and a decrease in sales of other automotive products due to our customers' supply chain constraints and delays in transitions of new product launches. The decrease in field service, inspection and repair services (collectively, Field Services) sales for the year ended December 31, 2023, as compared to the same period in 2022, was primarily due to a reduction in technicians deployed to revenue generating projects due to an increase in time spent on non-revenue generating inspection and repair activities. The fluctuating U.S. dollar against the Euro in our Türkiye operations had a favorable impact of 1.0% on consolidated net sales for the year ended December 31, 2023, as compared to the same period in 2022.

Segment discussion

The following table summarizes our net sales by our four geographic operating segments for the years ended December 31:

	2023	2022	Change $	Change %
		(in thousands)		
U.S.	$ 51,100	$ 89,170	$ (38,070)	(42.7)%
Mexico	589,539	646,615	(57,076)	(8.8)
EMEA	573,483	568,992	4,491	0.8
India	241,061	217,964	23,097	10.6
Total net sales	$ 1,455,183	$ 1,522,741	$ (67,558)	(4.4)%

U.S. Segment

The following table summarizes our net sales by product/service for the U.S. segment for the years ended December 31:

	2023	2022	Change $	Change %
		(in thousands)		
Wind blade, tooling and other wind related sales	$ —	$ 1,000	$ (1,000)	NM
Automotive sales	22,775	44,002	(21,227)	(48.2)
Field service, inspection and repair services sales	28,325	44,168	(15,843)	(35.9)
Total net sales	$ 51,100	$ 89,170	$ (38,070)	(42.7)%

NM - not meaningful.

The decrease in the U.S. segment's automotive sales for the year ended December 31, 2023, as compared to the same period in 2022, was primarily due to a decrease in the number of composite bus bodies produced as a result of Proterra's bankruptcy during the third quarter of 2023, and a decrease in sales of other automotive products. The decrease in the U.S. segment's Field Services sales for the year ended December 31, 2023, was primarily due to a reduction in technicians deployed to revenue generating projects due to an increase in time spent on non-revenue generating inspection and repair activities.

Mexico Segment

The following table summarizes our net sales by product/service for the Mexico segment for the years ended December 31:

	2023	2022	Change $	Change %
		(in thousands)		
Wind blade, tooling and other wind related sales	$ 587,628	$ 642,377	$ (54,749)	(8.5)%
Field service, inspection and repair services sales	1,911	4,238	(2,327)	(54.9)
Total net sales	$ 589,539	$ 646,615	$ (57,076)	(8.8)%

The decrease in the Mexico segment's net sales of Wind for the year ended December 31, 2023, as compared to the same period in 2022, was due primarily to a reduction in wind blade inventory included in contract assets driven by working capital initiatives and the wind down of lines in transition at the end of the year and lower average sales prices due to the impact of raw material and logistic cost reductions on our blade prices. This decrease was partially offset by an increase in the number of wind blades produced due to an increase in lines in production and an increase in tooling sales in preparation for manufacturing line startups and transitions. The decrease in the Mexico segment's Field Services sales for the year ended December 31, 2023, as compared to the same period in 2022, was primarily due to a reduction in technicians deployed to revenue generating projects due to an increase in time spent on non-revenue generating inspection and repair activities.

EMEA Segment

The following table summarizes our net sales by product/service for the EMEA segment for the years ended December 31:

	2023	2022	Change $	Change %
		(in thousands)		
Wind blade, tooling and other wind related sales	$ 565,627	$ 562,485	$ 3,142	0.6%
Field service, inspection and repair services sales	7,856	6,507	1,349	20.7
Total net sales	$ 573,483	$ 568,992	$ 4,491	0.8%

The increase in the EMEA segment's net sales of Wind for the year ended December 31, 2023, as compared to the same period in 2022, was primarily due to an increase in the number of wind blades produced in 2023 as compared to 2022 due to a brief labor disruption in Türkiye in the third quarter of 2022 as we worked with the union to resolve inflationary pressures on wages, favorable foreign currency fluctuations, and higher average sales prices due to the impact of inflation on wind blade prices. These increases were partially offset by a reduction in wind blade inventory included in contract assets driven by working capital initiatives and the wind down of lines in transition at the end of the year. The increase in the EMEA segment's Field Services sales for the year ended December 31, 2023, as compared to the same period in 2022, was primarily due to an increase in demand for such services in this region and the commencement of our service center in Spain during 2022. The fluctuating U.S. dollar relative to the Euro had a favorable impact of 2.7% on the EMEA segment's net sales for the year ended December 31, 2023, as compared to the same period in 2022.

India Segment

The following table summarizes our net sales by product/service for the India segment for the years ended December 31:

	2023	2022	Change $	Change %
		(in thousands)		
Wind blade, tooling and other wind related sales	$ 241,061	$ 217,962	$ 23,099	10.6 %
Field service, inspection and repair services sales	—	2	(2)	NM
Total net sales	$ 241,061	$ 217,964	$ 23,097	10.6 %

The increase in the India segment's net sales of Wind for the year ended December 31, 2023, as compared to the same period in 2022, was primarily due to an increase in the number of wind blades produced due to the transition of two of our manufacturing lines from one type of wind blade to a new type of wind blade during the prior comparative period, partially offset by lower average sales prices due to the impact of raw material and logistic cost reductions on our blade prices.

Total cost of goods sold

The following table summarizes our total cost of goods sold for the years ended December 31:

	2023	2022	Change $	Change %
		(in thousands)		
Cost of sales	$ 1,520,974	$ 1,482,428	$ 38,546	2.6 %
Startup costs	4,399	—	4,399	NM
Transition costs	17,358	25,668	(8,310)	(32.4)
Total cost of goods sold	$ 1,542,731	$ 1,508,096	$ 34,635	2.3
% of net sales	106.0 %	99.1 %		6.9 %

Total cost of goods sold as a percentage of net sales increased by approximately 6.9% for the year ended December 31, 2023, as compared to the same period in 2022, primarily driven by an increase of $50.6 million of total warranty costs due to changes in previous estimates primarily associated with a single campaign with a current customer, an increase in operating costs due to additional quality control measures implemented in certain of our manufacturing facilities, increased labor costs in Türkiye and Mexico as a result of wage increases, continued cost challenges at facilities in Matamoros, Mexico, and unfavorable foreign currency fluctuations. These unfavorable items were partially offset by reduced startup and transition costs and cost savings initiatives. The fluctuating U.S. dollar against the Euro, Turkish Lira, and Mexican Peso had a combined favorable impact of 0.3% on consolidated cost of goods sold for the year ended December 31, 2023, as compared to the same period in 2022.

General and administrative expenses

The following table summarizes our general and administrative expenses for the years ended December 31:

	2023	2022	Change $	Change %
		(in thousands)		
General and administrative expenses	$ 49,133	$ 32,349	$ 16,784	51.9 %
% of net sales	3.4 %	2.1 %		1.3 %

General and administrative expenses as a percentage of net sales increased by 1.3% for the year ended December 31, 2023, as compared to the same period in 2022, and was primarily driven by $20.9 million of credit losses on contract assets and accounts receivable from the Proterra bankruptcy impacting our automotive business, partially offset by lower stock-based compensation expense and employee incentive costs.

Loss on sale of assets and asset impairments

The following table summarizes our loss on sale of assets and asset impairments for the years ended December 31:

	2023	2022	Change $	Change %
		(in thousands)		
Loss on sale of receivables	$ 19,546	$ 9,754	$ 9,792	100.4 %
Loss on sale of other assets	211	167	44	26.3
Asset impairment charges	2,105	(79)	2,184	NM
Total loss on sale of assets and asset impairments	$ 21,862	$ 9,842	$ 12,020	122.1
% of net sales	1.5 %	0.6 %		0.9 %

The increase in loss on sale of assets and asset impairments for the year ended December 31, 2023, as compared to the same period in 2022, was primarily due to an increase in the volume of receivables sold through our accounts receivable financing arrangements with certain of our customers, and an increase in the agreed-upon discount rates, as well as an increase in asset impairments in our automotive business from the Proterra bankruptcy during the third quarter of 2023.

Restructuring charges, net

The following table summarizes our restructuring charges, net, for the years ended December 31:

	2023	2022	Change $	Change %
		(in thousands)		
Severance	$ 5,075	$ (210)	$ 5,285	NM
Other restructuring costs	(25)	473	(498)	(105.3)
Total restructuring charges, net	$ 5,050	$ 263	$ 4,787	NM
% of net sales	0.3 %	0.0 %		0.3 %

The increase in restructuring charges, net for the year ended December 31, 2023, as compared to the same period in 2022 was primarily due to an increase in severance costs at our Türkiye and Rhode Island facilities.

Income (loss) from continuing operations

Segment discussion

The following table summarizes our income (loss) from operations by our four geographic operating segments for the years ended December 31:

	2023	2022	Change $	Change %
		(in thousands)		
U.S.	$ (47,909)	$ (46,387)	$ (1,522)	(3.3)%
Mexico	(174,009)	(76,096)	(97,913)	(128.7)
EMEA	33,571	77,195	(43,624)	(56.5)
India	24,754	17,479	7,275	41.6
Total loss from operations from continuing operations	$ (163,593)	$ (27,809)	$ (135,784)	(488.3)
% of net sales	-11.2 %	-1.8 %		(9.4)%

U.S. Segment

The increase in the loss from operations in the U.S. segment for the year ended December 31, 2023, as compared to the same period in 2022 was primarily due to credit losses and asset impairment charges in our automotive business as a result of Proterra's bankruptcy, increased labor costs, and a decrease in the volume of field service sales, partially offset by a decrease in non-restructuring related operating costs at our Newton, Iowa manufacturing facility and lower general and administrative expenses.

Mexico Segment

The increase in loss from operations in the Mexico segment for the year ended December 31, 2023, as compared to the same period in 2022, was primarily due to increased warranty costs and additional quality control measures implemented in certain manufacturing facilities, increased labor costs, continued cost challenges at our facilities in Matamoros, Mexico, and unfavorable foreign currency fluctuations. These unfavorable items were partially offset by reduced startup and transition costs and additional fees received from our customer related to the temporary production pause at one of our Matamoros, Mexico facilities. The fluctuating U.S. dollar relative to the Mexican Peso had an unfavorable impact of 2.2% on the Mexico segment's cost of goods sold for the year ended December 31, 2023, as compared to the same period in 2022.

EMEA Segment

The decrease in income from operations in the EMEA segment for the year ended December 31, 2023, as compared to the same period in 2022 was primarily due to inflation impacting operating costs that we were not able to pass on to our customers, increased labor costs as a result of wage increases in Türkiye, and an adverse cumulative catch-up adjustment as a result of changes in certain of our estimated costs to complete our performance obligations. This decrease was partially offset by an increase in the volume of wind blades produced in 2023 as compared to 2022 due to a brief labor disruption in Türkiye in the third quarter of 2022 as we worked with the union to resolve inflationary pressures on wages, an increase in wind blade prices, cost savings initiatives, and favorable foreign currency fluctuations. The fluctuating U.S. dollar relative to the Turkish Lira and Euro had a favorable impact of 5.2% on the EMEA segment's cost of goods sold, for the year ended December 31, 2023, as compared to the same period in 2022.

India Segment

The increase in income from operations in the India segment for the year ended December 31, 2023, as compared to the same period in 2022, was primarily due to an increase in the volume of wind blades produced and operational efficiencies as the facility was ramping up production in early 2022.

Other income (expense)

The following table summarizes our total other income (expense) for the years ended December 31:

	2023	2022	Change $	Change %
		(in thousands)		
Interest expense, net	$ (12,112)	$ (5,029)	$ (7,083)	(140.8)%
Foreign currency income (loss), net	(5,162)	4,571	(9,733)	(212.9)
Miscellaneous income	1,976	2,330	(354)	(15.2)
Total other income (expense)	$ (15,298)	$ 1,872	$ (17,170)	NM

The change in total other income (expense) for the year ended December 31, 2023, as compared to the same period in 2022, was primarily due to unfavorable foreign currency fluctuations and an increase in interest expense, net due to the issuance of $132.5 million of convertible senior unsecured notes.

Income taxes

The following table summarizes our income taxes for the years ended December 31:

	2023	2022	Change $	Change %
		(in thousands)		
Income tax provision	$ (17,562)	$ (29,613)	$ 12,051	40.7%
Effective tax rate	9.8%	114.2%		

Our income tax provision for the year ended December 31, 2023, as compared to the same period in 2022 decreased due to the mix of earnings of our operations in foreign jurisdictions and changes in our uncertain tax positions.

Net loss from continuing operations

The following table summarizes our net loss from continuing operations for the years ended December 31:

	2023	2022	Change $	Change %
		(in thousands)		
Net loss from continuing operations	$ (196,453)	$ (55,550)	$ (140,903)	NM

The increase in the net loss for the year ended December 31, 2023 as compared to the same period in 2022 was primarily due to the reasons set forth above.

Net loss from discontinued operations

The following table summarizes our net loss from discontinued operations for the years ended December 31:

	2023	2022	Change $	Change %
		(in thousands)		
Net loss from discontinued operations	$ (5,326)	$ (9,755)	$ 4,429	45.4%

The change in net loss from discontinued operations for the year ended December 31, 2023 as compared to the same period in 2022, was primarily due to the closure of production at our Yangzhou, China facility at the end of 2022. In September 2023, we completed the sale of our Taicang, China facility, received proceeds of $12.8 million, and recorded a net gain on the sale of $0.4 million.

Year Ended December 31, 2022 Compared to Year Ended December 31, 2021

For a comparison of our results of operations for the years ended December 31, 2022 and 2021, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations" included in Part II, Item 7 of our Annual Report on Form 10-K for the year ended December 31, 2022, filed with the SEC on February 22, 2023 and incorporated herein by reference.

LIQUIDITY AND CAPITAL RESOURCES

In November 2021, we entered into a Series A Preferred Stock Purchase Agreement with Oaktree Power Opportunities Fund V (Delaware) Holdings, L.P., OPPS TPIC Holdings, LLC, and Oaktree Phoenix Investment Fund L.P. (collectively, the Purchasers), pursuant to which we issued and sold to the Purchasers 350,000 shares of Series A Preferred Stock, par value $0.01 per share, for an aggregate purchase price of $350.0 million. We used $181.2 million of the net proceeds from the issuance and sale of the Series A Preferred Stock to repay all outstanding indebtedness under our previous senior secured credit facility and terminated such credit facility. The remainder of the net proceeds were used for general corporate purposes. In connection with the transaction, we also issued warrants to purchase 4,666,667 shares of common stock at an exercise price of $0.01 per share to the Series A Preferred Stockholders. In August 2022, the Series A Preferred Stockholders exercised the outstanding, fully vested warrants at a price of $0.01 per share to purchase an aggregate of 4,666,667 shares of common stock on a cashless basis, resulting in the net issuance to the Purchasers of an aggregate of 4,664,155 shares of common stock. On December 14, 2023, we entered into the Credit Agreement and a Common Stock Purchase Agreement with the Purchasers, pursuant to which all of the outstanding shares of Series A Preferred Stock, along with $86.0 million of and unpaid dividends on the Series A Preferred Stock, were exchanged for the $393.0 million Term Loan and the issuance of 3,899,903 shares of common stock. See Note 12, *Debt* and Note 15, *Mezzanine Equity,* to Consolidated Financial Statements in Part II, Item 8 of this Annual Report on Form 10-K, for further discussion on the Series A Preferred Stock Purchase Agreement.

Our primary needs for liquidity have been, and in the future will continue to be, capital expenditures, purchases of raw materials, new facility startup costs, the impact of transitions, working capital, debt service costs, warranty costs and restructuring costs associated with the optimization of our global footprint. Our capital expenditures have been primarily related to machinery and equipment for new facilities or facility expansions. Historically, we have funded our working capital needs through cash flows from operations, the proceeds received from our credit facilities and from proceeds received from the issuance of stock. We had net proceeds under our financing arrangements of $124.6 million for the year ended December 31, 2023 as compared to net repayments of $13.7 million for the year ended December 31, 2022. As of December 31, 2023 and 2022, we had $485.2 million and $61.2 million in outstanding indebtedness, net of debt issuance costs and discounts, respectively. As of December 31, 2023, we had an aggregate of $68.8 million of remaining capacity of cash and non-cash financing, including $63.5 million of remaining availability for cash borrowing under our various credit facilities. Based upon current and anticipated levels of operations, we believe that cash on hand, available credit facilities and cash flow from operations will be adequate to fund our working capital and capital expenditure requirements and to make required payments of principal and interest on our indebtedness over the next twelve months.

We anticipate that any new facilities and future facility expansions will be funded through cash flows from operations, the incurrence of other indebtedness and other potential sources of liquidity. The Term Loan contains certain covenants and rights including, but not limited to, amount of indebtedness, capital expenditure limitations, a U.S. cash on hand balance requirement of $40.0 million through September 30, 2024 and $50.0 million thereafter.

At December 31, 2023 and 2022, we had unrestricted cash and cash equivalents totaling $161.1 million and $133.6 million, respectively. The December 31, 2023 balance included $45.0 million of cash located outside of the U.S., $40.6 million in Türkiye, $1.9 million in India, $1.2 million in Mexico and $1.3 million in other countries. The December 31, 2022 balance included $9.2 million of cash located outside of the U.S., $2.4 million in Türkiye, $4.7

million in India, $1.4 million in Mexico and $0.7 million in other countries. In addition to these amounts, at December 31, 2023 and 2022, we had unrestricted cash and cash equivalents related to our discontinued operations of $0.9 million and $9.7 million, respectively, all located outside of the U.S.

We are not presently involved in any off-balance sheet arrangements, including transactions with unconsolidated special-purpose or other entities that would materially affect our financial position, results of operations, liquidity or capital resources, other than our accounts receivable assignment agreements described below. Furthermore, we do not have any relationships with special-purpose or other entities that provide off-balance sheet financing; liquidity, market risk or credit risk support; or engage in leasing or other services that may expose us to liability or risks of loss that are not reflected in the consolidated financial statements and related notes.

Our segments enter into accounts receivable assignment agreements with various financial institutions. Under these agreements, the financial institution buys, on a non-recourse basis, the accounts receivable amounts related to our segment's customers at an agreed-upon discount rate.

The following table summarizes certain key details of each of the accounts receivable assignment agreements in place as of December 31, 2023:

Year Of Initial Agreement	Segment(s) Related To	Current Annual Interest Rate
2014	Mexico	LIBOR plus 0.75%
2019	Asia and Mexico	LIBOR plus 1.00%
2019	Asia	Fixed rate of 3.85%
2020	EMEA	EURIBOR plus 1.95%
2020	India	LIBOR plus 1.00%
2020	U.S.	SOFR plus 0.29%
2021	Mexico	SOFR plus 0.29%
2022	EMEA	EURIBOR plus 1.97%

As the receivables are purchased by the financial institutions under the agreements noted above, the receivables are removed from our consolidated balance sheet. During the years ended December 31, 2023 and 2022, $1,026.1 million and $913.5 million, respectively, of receivables were sold under the accounts receivable assignment agreements described above.

Cash Flow Discussion

The following table summarizes our key cash flow activity for continuing and discontinued operations for the years ended December 31:

	2023	2022	$ Change
		(in thousands)	
Net cash used in operating activities	$ (80,972)	$ (62,272)	$ (18,700)
Net cash used in investing activities	(23,301)	(18,832)	(4,469)
Net cash provided by (used in) financing activities	121,994	(14,597)	136,591
Impact of foreign exchange rates on cash, cash equivalents and restricted cash	2,023	(3,448)	5,471
Net change in cash, cash equivalents and restricted cash	$ 19,744	$ (99,149)	$ 118,893

Operating Cash Flows

Net cash used in operating activities increased by $18.7 million for the year ended December 31, 2023 as compared to the same period in 2022 primarily as the result of an increase in net losses, partially offset by a reduction in wind blade inventory included in contract assets driven by working capital initiatives and the wind down of production for wind blade lines in transition.

Investing Cash Flows

Net cash used in investing activities increased by $4.5 million for the year ended December 31, 2023 as compared to the same period in 2022 primarily as the result of an increase in capital expenditures, partially offset by proceeds from the sale of our Taicang, China facility.

We anticipate fiscal year 2024 capital expenditures of between $25 million to $30 million. We have used, and will continue to use, cash flows from operations, the proceeds received from our credit facilities and the proceeds received from the issuance of stock for the continued investment in our existing manufacturing facilities.

Financing Cash Flows

Net cash provided by financing activities increased by $136.6 million for the year ended December 31, 2023 as compared to the same period in 2022 primarily as the result of proceeds from the $132.5 million convertible notes and proceeds from the loan to finance our purchase of the wind turbines in Türkiye.

For a discussion and comparison of our cash flows for the years ended December 31, 2022 and 2021, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations" included in Part II, Item 7 of our Annual Report on Form 10-K for the year ended December 31, 2022, filed with the SEC on February 22, 2023 incorporated herein by reference.

Our Indebtedness

For a discussion of our indebtedness, refer to Note 12, *Debt*, of the Notes to Consolidated Financial Statements in Part II, Item 8 of this Annual Report on Form 10-K.

Other Contingencies

For a discussion of our legal proceedings, refer to Note 17, *Commitments and Contingencies – Legal Proceedings,* of the Notes to Consolidated Financial Statements in Part II, Item 8 of this Annual Report on Form 10-K.

The wind blades and other composite structures that we produce are subject to warranties against defects in workmanship and materials, generally for a period of two to five years. We are not responsible for the fitness for use of the wind blade or the overall wind turbine system. If a wind blade is found to be defective during the warranty period as a result of a defect in workmanship or materials, among other potential remedies, we may need to repair or replace the wind blade (which could include significant transportation and installation costs) at our sole expense. At December 31, 2023 and 2022, we had accrued warranty reserves totaling $37.5 million and $22.3 million, respectively.

As of December 31, 2023, we had no material operating expenditures for environmental matters, including government imposed remedial or corrective actions, during the year ended December 31, 2023.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Our discussion and analysis of our financial condition and results of operations are based upon our consolidated financial statements, which have been prepared in accordance with GAAP. The preparation of these consolidated financial statements requires us to make estimates and judgments that affect the reported amount of our assets, liabilities, revenue and expenses and related disclosure of contingent assets and liabilities. We evaluate our estimates on an ongoing basis, including those related to revenue recognition, income taxes and warranty expense. We base our estimates on our historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making the judgments we make about the carrying values of our assets and liabilities that are not readily apparent from other sources. Because these estimates can vary depending on the situation, actual results may differ from the estimates.

We believe the following critical accounting policies affect our more significant judgments used in the preparation of our consolidated financial statements.

Revenue Recognition. The majority of our revenue is generated from supply agreements associated with manufacturing of wind blades and related services. We account for a supply agreement when it has the approval from both parties, the rights of the parties are identified, payment terms are established, the contract has commercial substance and the collectability of consideration is probable. Our manufacturing services are customer specific and involve production of items that cannot be sold to other customers due to the customers' protected IP.

Revenue is primarily recognized over time as we have an enforceable right to payment upon termination and we may not use or sell the product to fulfill other customers' supply agreements. Because control transfers over time, revenue is recognized based on the extent of progress towards the completion of the performance obligation under the cost-to-cost input measure of progress as this method provides the best representation of the production progress towards satisfaction of the performance obligation. Under the cost-to-cost method, progress and the related revenue recognition is determined by a ratio of direct costs incurred to date in fulfillment of the performance obligation to the total estimated direct costs required to complete the performance obligation.

Determining the revenue to be recognized for services performed under our supply agreements involves judgments and estimates relating to the total consideration to be received and the expected direct costs to complete the performance obligation. Our estimates of variable consideration and determination of whether to include estimated amounts in the transaction price are based largely on an assessment of our anticipated performance and all information available to us at the time of the estimate and may materially change as additional information becomes known.

Under the cost-to-cost method, contract assets established primarily relate to our rights to consideration for work completed but not billed at the reporting date on our supply agreements. The contract assets are transferred to accounts receivable when the rights become unconditional, which generally occurs when customers are invoiced upon the determination that a product conforms to the contract specifications.

See Note 1 – *Summary of Operations and Summary of Significant Accounting Policies – (c) Revenue Recognition* of the Notes to Consolidated Financial Statements in Part II, Item 8 of this Annual Report on Form 10-K, for further discussion of our accounting policies related to revenue recognition, including accounting policies surrounding our non-manufacturing related services.

Income Taxes. In connection with preparing our consolidated financial statements, we are required to estimate our income taxes in each of the jurisdictions in which we operate. This process involves our assessment of any net operating loss carryforwards, as well as estimating our actual current tax liability together with assessing temporary differences resulting from differing treatment of items, such as reserves and accrued liabilities, for tax and accounting purposes. We also have to assess whether any portion of our earnings generated in one taxing jurisdiction might be claimed as earned by income tax authorities in a differing tax jurisdiction. Significant judgment is required in determining our annual tax rate, the allocation of earnings to various jurisdictions and the evaluation of our tax positions.

In the normal course of business, we establish valuation allowances for our deferred tax assets when the realization of the assets is not more likely than not. We intend to maintain such valuation allowances on our deferred tax assets until there is sufficient evidence to support the reversal of all or some portion of the allowances. We maintain a valuation allowance for all of our deferred tax assets in the U.S., Switzerland, Spain and for our discontinued operations in China. The effect of a change in judgment concerning the realizability of deferred tax assets is included in our income tax provision.

As of December 31, 2023, we have U.S. federal net operating losses (NOLs) of approximately $392.7 million, state NOLs of approximately $317.0 million, foreign NOLs of approximately $4.7 million and foreign tax credits of approximately $1.9 million available to offset future taxable income in the U.S. and Spain. Income tax expense or benefit, deferred tax assets and liabilities, and liabilities for unrecognized tax benefits reflect our best estimate of current and future taxes to be paid. We are subject to income taxes in the U.S. and numerous foreign jurisdictions in which we operate, principally, Mexico, India and Türkiye, and our discontinued operations in China. Significant judgements and estimates are required in determining our consolidated income tax expense. The statutory federal corporate income tax rate in the U. S. is 21% and the tax rates in China, Mexico, India and Türkiye are 25%, 30%, 17% and 22%, respectively. One of our two Türkiye facilities is located in a tax-free zone and is not subject to income taxes on earnings recognized from its manufacturing activities.

Warranty Expense. The wind blades we manufacture are subject to warranties against defects in workmanship and materials, generally for a period of two to five years. We are not responsible for the fitness for use of the wind blade in the overall wind turbine system. If a wind blade is found to be defective during the warranty period as a result of a defect in workmanship or materials, among other potential remedies, we may need to repair or replace the wind blade at our sole expense. We provide warranties for all of our products with terms and conditions that vary depending on the product sold. We record warranty expense based upon our estimate of future repairs using a probability-based methodology that considers previous warranty claims, identified quality issues and industry practices. Once the warranty period has expired, any remaining unused warranty accrual for the specific products is reversed against the current year warranty expense amount, provided that the warranty accrual for other products whose warranty period has not yet expired is sufficient to cover the estimated cost of future repairs for those other products.

Our estimate of warranty expense requires us to make assumptions about matters that are highly uncertain, including future rates of product failure, repair costs, availability of materials, shipping and handling, and de-installation and re-installation costs at customers' sites, among others. When a potential or actual warranty claim arises, we may accrue additional warranty reserves for the estimated cost of remediation or proposed settlement. In 2023, we accrued additional warranty expenses of approximately $42.7 million beyond the normal warranty expense described above related to a remediation campaign for a specific wind blade model for one of our customers. In 2022, we accrued additional warranty expenses of approximately $7.2 million beyond the normal warranty expense described above related to a remediation campaign for a specific wind blade model for one of our customers. Changes in warranty reserves could have a material effect on our consolidated financial statements. For example, as of December 31, 2023, a hypothetical change of 10% in the accrual rate of our warranty reserve would have resulted in a change to our warranty reserve of approximately $5.1 million.

Recent Accounting Pronouncements

For a discussion of recent accounting pronouncements, see Note 1 – *Summary of Operations and Summary of Significant Accounting Policies* of the Notes to Consolidated Financial Statements in Part II, Item 8 of this Annual Report on Form 10-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

We are exposed to market risk in the ordinary course of our business. These market risks are principally limited to changes in foreign currency exchange rates and commodity prices.

Foreign Currency Risk. We conduct international manufacturing operations related to our continuing operations in Mexico, Türkiye and India. Our results of operations are subject to both currency transaction risk and currency translation risk. We incur currency transaction risk whenever we enter into either a purchase or sale transaction using a currency other than the local currency of the transacting entity. With respect to currency translation risk, our financial condition and results of operations are measured and recorded in the relevant functional currency and then translated into U.S. dollars for inclusion in our consolidated financial statements. In recent years, exchange rates between these foreign currencies and the U.S. dollar have fluctuated significantly and may do so in the future. A hypothetical change of 10% in the exchange rates for the countries above would have resulted in a change to loss from our continuing operations of approximately $13.6 million and $5.4 million for the years ended December 31, 2023 and 2022, respectively.

Commodity Price Risk. We are subject to commodity price risk under agreements for the supply of our raw materials. We have not hedged our commodity price exposure. We generally lock in pricing for our key raw materials for 12 months which protects us from price increases within that period. As many of our raw material supply agreements have meet or release clauses, if raw materials prices go down, we are able to benefit from the reductions in price. We believe that this adequately protects us from increases in raw material prices in the near term and also enables us to take full advantage of decreases.

Resin and resin systems are the primary commodities for which we do not have fixed pricing. Approximately 59% of the resin and resin systems, and approximately 91% of the carbon fiber, we use is purchased under contracts either controlled or borne by two of our customers and therefore they receive/bear 100% of any increase or decrease in resin and carbon fiber costs further limiting our exposure to price fluctuations. Prior to taking into account any contractual obligations of our customers to share with us the cost savings or increases resulting from a change in the price of resin and resin systems, we believe that a 10% change in the price of resin and resin systems for the customers in which we are exposed to fluctuating prices would have had an impact to loss from our continuing operations of approximately $5.7 million and $7.2 million for the years ended December 31, 2023 and 2022, respectively. Under our supply agreements, our customers typically receive approximately 70% of the cost savings or increases resulting from a change in the price of resin and resin systems.

Interest Rate Risk. As of December 31, 2023, all outstanding working capital loans, secured and unsecured financing and finance lease obligations are fixed rate instruments and are not subject to fluctuations in interest rates.

Item 8. Financial Statements and Supplementary Data

The financial statements required to be filed pursuant to this Item 8 are appended to this Report. An index of those financial statements is found in Part IV, Item 15 of this Annual Report on Form 10-K.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to provide reasonable assurance that information required to be disclosed in our reports under the Exchange Act is recorded, processed, summarized, and reported within the time period specified in the SEC's rules and forms and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

As required by Rule 13a-15(b) promulgated under the Exchange Act, our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the design and operating effectiveness as of December 31, 2023 of our disclosure controls and procedures, as defined in Rule 13a-15(e) promulgated under the Exchange Act. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of December 31, 2023.

Management's Report on Internal Control Over Financial Reporting

As required by Rules 13a-15(f) promulgated under the Exchange Act, our management is responsible for establishing and maintaining adequate internal control over financial reporting to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles. Management assessed the effectiveness of our internal control over financial reporting as of December 31, 2023. Management based its assessment on criteria established in Internal Control-Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Management's assessment included evaluation of elements such as the design and operating effectiveness of key financial reporting controls, process documentation, accounting policies and our overall control environment. Based on this assessment, management has concluded that our internal control over financial reporting was effective as of December 31, 2023 to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external reporting purposes in accordance with U.S. generally accepted accounting principles. We reviewed the results of management's assessment with the Audit Committee of our Board of Directors.

Our internal control over financial reporting as of December 31, 2023 has been audited by KPMG LLP, an independent registered public accounting firm, as stated in their report which is included herein.

Changes in Internal Control Over Financial Reporting

There have been no changes in our internal control over financial reporting during the three months ended December 31, 2023, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this Item is incorporated by reference to “Business – Information about our Executive Officers” included in Part 1, Item 1 of this Annual Report on Form 10-K and the information that will be contained in our proxy statement related to the 2024 Annual Meeting of Stockholders, which we intend to file with the SEC within 120 days of the fiscal year ended December 31, 2023.

Item 11. Executive Compensation

The information required by this Item is incorporated by reference to the information that will be contained in our proxy statement related to the 2024 Annual Meeting of Stockholders, which we intend to file with the SEC within 120 days of the fiscal year ended December 31, 2023.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this Item is incorporated by reference to the information that will be contained in our proxy statement related to the 2024 Annual Meeting of Stockholders, which we intend to file with the SEC within 120 days of the fiscal year ended December 31, 2023.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this Item is incorporated by reference to the information that will be contained in our proxy statement related to the 2024 Annual Meeting of Stockholders, which we intend to file with the SEC within 120 days of the fiscal year ended December 31, 2023.

Item 14. Principal Accounting Fees and Services

Our independent registered public accounting firm is KPMG LLP, Phoenix, AZ, Auditor Firm ID: 185.

The information required by this Item is incorporated by reference to the information that will be contained in our proxy statement related to the 2024 Annual Meeting of Stockholders, which we intend to file with the SEC within 120 days of the fiscal year ended December 31, 2023.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) Financial Statements and Schedules

The financial statements listed in the accompanying Index to Consolidated Financial Statements are filed as part of this Annual Report on Form 10-K. All financial statement schedules have been omitted as the required information is not applicable or is not material to require presentation of the schedule, or because the information required is included in the Consolidated Financial Statements and notes thereto of this Annual Report on Form 10-K.

(b) Exhibits

See Exhibit Index.

Item 16. Form 10-K Summary

Not applicable.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
TPI Composites, Inc.:

Opinions on the Consolidated Financial Statements and Internal Control Over Financial Reporting

We have audited the accompanying consolidated balance sheets of TPI Composites, Inc. and subsidiaries (the Company) as of December 31, 2023 and 2022, the related consolidated statements of operations, comprehensive loss, changes in mezzanine equity and stockholders' (deficit) equity, and cash flows for each of the years in the three-year period ended December 31, 2023, and the related notes (collectively, the consolidated financial statements). We also have audited the Company's internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control – Integrated Framework (2013)*issued by the Committee of Sponsoring Organizations of the Treadway Commission.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2023, in conformity with U.S. generally accepted accounting principles. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2023 based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's consolidated financial statements and an opinion on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of a critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Variable consideration and direct costs to complete performance obligations for wind blade sales

As discussed in Notes 1 and 3 to the consolidated financial statements, the Company generates the majority of its revenue from long-term contracts associated with manufacturing custom wind blades. Revenue from manufacturing wind blades is primarily recognized over time based on progress towards the completion of the performance obligation in the contract. Progress is determined by the ratio of direct costs incurred to date in fulfillment of the performance obligation to the total estimated direct costs required to complete the performance obligation. The Company recognizes variable consideration for wind blade sales that includes estimates of future contract volumes. Wind blade sales under long-term contracts from continuing operations was $1,394,316 thousand compared to total net sales of $1,455,183 thousand in fiscal 2023.

We identified the evaluation of estimates of future contract volumes and direct costs to complete performance obligations for wind blade sales as a critical audit matter. Evaluating these estimates required a high degree of auditor judgment as changes to the inputs can have a significant effect on the Company's revenue. Each wind blade contract contains variable consideration that includes estimates of future contract volumes. Each wind blade contract also requires a measure of progress that includes estimates of direct costs to complete the performance obligations.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company's process to recognize revenue from wind blade sales. This included controls related to estimates of future contract volumes and direct costs to complete the performance obligation. We read a selection of long-term customer contracts, and observed that terms, conditions, and key elements of the contracts were included in the Company's estimate of future contract volumes. We evaluated the Company's ability to estimate future contract volumes and direct costs to complete the performance obligations by comparing these estimates to historical results. We evaluated estimated future contract volumes by assessing (1) manufacturing plant capacity, (2) historical production volume, and (3) customer purchase commitments. We evaluated estimated direct costs to complete the performance obligations by examining the estimated amounts agreed upon with the customer and comparing them to historical costs. We compared the estimated future direct cost per blade to historical direct costs per blade and assessed the potential impact of future manufacturing efficiencies. Further, we evaluated historical direct labor cost by wind blade type and manufacturing plant, and analyzed jurisdiction-specific inflation rates based on publicly available data. We assessed current period revenue based upon the estimated consideration, the ratio of direct costs incurred to date in fulfillment of the performance obligations to the total estimated direct costs required to complete the performance obligations, and revenue recognized in previous periods for the performance obligations

/s/ KPMG LLP

We have served as the Company's auditor since 2008.

Phoenix, Arizona
February 22, 2024

TPI COMPOSITES, INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

	December 31,	
	2023	2022
	(In thousands, except par value data)	
Assets		
Current assets:		
Cash and cash equivalents	$ 161,059	$ 133,546
Restricted cash	10,838	9,854
Accounts receivable	138,029	184,809
Contract assets	112,237	215,939
Prepaid expenses	17,621	29,119
Other current assets	34,564	26,052
Inventories	9,420	10,661
Assets held for sale	17,787	—
Current assets of discontinued operations	1,520	35,182
Total current assets	503,075	645,162
Property, plant and equipment, net	128,808	136,841
Operating lease right of use assets	136,124	152,312
Goodwill	2,807	2,807
Intangible assets and deferred costs, net	2,442	3,262
Other noncurrent assets	30,824	21,792
Total assets	$ 804,080	$ 962,176
Liabilities, Mezzanine Equity and Stockholders' Equity		
Current liabilities:		
Accounts payable and accrued expenses	$ 227,723	$ 280,499
Accrued warranty	37,483	22,347
Current maturities of long-term debt	70,465	59,975
Current operating lease liabilities	22,017	22,220
Contract liabilities	24,021	17,100
Liabilities held for sale	1,897	—
Current liabilities of discontinued operations	2,815	54,440
Total current liabilities	386,421	456,581
Long-term debt, net of current maturities	414,728	1,198
Noncurrent operating lease liabilities	117,133	133,363
Other noncurrent liabilities	8,102	10,670
Total liabilities	926,384	601,812
Commitments and contingencies (Note 17)		
Mezzanine equity:		
Series A Preferred Stock, $0.01 par value, 400 shares authorized, 0 and 350 shares issued and outstanding at December 31, 2023 and 2022, respectively; liquidation preference of $475,735 at December 31, 2022	—	309,877
Stockholders' equity:		
Common shares, $0.01 par value, 100,000 shares authorized, 46,990 shares issued and 46,471 shares outstanding at December 31, 2023 and 100,000 shares authorized, 42,369 shares issued and 42,044 shares outstanding at December 31, 2022	470	424
Paid-in capital	431,335	407,570
Accumulated other comprehensive loss	(7,627)	(15,387)
Accumulated deficit	(536,348)	(334,569)
Treasury stock, at cost, 519 shares at December 31, 2023 and 325 shares at December 31, 2022	(10,134)	(7,551)
Total stockholders' (deficit) equity	(122,304)	50,487
Total liabilities, mezzanine equity and stockholders' equity	$ 804,080	$ 962,176

See accompanying notes to consolidated financial statements.

TPI COMPOSITES, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF OPERATIONS

	Year Ended December 31,		
	2023	2022	2021
	(In thousands, except per share data)		
Net sales	$ 1,455,183	$ 1,522,741	$ 1,472,386
Cost of sales	1,520,974	1,482,428	1,459,155
Startup and transition costs	21,757	25,668	50,832
Total cost of goods sold	1,542,731	1,508,096	1,509,987
Gross profit (loss)	(87,548)	14,645	(37,601)
General and administrative expenses	49,133	32,349	29,246
Loss on sale of assets and asset impairments	21,862	9,842	12,436
Restructuring charges, net	5,050	263	12,543
Loss from continuing operations	(163,593)	(27,809)	(91,826)
Other income (expense):			
Interest expense, net	(12,112)	(5,029)	(13,644)
Foreign currency income (loss)	(5,162)	4,571	(21,970)
Miscellaneous income	1,976	2,330	1,372
Total other income (expense)	(15,298)	1,872	(34,242)
Loss from continuing operations before income taxes	(178,891)	(25,937)	(126,068)
Income tax provision	(17,562)	(29,613)	(29,826)
Net loss from continuing operations	(196,453)	(55,550)	(155,894)
Preferred stock dividends and accretion	(58,453)	(58,903)	(6,040)
Gain on extinguishment of Series A Preferred Stock	82,620	—	—
Net loss from continuing operations attributable to common stockholders	(172,286)	(114,453)	(161,934)
Net loss from discontinued operations	(5,326)	(9,755)	(3,654)
Net loss attributable to common stockholders	$ (177,612)	$ (124,208)	$ (165,588)
Weighted-average common shares outstanding:			
Basic	42,671	41,959	37,415
Diluted	42,671	41,959	37,415
Net loss from continuing operations per common share:			
Basic	$ (4.04)	$ (2.73)	$ (4.33)
Diluted	$ (4.04)	$ (2.73)	$ (4.33)
Net loss from discontinued operations per common share:			
Basic	$ (0.12)	$ (0.23)	$ (0.10)
Diluted	$ (0.12)	$ (0.23)	$ (0.10)
Net loss per common share:			
Basic	$ (4.16)	$ (2.96)	$ (4.43)
Diluted	$ (4.16)	$ (2.96)	$ (4.43)

See accompanying notes to consolidated financial statements.

TPI COMPOSITES, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS

	Year Ended December 31, 2023	2022	2021
		(In thousands)	
Net loss from continuing operations attributable to common stockholders	$ (172,286)	$ (114,453)	$ (161,934)
Net loss from discontinued operations	(5,326)	(9,755)	(3,654)
Net loss attributable to common stockholders	(177,612)	(124,208)	(165,588)
Other comprehensive loss:			
Foreign currency translation adjustments	2,317	37,685	(18,419)
Reclassification of foreign currency translation adjustments from disposition and exit of business activities, net of tax of $0	901	—	—
Unrealized gain (loss) on hedging derivatives, net of taxes of $0, $0 and $633 for the years ended December 31, 2023, 2022 and 2021	2,304	934	(2,597)
Reclassification of loss on hedging derivatives, net of taxes of $0 for each of the presented periods	2,238	—	—
Comprehensive loss	$ (169,852)	$ (85,589)	$ (186,604)

See accompanying notes to consolidated financial statements.

TPI COMPOSITES, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CHANGES IN MEZZANINE EQUTIY AND STOCKHOLDERS’ (DEFICIT) EQUITY

	Series A Preferred Stock		Common		Paid-in	Accumulated other comprehensive	Accumulated	Treasury stock,	Total stockholders' (deficit)
	Shares	Amount	Shares	Amount	capital	loss	deficit	at cost	equity
						(In thousands)			
Balance at December 31, 2020	—	—	36,771	$ 368	$ 349,472	$ (32,990)	$ (109,716)	$ (6,099)	$ 201,035
Net loss	—	—	—	—	—	—	(159,548)	—	(159,548)
Preferred stock dividends	—	4,114	—	—	(4,114)	—	—	—	(4,114)
Other comprehensive loss	—	—	—	—	—	(21,016)	—	—	(21,016)
Common stock repurchased for treasury	—	—	—	—	—	—	—	(493)	(493)
Issuances under share-based compensation plan	—	—	647	6	5,239	—	—	—	5,245
Share-based compensation expense	—	—	—	—	8,414	—	—	—	8,414
Issuance of Series A Preferred Stock, net	350	244,934	—	—	—	—	—	—	—
Issuance of warrants to purchase common stock	—	—	—	—	94,355	—	—	—	94,355
Accretion of Series A Preferred Stock	—	1,926	—	—	(1,926)	—	—	—	(1,926)
Balance at December 31, 2021	350	250,974	37,418	374	451,440	(54,006)	(269,264)	(6,592)	121,952
Net loss	—	—	—	—	—	—	(65,305)	—	(65,305)
Preferred stock dividends	—	40,589	—	—	(40,589)	—	—	—	(40,589)
Other comprehensive income	—	—	—	—	—	38,619	—	—	38,619
Common stock repurchased for treasury	—	—	—	—	—	—	—	(959)	(959)
Issuances under share-based compensation plan	—	—	287	3		—	—	—	3
Share-based compensation expense	—	—	—	—	15,080	—	—	—	15,080
Issuance of common stock from the exercise of warrants	—	—	4,664	47	(47)	—	—	—	—
Accretion of Series A Preferred Stock	—	18,314	—	—	(18,314)	—	—	—	(18,314)
Balance at December 31, 2022	350	309,877	42,369	424	407,570	(15,387)	(334,569)	(7,551)	50,487
Net loss	—	—	—	—	—	—	(201,779)	—	(201,779)
Preferred stock dividends	—	41,507	—	—	(41,507)	—	—	—	(41,507)
Other comprehensive income	—	—	—	—	—	7,760	—	—	7,760
Common stock repurchased for treasury	—	—	—	—	—	—	—	(2,583)	(2,583)
Issuances under share-based compensation plan	—	—	721	7		—	—	—	7
Share-based compensation expense	—	—	—	—	9,881	—	—	—	9,881
Issuance of common stock from the exercise of warrants	—	—	—	—	—	—	—	—	—
Accretion of Series A Preferred Stock	—	16,946	—	—	(16,946)	—	—	—	(16,946)
Capped call transactions	—	—	—	—	(18,590)	—	—	—	(18,590)
Extinguishment of Series A Preferred Stock	(350)	(368,330)	3,900	39	90,927	—	—	—	90,966
Balance at December 31, 2023	—	—	46,990	470	431,335	(7,627)	(536,348)	(10,134)	(122,304)

See accompanying notes to consolidated financial statements.

TPI COMPOSITES, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended December 31,		
	2023	2022	2021
		(In thousands)	
Cash flows from operating activities:			
Net loss	$ (201,779)	$ (65,305)	$ (159,548)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	38,869	45,480	52,593
Provision for credit losses	23,323	—	—
Loss on sale of assets and asset impairments	23,332	27,372	13,110
Share-based compensation expense	9,881	15,080	8,407
Amortization of debt issuance costs and debt discount	2,151	—	1,051
Paid in kind interest	2,041	—	—
Deferred income taxes	(11,806)	11,484	2,126
Changes in assets and liabilities:			
Accounts receivable	17,540	(42,030)	(34,715)
Contract assets and liabilities	98,255	(10,331)	23,983
Operating lease right of use assets and operating lease liabilities	(9,769)	(4,727)	8,771
Inventories	1,871	(639)	(1,018)
Prepaid expenses	13,003	(9,254)	9,683
Other current assets	(8,283)	(3,125)	4,699
Other noncurrent assets	980	4,873	11,612
Accounts payable and accrued expenses	(97,700)	(11,418)	45,755
Accrued warranty	15,136	(19,673)	(8,832)
Other noncurrent liabilities	1,983	(59)	(3,202)
Net cash used in operating activities	(80,972)	(62,272)	(25,525)
Cash flows from investing activities:			
Purchases of property, plant and equipment	(36,137)	(18,832)	(37,119)
Proceeds from sale of business	12,836	—	—
Net cash used in investing activities	(23,301)	(18,832)	(37,119)
Cash flows from financing activities:			
Proceeds from issuance of convertible notes	132,500	—	—
Purchase of capped calls	(18,590)	—	—
Payments of debt issuance costs	(5,962)	—	—
Proceeds from revolving and term loans	—	—	18,109
Repayments of revolving and term loans	—	(8,109)	(181,154)
Proceeds from working capital loans	46,329	43,992	10,269
Repayments of working capital loans	(47,673)	(39,015)	—
Principal repayments of finance leases	(1,300)	(5,100)	(5,750)
Net proceeds from (repayments of) other debt	19,273	(5,456)	13,438
Proceeds from exercise of stock options and common stock warrants	—	50	5,211
Repurchase of common stock including shares withheld in lieu of income taxes	(2,583)	(959)	(493)
Proceeds from the issuance of Series A Preferred Stock and warrants to purchase common stock	—	—	350,000
Equity issuance costs	—	—	(10,711)
Net cash provided by (used in) financing activities	121,994	(14,597)	198,919
Impact of foreign exchange rates on cash, cash equivalents and restricted cash	2,023	(3,448)	(14,253)
Net change in cash, cash equivalents and restricted cash	19,744	(99,149)	(122,022)
Cash, cash equivalents and restricted cash, beginning of year	153,069	252,218	130,196
Cash, cash equivalents and restricted cash, end of year	$ 172,813	$ 153,069	$ 252,218

See accompanying notes to consolidated financial statements.

TPI COMPOSITES, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS – CONTINUED

	Year Ended December 31,		
	2023	2022	2021
		(in thousands)	
Supplemental cash flow information:			
Cash paid for interest	$ 9,650	$ 5,727	$ 13,360
Cash paid for income taxes, net of refunds	23,115	30,818	25,268
Noncash investing and financing activities:			
Right of use assets obtained in exchange for new operating lease liabilities	8,077	27,435	13,232
Property, plant, and equipment obtained in exchange for new finance lease liabilities	796	215	1,817
Accrued capital expenditures in accounts payable	5,861	2,429	2,504
Paid in kind preferred stock dividends and accretion	58,453	58,903	6,040
Issuance of Common Stock to extinguish Series A Preferred Stock	8,346	—	—
Issuance of debt, net of debt discount, to extinguish Series A Preferred Stock	274,712	—	—
Accrued transaction costs in accounts payable to extinguish Series A Preferred Stock	1,499	—	—

Reconciliation of Cash, Cash Equivalents and Restricted Cash:

	December 31,			
	2023	2022	2021	2020
		(in thousands)		
Cash and cash equivalents	$ 161,059	$ 133,546	$ 216,236	$ 82,463
Restricted cash	10,838	9,854	10,053	29
Cash and cash equivalents of discontinued operations	916	9,669	25,929	47,394
Restricted cash of discontinued operations	—	—	—	310
Total cash, cash equivalents and restricted cash shown in the consolidated statements of cash flows	$ 172,813	$ 153,069	$ 252,218	$ 130,196

See accompanying notes to consolidated financial statements.

TPI COMPOSITES, INC. AND SUBSIDIARIES

Notes to Consolidated Financial Statements

Note 1. Summary of Operations and Summary of Significant Accounting Policies

(a) Description of Business

TPI Composites, Inc. is the holding company that conducts substantially all of its business operations through its direct and indirect subsidiaries (collectively, the Company or we). The Company was founded in 1968 and has been producing composite wind blades since 2001. The Company is incorporated in Delaware, headquartered in Scottsdale, Arizona and has a global footprint that includes domestic facilities in Newton, Iowa; Des Moines, Iowa; Warren, Rhode Island and Santa Teresa, New Mexico and international facilities in Juárez, Mexico; Matamoros, Mexico; Izmir, Türkiye; Chennai, India; Kolding, Denmark; Berlin, Germany and Madrid, Spain.

In December 2022, we committed to a restructuring plan to rebalance our organization and optimize our global manufacturing footprint. Changing economic and geopolitical factors, including increased logistics costs and tariffs imposed on components of wind turbines from China, including wind blades, had an adverse impact on demand for our wind blades manufactured in our Chinese facilities. In connection with our restructuring plan, we ceased production at our Yangzhou, China manufacturing facility as of December 31, 2022 and are in the final stages of shutting down our business operations in China. Our business operations in China comprised the entirety of our Asia reporting segment. This shut down has had a meaningful effect on our global manufacturing footprint and consolidated financial results. Accordingly, the historical results of our Asia reporting segment have been presented as discontinued operations in our Consolidated Statements of Operations and Consolidated Balance Sheets. Our China operations represented a geographic operating segment that included (1) the manufacturing of wind blades at our facilities in Dafeng, China and Yangzhou, China, (2) the manufacturing of precision molding and assembly systems at our Taicang Port, China facility and (3) wind blade inspection and repair services. The following discussion reflects continuing operations only, unless otherwise indicated. For further information regarding our discontinued operations, refer to Note 2 – Discontinued Operations.

(b) Basis of Presentation

The accompanying consolidated financial statements include the accounts of TPI Composites, Inc. and all majority owned subsidiaries. All significant intercompany transactions and balances have been eliminated. Certain prior period amounts in the consolidated financial statements and accompanying notes have been reclassified to conform to the current period's presentation.

(c) Revenue Recognition

The majority of our revenue is generated from supply agreements associated with manufacturing of wind blades and related services. We account for a supply agreement when it has the approval from both parties, the rights of the parties are identified, payment terms are established, the contract has commercial substance and the collectability of consideration is probable.

To determine the proper revenue recognition method for each supply agreement, we evaluate whether the original contract should be accounted for as one or more performance obligations. This evaluation requires judgment and the decisions reached could change the amount of revenue and gross profit recorded in a given period. As most of our contracts contain multiple performance obligations, we allocate the total transaction price to each performance obligation based on the estimated relative standalone selling prices of the promised goods or services underlying each performance obligation. Our manufacturing services are customer specific and involve production of items that cannot be sold to other customers due to the customers' protected IP; therefore, we allocate the total transaction price under our contracts with multiple performance obligations using the contractually stated prices, as these prices represent the relative standalone selling price based on an expected cost-plus margin model.

Revenue is primarily recognized over time as we have an enforceable right to payment upon termination and we may not use or sell the product to fulfill other customers' contracts. In addition, the customer does not have return or refund rights for items produced that conform to the specifications included in the contract. Because control transfers over time, revenue is recognized based on the extent of progress towards the completion of the performance obligation. We use the cost-to-cost input measure of progress for our contracts as this method provides the best representation of the production progress towards satisfaction of the performance obligation as the materials are distinct to the product being manufactured because of customer specifications provided for in the contract, the costs incurred are proportional to the progress towards completion of the product, and the products do not involve significant pre-fabricated component parts. Under the cost-to-cost method, progress and the related revenue recognition is determined by a ratio of direct costs incurred to date in fulfillment of the performance obligation to the total estimated direct costs required to complete the performance obligation.

Determining the revenue to be recognized for services performed under our supply agreements involves judgments and estimates relating to the total consideration to be received and the expected direct costs to complete the performance obligation. As such, revenue recognized reflects our estimates of future contract volumes and the direct costs to complete the performance obligation. The judgments and estimates relating to the total consideration to be received include the amount of variable consideration as our contracts typically provide the customer with a range of production output options from guaranteed minimum volume obligations to the production capacity of the facility, and customers will provide periodic non-cancellable commitments for the number of wind blades to be produced over the term of the agreement. The total consideration also includes payments expected to be received associated with wind blade model transitions, and payments expected to be received or paid in the form of liquidated damages, for missed production deadlines which are paid over a negotiated timeline. We use historical experience, customer commitments and forecasted future production based on the capacity of the plant to estimate the total revenue to be received to complete the performance obligation. In addition, the amount of consideration per unit produced may vary based on the costs of production of the wind blades as we may be able to change the price per unit based on changes in the cost of production. Further, some of our contracts provide opportunities for us to share in labor and material cost savings as well as absorb some additional costs as an incentive for more efficient production, both of which impact the margin realized on the contract and ultimately the total amount of revenue to be recognized.

We estimate variable consideration at the most likely amount to which we expect to be entitled. We include estimated amounts in the transaction price to the extent it is probable that a significant reversal of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is resolved. Our estimates of variable consideration and determination of whether to include estimated amounts in the transaction price are based largely on an assessment of our anticipated performance and all information available to us at the time of the estimate and may materially change as additional information becomes known.

Our contracts may be modified to account for changes in specifications of products and changing requirements. If the contract modifications are for goods or services that are not distinct from the existing contract, they are accounted for as if they were part of the original contract. The effect of a contract modification on the transaction price and the measure of progress for the performance obligation to which it relates is recognized as an adjustment to revenue on a cumulative catch-up basis. If contract modifications are for goods and services that are distinct from the existing contract and increases the amount of consideration reflecting the standalone sale price of the additional goods or services, then the contract modification is accounted for as a separate contract and is evaluated for one or more performance obligations.

Each reporting period, we evaluate the progress towards satisfaction of each performance obligation based on any contract modifications that have occurred, costs incurred to date, and an estimate of the expected future consideration and costs to be incurred to complete the performance obligation. Based on this analysis, any changes in estimates of total consideration to be received and direct costs to complete the performance obligation are recognized on a cumulative catch-up basis, which recognizes in the current period the cumulative effect of the changes on current and prior periods based on the percentage of completion of the performance obligation.

Wind blade pricing is based on annual commitments of volume as established in our supply agreements and orders less than committed volume may result in a higher price per wind blade to our customers. Orders in excess of annual commitments may result in discounts to our customers from the contracted price for the committed volume. Our customers typically provide periodic purchase orders with the price per wind blade given the current cost of the bill of materials, labor requirements and volume desired. We record an allowance for expected utilization of early payment discounts which are reported as a reduction of the total consideration to be received.

Precision molding and assembly systems included in a customer’s contract are based upon the specific engineering requirements and design determined by the customer and are specific to the wind blade design and function desired. From the customer's engineering specifications, a job cost estimate is developed along with a production plan, and the desired margin is applied based on the location the work is to be performed and complexity of the customer's design. Precision molding and assembly systems are generally built to produce wind blades which may be manufactured by us in production runs specified in the customer contract.

Contract assets primarily relate to our rights to consideration for work completed but not billed at the reporting date on supply agreements. The contract assets are transferred to accounts receivable when the rights become unconditional, which generally occurs when customers are invoiced upon the determination that a product conforms to the contract specifications and invoices are due based on each customer's negotiated payment terms, which, range from 5 to 95 days. We apply the practical expedient that allows us to exclude payment terms under one year from the transfer of a promised good or service from consideration of a significant financing component in its contracts. With regards to the production of precision molding and assembly systems, our contracts generally call for progress payments to be made in advance of production. Generally, payment is made at certain percentage of completion milestones with the final payment due upon delivery to the manufacturing facility. These progress payments are recorded within contract liabilities as current liabilities in the consolidated balance sheets and are reduced as we record revenue over time. We evaluate indications that a customer may not be able to meet the obligations under our supply agreements to determine if an account receivable or contract asset may be impaired.

Our customers may request, in situations where they do not have space available to receive products or do not want to take possession of products immediately for other reasons, that their finished products be stored by us in one of our facilities. Most of our contracts provide for a limited number of wind blades to be stored during the period of the contract with any additional wind blades stored subject to additional storage fees, which are included in wind blade sales.

Revenue related to field service inspection and repair services, non-recurring engineering and freight services provided under our supply agreements is recognized at a point in time following the transfer of control of the promised services to the customer. Customers usually pay the carrier directly for the cost of shipping associated with items produced. When we pay the shipping cost, we apply the practical expedient that allows us to account for shipping and handling as fulfillment costs and include the revenue in the associated performance obligation and the costs are included in cost of goods sold.

Taxes assessed by a governmental authority that are both imposed on and concurrent with specific revenue-producing transactions, that are collected by us from a customer, are excluded from revenue.

(d) Cost of Goods Sold

Cost of goods sold includes the costs we incur at our production facilities to make products saleable on both products invoiced during the period as well as products in progress towards the satisfaction of the related performance obligations for which we have an enforceable right to payment upon termination and we may not use or sell the product to fulfill other customers' contracts. All costs incurred at our production facilities, as well as the allocated portion to our production facilities of costs incurred at our corporate headquarters and our research facilities, are directly or indirectly related to the manufacturing of products or services and are presented in cost of goods sold. Cost of goods sold includes such items as raw materials, direct and indirect labor and facilities costs, including purchasing and receiving costs, plant management, inspection costs, production process improvement activities, product engineering and internal transfer costs. In addition, all depreciation associated with assets used in the production of our products is also included in cost of goods sold. Direct labor costs consist of salaries, benefits and other personnel related costs for associates engaged in the manufacturing of our products and services.

Startup and transition costs are primarily unallocated fixed overhead costs and underutilized direct labor costs incurred during the period production facilities are transitioning wind blade models and ramping up manufacturing. All direct labor costs, excluding non-productive labor costs, are included in the measure of progress towards completion of the relevant performance obligation when determining revenue to be recognized during the period. The cost of sales for the initial products from a new model manufacturing line is generally higher than when the line is operating at optimal production volume levels due to inefficiencies during ramp-up related to labor hours per blade, cycle times per blade and raw material usage. Additionally, these costs as a percentage of net sales are generally higher during the period in which a facility is ramping up to full production capacity due to underutilization of the facility. Manufacturing overhead at each of our facilities includes virtually all indirect costs (including share-based compensation costs) incurred at the plants, including engineering, finance, information technology, human resources and plant management.

(e) General and Administrative Expenses

General and administrative expenses primarily relate to the unallocated portion of costs incurred at our corporate headquarters and our research facilities and include salaries, benefits and other personnel related costs for associates engaged in research and development, engineering, finance, internal audit, information technology, human resources, business development, global operational excellence, global supply chain, in-house legal and executive management. Other costs include outside legal and accounting fees, risk management (insurance), share-based compensation and certain other administrative and global resources costs.

The unallocated research and development expenses incurred at our Warren, Rhode Island location as well as at our Kolding, Denmark advanced engineering center and our Berlin, Germany engineering center are also included in general and administrative expenses. For the years ended December 31, 2023, 2022 and 2021, total research and development expenses totaled $1.4 million, $1.1 million and $1.0 million, respectively.

(f) Loss on Sale of Assets and Asset Impairments

For the years ended December 31, 2023, 2022 and 2021, the losses on the sale of certain receivables, on a non-recourse basis under supply chain financing arrangements with our customers, to financial institutions, as well as the losses on the sale of other assets at our corporate and manufacturing facilities and asset impairment charges totaled $21.9 million, $9.8 million and $12.4 million, respectively.

(g) Restructuring Charges, Net

Restructuring charges primarily consist of associate severance, one-time termination benefits and ongoing benefits related to the reduction of our workforce and other costs associated with exit activities, which may include costs related to leased facilities to be abandoned and facility and associate relocation costs. The determination of when we accrue for involuntary termination benefits under restructuring plans depends on whether the termination benefits are provided under an ongoing benefit arrangement or under a one-time benefit arrangement. Ongoing benefit arrangements are recognized over the service period or when termination becomes reasonably probable, and one-time benefit arrangements are recognized in the period the arrangement is approved and formally communicated to associates. If applicable, we record such costs into operating expense over the terminated associate’s future service period beyond any minimum retention period. Restructuring charges that have been incurred but not yet paid are recorded in accrued expenses in the accompanying consolidated balance sheets.

For the years ended December 31, 2023, 2022 and 2021, restructuring charges, net totaled $5.1 million, $0.3 million and $12.5 million, respectively. These charges primarily related to severance benefits to terminated associates as a result of the reorganization of our operations in Türkiye, temporary shutdown of our Newton, Iowa manufacturing facility and the stop of production in one of our Juarez, Mexico facilities.

(h) Cash and Cash Equivalents and Restricted Cash

Cash and cash equivalents include highly liquid investments that are readily convertible to known amounts of cash with original maturities of three months or less. The carrying value of cash and cash equivalents approximates fair value.

As of December 31, 2023 and 2022, our discontinued operations collectively had unrestricted cash totaling $0.9 million and $9.7 million, respectively. The Chinese government imposes certain restrictions on transferring cash out of China. The local governments in other countries in which we operate impose no such restrictions on transferring cash out of the respective country.

As of December 31, 2023 and 2022, we had $10.8 million and $9.9 million, respectively of cash held as collateral for various instruments, primarily for letters of guarantee related to our India, corporate, and Mexico locations. These amounts are reported as restricted cash in our consolidated balance sheets.

(i) Accounts Receivable

Trade accounts receivable are recorded at the invoiced amount and generally do not bear interest. We follow the allowance method of recognizing uncollectible accounts receivable, which recognizes bad debt expense based on a review of the individual accounts outstanding and prior history of uncollectible accounts receivable. Credit is extended based on evaluation of each of our customer's financial condition and is generally unsecured. Accounts receivable are generally due within 30 days and are stated net of an allowance for doubtful accounts in the consolidated balance sheets. Accounts are considered past due if outstanding longer than contractual payment terms. We record an allowance based on consideration of a number of factors, including the length of time trade accounts are past due, previous loss history, the creditworthiness of individual customers, economic conditions affecting specific customer industries, and economic conditions in general. We charge-off accounts receivable after all reasonable collection efforts have been exhausted. We credit payments subsequently received on such receivables to bad debt expense in the period payment is received. We record delinquent finance charges on outstanding accounts receivables only if they are collected. We wrote off $10.5 million of receivables during 2023 primarily due to a write off of $8.1 million in accounts receivables due to Proterra's bankruptcy filing. We wrote off no receivables during 2022, or 2021. We do not have any off-balance-sheet credit exposure related to our customers. See Note 5, *Accounts Receivable.*

(j) Inventories

Inventories represent materials purchased that are not restricted to fulfillment of a specific contract and are measured at the lower of cost or net realizable value. Net realizable value is defined as the estimated selling prices in the ordinary course of business, less reasonably predictable costs of completion, disposal, and transportation. Cost is determined using the first-in, first-out method for such raw materials. Write-downs to reduce the carrying cost of obsolete, slow-moving, and unusable inventory to net realizable value are recognized in cost of goods sold. The effect of these write-downs establishes a new cost basis in the related inventory, which is not subsequently written up.

(k) Property, Plant and Equipment

Property, plant and equipment are stated at cost. Depreciation and amortization of property, plant, and equipment is calculated on the straight-line method over the estimated useful lives of the assets. See Note 7, *Property, Plant and Equipment, Net.*

	Estimated useful lives
Machinery and equipment	7 to 10 years
Buildings	20 years
Leasehold improvements	5 to 10 years, or the term of the lease, if shorter
Office equipment and software	3 to 5 years
Furniture	3 to 5 years
Vehicles	5 years

(l) Recoverability of Long-Lived Assets

We review property, plant and equipment and other long-lived assets in order to assess recoverability based on expected future undiscounted cash flows whenever events or circumstances indicate that the carrying value may not be recoverable. If the sum of the expected future net cash flows is less than the carrying value, an impairment loss is recognized. The impairment loss is measured as the amount by which the carrying value exceeds the fair value of the asset.

(m) Assets Held for Sale

We classify long-lived assets or disposal groups to be sold as held for sale in the period in which all of the following criteria are met: (1) management, having the authority to approve the action, commits to a plan to sell the asset or disposal group; (2) the asset or disposal group is available for immediate sale in its present condition subject only to terms that are usual and customary for sales of such assets or disposal groups; (3) an active program to locate a buyer and other actions required to complete the plan to sell the asset or disposal group have been initiated; (4) the sale of the asset or disposal group is probable, and transfer of the asset or disposal group is expected to qualify for recognition as a completed sale within one year, except if events or circumstances beyond our control extend the period of time required to sell the asset or disposal group beyond one year; (5) the asset or disposal group is being actively marketed for sale at a price that is reasonable in relation to its current fair value; and (6) actions required to complete the plan indicate that it is unlikely that significant changes to the plan will be made or that the plan will be withdrawn.

We initially measure a long-lived asset or disposal group that is classified as held for sale at the lower of its carrying value or fair value less any costs to sell. Any loss resulting from this measurement is recognized in the period in which the held-for-sale criteria are met. Conversely, gains are not recognized on the sale of a long-lived asset or disposal group until the date of sale. We assess the fair value of a long-lived asset or disposal group less any costs to sell each reporting period it remains classified as held for sale and report any subsequent changes as an adjustment to the carrying value of the asset or disposal group, as long as the new carrying value does not exceed the carrying value of the asset at the time it was initially classified as held for sale.

Upon determining that a long-lived asset or disposal group meets the criteria to be classified as held for sale, we cease depreciation and report long-lived assets and/or the assets and liabilities of the disposal group, if material, in the line items assets held for sale and liabilities held for sale, respectively, in our consolidated balance sheets.

As of December 31, 2023, we met the criteria to classify $17.8 million of assets and $1.9 million of liabilities as held for sale associated with our automotive business. The assets held for sale relate to $14.2 million of property, plant and equipment, net, $2.4 million of accounts receivables, and $1.2 million of other current assets. The liabilities held for sale relate to $1.9 million of other current liabilities. These amounts have been reclassified to assets held for sale and liabilities held for sale, respectively, in the accompanying consolidated balance sheets.

We are in the process of exploring strategic alternatives to ensure our automotive business is sufficiently funded to execute on its growth strategies as we intend to prioritize capital for growth in the wind blade business in the near term. We expect to complete this process no later than June 30, 2024, which could result in a material impairment of the business's assets. Accordingly, the Company determined a triggering event had occurred and performed an analysis to evaluate if any impairment exists in the assets held for sale associated with our automotive business. The Company concluded that there were no indicators of impairment and that the carrying values of the long-lived assets equates to their fair values as of December 31, 2023.

(n) Discontinued Operations

In determining whether a group of assets disposed (or to be disposed) of should be presented as a discontinued operation, the Company makes a determination of whether the criteria for held-for-sale classification is met and whether the disposition represents a strategic shift that has (or will have) a major effect on the entity's operations and financial results. If these determinations can be made affirmatively, the results of operations of the group of assets being disposed of (as well as any gain or loss on the disposal transaction) are aggregated for separate presentation apart from continuing operating results of the Company in the consolidated financial statements. As of December 31, 2023, and 2022 we met the criteria to classify the disposal of our business operations in China as discontinued operations. See Note 2, *Discontinued Operations.*

(o) Goodwill, Intangible Assets and Deferred Costs, Net

Goodwill, which is entirely in the U.S. segment, is evaluated for impairment annually on October 31 and whenever events or circumstances make it likely that impairment may have occurred. In determining whether impairment has occurred, we compare the fair value of the related reporting unit (calculated using the discounted cash flow method) to its carrying value. If the carrying value exceeds the fair value, impairment is recognized for the difference. We may first assess qualitative factors to determine whether it is necessary to perform the quantitative goodwill impairment test. We performed our annual goodwill impairment test during 2023 and determined that it is more-likely-than-not that its fair value exceeds its carrying amount.

Our patents, licenses, trademarks and development tools were acquired in business acquisitions and provide contractual or legal rights, or other future benefits that could be separately identified. Our valuation of identified intangible assets was based upon discounted cash flow estimates that require significant management judgment with respect to revenue and expense growth rates, changes in working capital, and the selection and use of the appropriate discount rate. The intangible assets are amortized over their estimated useful life. Intangible assets with indefinite lives are evaluated at least annually for impairment or whenever events or circumstances make it likely that impairment may have occurred.

In addition, we recognize an asset for deferred costs incurred to fulfill a contract when such costs meet certain criteria. These deferred costs are amortized over their estimated useful life. See Note 3, *Net Sales* for a further discussion of those deferred costs. See Note 8, *Intangible Assets and Deferred Costs, Net.*

(p) Mezzanine Equity

We issued Series A Preferred Stock that we determined is a financial instrument with both equity and debt characteristics and is classified as mezzanine equity in our consolidated financial statements. The instrument was initially recognized at fair value net of issuance costs. We reassess whether the instrument is currently redeemable or probable to become redeemable in the future as of each reporting date, in which, if the instrument meets either criterion, we will accrete the carrying value to the estimated maximum redemption value based on the effective interest method over the remaining period to the expected redemption date. To assess classification, we review all features of the instrument, including all mandatory and optional redemption features that may be substantive. All financial instruments that are classified as mezzanine equity are evaluated for embedded derivative features by evaluating each feature against the nature of the host instrument (e.g. more equity-like or debt-like). Features identified as freestanding instruments or bifurcated embedded derivatives that are material are recognized separately as a derivative asset or liability in the consolidated financial statements. We evaluated our Series A Preferred Stock and determined that its nature is that of a debt host and embedded derivatives exist that require bifurcation on our balance sheet. Mezzanine equity is presented net of related issuance costs and discounts resulting from bifurcated instruments and embedded features issued in conjunction with the host. On December 14, 2023, we entered into a new Credit Agreement and Guaranty (the "Credit Agreement") with Oaktree Fund Administration, LLC, as administrative agent and an affiliate of the holders of our Series A Preferred Stock, which, among other things, included a new senior secured term loan (the "Term Loan") in exchange, together with the issuance of an aggregate of 3,899,903 shares of Common Stock, on a cashless basis, for all Series A Preferred stock and $86.0 million of accrued and unpaid dividends. See Note 12, *Debt,* and Note 15, *Mezzanine Equity*.

(q) Warranty Expense

We provide a limited warranty for our mold, wind blade, and automotive products, including materials and workmanship, with terms and conditions that vary depending on the product sold, generally for periods that range from two to five years. Warranty expense is recorded based upon estimates of future repairs using a probability-based methodology that considers previous warranty claims, identified quality issues and industry practices. Once the warranty period has expired, any remaining unused warranty accrual for the specific products is generally reversed against the current year warranty expense amount, provided that the warranty accrual for other products whose warranty period has not yet expired is sufficient to cover the estimated cost of future repairs for those other products. See Note 10, *Accrued Warranty*.

(r) Treasury Stock

Common stock purchased for treasury is recorded at historical cost. Transactions in treasury shares relate to shares withheld in lieu of income taxes associated with share-based compensation plans and are recorded at weighted-average cost.

(s) Foreign Currency Translation and Income and Losses

Foreign currency-denominated assets and liabilities are translated into U.S. dollars at exchange rates existing at the respective balance sheet dates. Results of operations of our foreign subsidiaries are translated at the average exchange rates during the respective periods. Translation adjustments are reported in accumulated other comprehensive loss in our consolidated balance sheets. Currency translation adjustments for the years ended December 31, 2023, 2022 and 2021 amounted to other comprehensive income (losses) of $(2.3) million, $(37.7) million and $18.4 million, respectively.

Our reporting currency is the U.S. dollar. However, we have non-U.S. operating subsidiaries in our U.S., Mexico, EMEA, and India segments, and our China discontinued operations.

- The U.S. parent companies of our Mexico operations and China discontinued operations, which are wholly-owned subsidiaries of TPI Composites, Inc., maintain their books and records in their functional currency, the U.S. dollar.
- Our Mexico operations maintain their books and records through multiple legal entities that are denominated in the local Mexican currency, the Peso, which are remeasured to their U.S. dollar functional currency.
- Our Türkiye operations maintain their books and records in their functional currency, the Euro.
- Our China discontinued operations maintain their books and records in their functional currency, the local Chinese currency, the Renminbi.
- Our Chennai, India operations maintain their books and records in their functional currency, the U.S. dollar.
- Our Kolding, Denmark operation, which is an indirect, wholly-owned subsidiary of TPI Composites, Inc., maintains its books and records in their functional currency, the local Danish currency, the Krone.
- Our Berlin, Germany operation, which is an indirect, wholly-owned subsidiary of TPI Composites, Inc., maintains its books and records in their functional currency, the Euro.
- Our Madrid, Spain operation, which is an indirect, wholly-owned subsidiary of TPI Composites, Inc., maintains its books and records in their functional currency, the Euro.

Foreign currency transaction gains and losses are reported in foreign currency loss, net in our consolidated statements of operations.

(t) Share-Based Compensation

Our incentive compensation plan provides for the issuance of incentive stock options, non-qualified stock options, stock appreciation rights, restricted stock units (RSUs), restricted stock awards, unrestricted stock awards, cash-based awards, performance-based restricted stock units (PSUs), and dividend equivalent rights to certain of our associates, non-employee directors and consultants. The term of stock options may not exceed ten years from the date of grant. Incentive stock options and non-qualified stock options are granted at an exercise price that is not to be less than 100% of the fair market value of our common stock on the date of grant, as determined by the Compensation Committee of our board of directors. Stock options become vested and exercisable at such times and under such conditions as determined by the Compensation Committee on the date of grant.

For performance stock units that are subject to market conditions, we utilize a Monte Carlo simulation model to determine the fair value. The Monte Carlo simulation model utilizes multiple input variables to determine the share-based compensation expense. For grants with market conditions made during the year ended December 31, 2023, we utilized an expected volatility assumption of 77.64%, a 0% dividend yield and a risk-free interest rate of 4.0%. The volatility was based on the most recent comparable period for our peer group and us. The risk-free interest rate is equal to the yield, as of the measurement date, of the U.S. Treasury bill that is commensurate with the remaining performance measurement period. We currently do not pay a dividend.

The determination of the grant date fair value using an option-pricing model and simulation model requires judgment as well as assumptions regarding a number of other complex and subjective variables. These variables include our closing market price at the grant date as well as the following assumptions:

Expected Volatility. The expected volatility assumption reflects an average of our historical volatility and the volatilities of publicly traded peer group companies with a period equal to the expected life of the options.

Expected Life (years). We use the simplified method to estimate the expected term of stock options. The simplified method for estimating expected term is to use the mid-point between the vesting term and the contractual term of the option. We elected to use the simplified method because we did not have historical exercise data to estimate the expected term due to the limited time period our common stock has been publicly traded.

Risk-Free Interest Rate. The risk-free interest rate assumption is based upon the U.S. constant maturity treasury rates as the risk-free rate interpolated between the years commensurate with the expected life of the options.

Dividend Yield. The dividend yield assumption is zero since we do not expect to declare or pay dividends in the foreseeable future.

Forfeitures. Share-based compensation expense is reversed when the service-based award is forfeited.

Expected Vesting Period. We amortize the share-based compensation expense over the requisite service period.

Share-based compensation expense related to RSUs and PSUs are expensed over the vesting period using the straight-line method for our associates and our board of directors. The RSUs and PSUs do not have voting rights. We calculate the fair value of our share-based awards on the date of grant for our associates and directors.

(u) Leases

We determine if an arrangement is a lease at inception. Operating leases are included in operating lease right of use (ROU) assets, current operating lease liabilities, and noncurrent operating lease liabilities in the consolidated balance sheets. Finance leases are included in property, plant and equipment, current maturities of long-term debt, and long-term debt, net of debt issuance costs and current maturities in the consolidated balance sheets.

Operating lease ROU assets and operating lease liabilities are recognized based on the present value of future minimum lease payments over the lease term at commencement date. Variable payments are not included in ROU assets or lease liabilities and can vary from period to period based on asset usage or our proportionate share of common costs. The implicit rate within our leases is generally not determinable and, therefore, the incremental borrowing rate at lease commencement is utilized to determine the present value of lease payments. We estimate our incremental borrowing rate based on third-party lender quotes to obtain secured debt in a like currency for a similar asset over a timeframe similar to the term of the lease. The ROU asset also includes any lease prepayments made and any initial direct costs incurred and excludes lease incentives. Our lease terms may include options to extend or terminate the lease when it is reasonably certain that we will exercise that option. Lease expense for minimum lease payments is recognized on a straight-line basis over the lease term. We have elected not to recognize ROU assets or lease liabilities for leases with a term of 12 months or less.

We have lease agreements with lease and non-lease components. We have elected to apply the practical expedient to account for these components as a single lease component for all classes of underlying assets. See Note 13, *Leases.*

(v) Income Taxes

Income taxes are accounted for under the asset and liability method in accordance with FASB Accounting Standards Codification ("ASC") Topic 740, *Income Taxes*. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those differences are projected to be recovered or settled. Realization of deferred tax assets is dependent on our ability to generate sufficient taxable income of an appropriate character in future periods. A valuation allowance is established if it is determined to be more-likely-than-not that a deferred tax asset will not be realized. See Note 18, *Income Taxes.*

(w) Use of Estimates

The preparation of consolidated financial statements in conformity with U.S. generally accepted accounting principles (GAAP) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates. Significant items subject to such estimates and assumptions include the useful lives of property, plant and equipment, realizability of intangible assets, deferred costs and deferred tax assets, standalone selling prices and future contract volumes and the direct costs to complete the performance obligation for revenue recognition, fair value of stock options, performance-based restricted stock units and warrants, features related to our Series A Preferred Stock, our new Term Loan, warranty reserves and other contingencies.

(x) Fair Value of Financial Instruments

ASC Topic 820, *Fair Value Measurements*, defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Topic 820 also specifies a fair value hierarchy that requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The standard describes three levels of inputs that may be used to measure fair value is follows:

Level 1: Quoted prices in active markets for identical assets or liabilities;

Level 2: Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; and

Level 3: Valuation is generated from model-based techniques that use significant assumptions not observable in the market. These unobservable assumptions reflect our own estimate of assumptions that market participants would use in pricing the asset or liability.

The carrying amounts of our cash and cash equivalents, trade accounts receivable, income taxes receivable, accounts payable and accrued expenses and income taxes payable approximate fair value because of the short-term nature of these financial instruments. The carrying amount of our short-term unsecured loans approximates fair value due to their short-term nature and the loans carry a current market rate of interest, a Level 2 input. The Term Loan issued on December 14, 2023 was recorded at fair value resulting in an original issuance discount on the Term Loan (see Note 12, *Debt*). The fair value of the Term Loan was estimated using the discounted cash flow method under the income approach, where the contractual cash flows were discounted to present value using a synthetic credit risk adjusted discount rate based on market rates for similar publicly traded debt, all of which represent Level 2 inputs. The carrying value of the Term Loan approximates fair value as of December 31, 2023, due to the short period between issuance date and year end. The carrying value of our other long-term debt approximates fair value based upon market interest rates available to us for debt of similar risk and maturities, which is a Level 2 input. Since our derivative assets and liabilities are not traded on an exchange, we value them using standard industry valuation models. As applicable, these models project future cash flows and discount the amounts to a present value using market-based observable inputs, including interest rate curves, credit risk, foreign exchange rates, and forward and spot prices for currencies. These inputs are observable in active markets over the contract term of the derivative instruments we hold, including the Event of Default Derivative associated with our Term Loan, and accordingly, we classify the valuation techniques as Level 2. See Note 12, *Debt.*

(y) Earnings Per Share

We calculate basic earnings per share for both continuing and discontinued operations, by dividing net income from continuing operations, and net income from discontinued operations, respectively, after deducting dividends on and accretion of preferred stock, by the average number of common shares outstanding during the period, which includes unissued common shares associated with vested equity awards for which little or no consideration is required prior to issuance, net of any treasury shares. We calculate diluted earnings per share for both continuing and discontinued operations in a similar manner after consideration of the potential dilutive effect of common stock equivalents on the average number of common shares outstanding during the period. Common stock equivalents include warrants, stock options, restricted stock awards and units, and performance share awards and units. Common stock equivalents are calculated based upon the treasury stock method using an average market price of common shares during the period. Dilution is not considered when a net loss from continuing operations is reported. Common stock equivalents that have an antidilutive effect are excluded from the computation of diluted earnings per share. See Note 19, *Net Income (Loss) Per Share*.

ASC Topic 260, *Effect on the Calculation of Earnings per Share for the Redemption or Induced Conversion of Preferred Stock*, provides guidance on the accounting for extinguishments (redemptions) of equity-classified preferred stock. It requires the gain or loss on extinguishment of equity-classified preferred stock to be included in the net income per common stockholder used to calculate earnings per share (similar to the treatment of dividends paid on preferred stock). The difference between (1) the fair value of the consideration transferred to the holders of the preferred stock and (2) the carrying amount of the preferred stock (net of issuance costs) is subtracted from (or added to) net income to arrive at income available to common stockholders in the calculation of earnings per share. Accordingly, any excess fair value of the consideration transferred over the carrying amount of the preferred stock is charged against retained earnings, or additional paid-in capital if there are insufficient retained earnings. We applied this guidance to the accounting treatment of the Series A Preferred Stock Exchange described in Note 12, *Debt*.

(z) Debt Discounts

Debt discounts on our long-term debt are recorded as a direct deduction from the carrying amount of such debt on the consolidated balance sheets. All debt discounts are amortized using the effective interest method over the term of the debt. Debt discount amortization expense is recorded as part of interest expense in the consolidated statements of operations.

(aa) Recently Issued Accounting Pronouncements

Supplier Finance Programs

In September 2022, the FASB issued ASU 2022-04, Liabilities - Supplier Finance Programs (Subtopic 405-50), which requires the disclosure of the key terms of outstanding supplier finance programs and a roll forward of the related obligations. The new standard does not affect the recognition, measurement or financial statement presentation of supplier finance program obligations. We adopted this standard on January 1, 2023, except for the roll forward requirement, which becomes effective January 1, 2024. The new standard did not have a material impact on our consolidated financial statements.

There have been no other recent accounting pronouncements or changes in accounting pronouncements during the current year that are of significance, or potential significance, to us.

Note 2. Discontinued Operations

In December 2022, we committed to a restructuring plan to rebalance our organization and optimize our global manufacturing footprint. Changing economic and geopolitical factors, including increased logistics costs and tariffs imposed on components of wind turbines from China, including wind blades, had an adverse impact on demand and profitability for our wind blades manufactured in our Chinese facilities. In connection with our restructuring plan, we ceased production at our Yangzhou, China manufacturing facility as of December 31, 2022 and are in the final stages of shutting down our business operations in China. Our business operations in China comprised the entirety of our Asia reporting segment. This shut down has had a meaningful effect on our global manufacturing footprint and consolidated financial results. Accordingly, the historical results of our Asia reporting segment have been presented as discontinued operations in our Consolidated Statements of Operations and Consolidated Balance Sheets. During the year ended December 31, 2023, we completed the sale of our Taicang, China operations and received net proceeds of $12.8 million, resulting in a net gain on the sale of $0.4 million.

The following table presents the carrying amounts of major classes of assets and liabilities that were included in discontinued operations:

	December 31,	
	2023	2022
	(In thousands)	
Cash and cash equivalents	$ 916	$ 9,669
Accounts receivable	198	2,716
Prepaid expenses	388	1,877
Inventories	17	1,501
Property, plant and equipment, net	—	17,678
Other classes of assets that are not major	1	1,741
Total assets of discontinued operations	$ 1,520	$ 35,182
Accounts payable and accrued expenses	$ 1,632	$ 26,942
Accrued restructuring	1,183	17,764
Operating lease liabilities	—	9,524
Other classes of liabilities that are not major	—	210
Total liabilities of discontinued operations	$ 2,815	$ 54,440

The following table presents the components of net loss from discontinued operations:

	Year Ended December 31,		
	2023	2022	2021
		(In thousands)	
Net sales	$ 2,948	$ 235,588	$ 260,197
Cost of sales	8,906	200,701	254,176
Startup and transition costs	—	7,994	—
Total cost of goods sold	8,906	208,695	254,176
Gross profit	(5,958)	26,893	6,021
Loss on sale of assets and asset impairments	1,470	17,530	674
Restructuring charges, net	(756)	20,175	11,219
Loss from discontinued operations	(6,672)	(10,812)	(5,872)
Other income (expense):			
Interest income, net	49	147	22
Foreign currency income (loss)	(519)	5,627	(1,701)
Miscellaneous income	1,612	1,477	831
Total other income (expense)	1,142	7,251	(848)
Loss before income taxes	(5,530)	(3,561)	(6,720)
Income tax benefit (provision)	204	(6,194)	3,066
Net loss from discontinued operations	$ (5,326)	$ (9,755)	$ (3,654)

The following table presents summarized cash flows from discontinued operations:

	Year Ended December 31,		
	2023	2022	2021
		(in thousands)	
Net cash used in operating activities from discontinued operations	$ (8,579)	$ (12,676)	$ (19,469)
Net cash used in investing activities from discontinued operations	(185)	(2,101)	(2,583)
Additional non-cash items related to operating activities from discontinued operations:			
Depreciation and amortization	—	6,708	14,987
Share-based compensation expense	(34)	621	593

The following is a summary of our restructuring liability activity related to discontinued operations for the periods presented:

	Severance	Other	Total
		(in thousands)	
Balance at December 31, 2020	$ 3,200	$ —	$ 3,200
Restructuring charges, net	10,485	734	11,219
Payments	(5,540)	(734)	(6,274)
Balance at December 31, 2021	8,145	—	8,145
Restructuring charges, net	17,548	2,627	20,175
Payments	(9,936)	(620)	(10,556)
Balance at December 31, 2022	15,757	2,007	17,764
Restructuring charges, net	(1,981)	1,225	(756)
Payments	(13,459)	(2,366)	(15,825)
Balance at December 31, 2023	$ 317	$ 866	$ 1,183

Note 3. Net Sales

The following tables represents the disaggregation of our net sales by product for each of our reportable segments:

	Year Ended December 31, 2023				
	U.S.	Mexico	EMEA	India	Total
			(in thousands)		
Wind blade, tooling and other wind related sales	$ —	$ 587,628	$ 565,627	$ 241,061	$ 1,394,316
Automotive sales	22,775	—	—	—	22,775
Field service, inspection and repair services sales	28,325	1,911	7,856	—	38,092
Total net sales	$ 51,100	$ 589,539	$ 573,483	$ 241,061	$ 1,455,183

	Year Ended December 31, 2022				
	U.S.	Mexico	EMEA	India	Total
			(in thousands)		
Wind blade, tooling and other wind related sales	$ 1,000	$ 642,377	$ 562,485	$ 217,962	$ 1,423,824
Automotive sales	44,002	—	—	—	44,002
Field service, inspection and repair services sales	44,168	4,238	6,507	2	54,915
Total net sales	$ 89,170	$ 646,615	$ 568,992	$ 217,964	$ 1,522,741

	Year Ended December 31, 2021				
	U.S.	Mexico	EMEA	India	Total
			(in thousands)		
Wind blade, tooling and other wind related sales	$ 130,502	$ 594,763	$ 476,888	$ 200,196	$ 1,402,349
Automotive sales	37,312	—	—	—	37,312
Field service, inspection and repair services sales	24,525	2,835	5,332	33	32,725
Total net sales	$ 192,339	$ 597,598	$ 482,220	$ 200,229	$ 1,472,386

In addition, most of our net sales are made directly to our customers, primarily large multi-national wind turbine manufacturers, under our supply agreements.

For further information regarding our reportable segments, refer to Note 22, *Segment Reporting*.

Contract Assets and Liabilities

Contract assets consist of the amount of revenue recognized over time for performance obligations in production where control has transferred to the customer, but the contract does not yet allow for the customer to be billed. Typically, customers are billed when the product finishes production and meets the technical specifications contained in the contract. The time it takes to produce a single wind blade is typically between 5 to 7 days. The time it takes to produce a mold is typically between 3 to 6 months. The majority of the contract asset balance relates to materials procured based on customer specifications. The contract assets are recorded as current assets in the consolidated balance sheets. Contract liabilities consist of advance payments in excess of revenue earned. These amounts primarily represent progress payments received as precision molding and assembly systems are being manufactured. The contract liabilities are recorded as current liabilities in the consolidated balance sheets and are reduced as we record revenue over time.

These contract assets and liabilities are reported on the consolidated balance sheets net on a contract-by-contract basis at the end of each reporting period, as demonstrated in the table below.

Contract assets and contract liabilities as of December 31 consisted of the following:

	2023	2022	$ Change
		(in thousands)	
Gross contract assets	$ 121,483	$ 231,487	$ (110,004)
Less: reclassification from contract liabilities	(9,246)	(15,548)	6,302
Contract assets	$ 112,237	$ 215,939	$ (103,702)

	2023	2022	$ Change
		(in thousands)	
Gross contract liabilities	$ 33,267	$ 32,648	$ 619
Less: reclassification to contract assets	(9,246)	(15,548)	6,302
Contract liabilities	$ 24,021	$ 17,100	$ 6,921

Contract assets decreased by $103.7 million from December 31, 2022 to December 31, 2023 primarily due to a reduction in our unbilled production during the year ended December 31, 2023, a decrease in customer specific blade material purchases driven by working capital improvement initiatives and a $12.8 million impairment of contract assets associated with our bus body supply agreement with Proterra, Inc. (Proterra), one of our customers in our automotive business line that filed for bankruptcy. Contract liabilities, net of the amounts reclassed to contract assets, increased by $6.9 million from December 31, 2022 to December 31, 2023 due to the amounts billed to customers exceeding the revenue earned exceeding the amounts billed to customers related to wind blades produced during the year ended December 31, 2023.

For the years ended December 31, 2023, 2022 and 2021, we recognized revenue of $17.1 million, $1.3 million and $0.6 million, respectively, related to customer advances, which was included in the corresponding contract liability balance at the beginning of the period.

Performance Obligations

Remaining performance obligations represent the transaction price for which work has not been performed and excludes any unexercised contract options. As discussed in Note 1, *Summary of Operations and Summary of Significant Accounting Policies – (d) Revenue Recognition*, the transaction price includes estimated variable consideration as determined based on the estimated production output within the range of the contractual guaranteed minimum volume obligations and production capacity.

As of December 31, 2023, the aggregate amount of the transaction price allocated to the remaining performance obligations to be satisfied in future periods was approximately $1.4 billion. We estimate that we will recognize the remaining performance obligations as revenue as follows:

	$	% of Total
	(in thousands)	
Year Ending December 31,		
2024	$ 1,098,908	77.1 %
2025	326,893	22.9
Total remaining performance obligations	$ 1,425,801	100.0 %

For the year ended December 31, 2023, net revenue recognized from our performance obligations satisfied in previous periods decreased by $30.7 million. The current year decrease primarily relates to changes in certain of our estimated total contract values and related direct costs to complete the performance obligations.

Pre-Production Investments

We recognize an asset for deferred costs incurred to fulfill a contract when those costs meet all of the following criteria: (a) the costs relate directly to a contract or to an anticipated contract that we can specifically identify; (b) the costs generate or enhance our resources that will be used in satisfying performance obligations in the future; and, (c) the costs are expected to be recovered. We capitalize the costs related to training our workforce to execute the manufacturing services and other facility set-up costs related to preparing for production of a specific contract. We factor these costs into our estimated cost analysis for the overall contract. Costs capitalized are amortized over the number of units produced during the contract term. As of December 31, 2023, the cost and accumulated amortization of such assets totaled $9.0 million and $7.3 million, respectively. As of December 31, 2022, the cost and accumulated amortization of such assets totaled $8.5 million and $6.0 million, respectively. These amounts are included in intangible assets and deferred costs, net in the consolidated balance sheet. See Note 8, *Intangible Assets and Deferred Costs, Net*.

In applying the practical expedient as permitted under FASB ASU 2014-09, *Revenue from Contracts with Customers (Topic 606),* we recognize the incremental costs of obtaining contracts as an expense when incurred if the amortization period of the asset that we otherwise would have recognized is one year or less. These costs are included in cost of goods sold.

Note 4. Significant Risks and Uncertainties

Our revenues and receivables are earned from a small number of customers. As such, our production levels are dependent on these customers' orders. See Note 21, *Concentration of Customers*.

There have been numerous government initiatives over the past few years aimed at expanding the use of renewable energy, including the Inflation Reduction Act (IRA) in the U.S, and several policy initiatives in the European Union (EU) that are expected to accelerate the expansion of renewable energy and green technologies, simplify regulations, speed up permitting and promote cross-border projects to accelerate climate neutrality. Despite these favorable long-term policy trends, we expect reduced demand in the near term while the wind industry awaits clarity on the implementation guidance related to key components of the IRA, clarity around more robust policies in the EU, and industry headwinds caused by rising interest rates and inflation.

We maintain our U.S. cash in bank deposit and money market accounts that, at times, exceed U.S. federally insured limits. U.S. bank accounts are guaranteed by the Federal Deposit Insurance Corporation (FDIC) in an amount up to $250,000 during 2023 and 2022. U.S. money market accounts are not guaranteed by the FDIC. As of

December 31, 2023 and 2022, we had $116.0 million and $124.4 million, of cash in bank deposit and money market accounts in high quality U.S. banks, which was in excess of FDIC limits. We have not experienced losses in any such accounts. As of December 31, 2023 and 2022, we had $10.8 million and $9.9 million, respectively of cash held as collateral for various instruments, primarily for letters of guarantee related to our India, corporate, and Mexico locations. These amounts are reported as restricted cash in our consolidated balance sheets.

We also maintain cash in bank deposit accounts outside the U.S. that are not subject to FDIC limits. As of December 31, 2023, this included $40.6 million in Türkiye, $1.9 million in India, $1.2 million in Mexico and $1.3 million in other countries. As of December 31, 2022, this included $2.4 million in Türkiye, $4.7 million in India, $1.4 million in Mexico and $0.7 million in other countries. We have not experienced losses in these accounts. In addition, at December 31, 2023 and 2022, we had unrestricted cash and cash equivalents related to our discontinued operations of $0.9 million and $9.7 million, respectively.

Note 5. Accounts Receivable

Accounts receivable as of December 31 consisted of the following:

	2023	2022
	(in thousands)	
Trade accounts receivable	$ 129,312	$ 181,322
Other accounts receivable	8,717	3,487
Total accounts receivable	$ 138,029	$ 184,809

Note 6. Other Current Assets

Other current assets as of December 31 consisted of the following:

	2023	2022
	(in thousands)	
Refundable value-added tax	$ 33,691	$ 25,331
Deposits	597	586
Other current assets	276	135
Total current assets	$ 34,564	$ 26,052

Note 7. Property, Plant and Equipment, Net

Property, plant and equipment, net as of December 31 consisted of the following:

	2023	2022
	(in thousands)	
Machinery and equipment	$ 190,866	$ 199,406
Leasehold improvements	60,635	63,423
Office equipment and software	41,801	41,114
Furniture	22,163	22,249
Vehicles	1,925	872
Construction in progress	24,676	5,575
Idle assets	2,116	—
Total property, plant and equipment, gross	344,182	332,639
Accumulated depreciation	(215,374)	(195,798)
Total property, plant and equipment, net	$ 128,808	$ 136,841

Total depreciation for the years ended December 31, 2023, 2022 and 2021 was $37.0 million, $37.5 million and $34.5 million, respectively.

Note 8. Intangible Assets and Deferred Costs, Net

Carrying values and estimated useful lives of intangible assets and deferred costs as of December 31, 2023, consisted of the following:

	Estimated Useful Life	Cost	Accumulated Amortization (in thousands)	Net
Pre-production investments [1]	Various	$ 8,968	$ (7,267)	$ 1,701
Patents	10 years	110	(50)	60
Acquired development tools	10 years	966	(435)	531
Trademarks	Indefinite	150	—	150
Total intangible assets and deferred costs, net		$ 10,194	$ (7,752)	$ 2,442

Carrying values and estimated useful lives of intangible assets and deferred costs as of December 31, 2022, consisted of the following:

	Estimated Useful Life	Cost	Accumulated Amortization (in thousands)	Net
Pre-production investments [1]	Various	$ 8,480	$ (6,045)	$ 2,435
Patents	10 years	107	(37)	70
Acquired development tools	10 years	934	(327)	607
Trademarks	Indefinite	150	—	150
Total intangible assets and deferred costs, net		$ 9,671	$ (6,409)	$ 3,262

(1) See Note 3, *Net Sales,* for a further discussion of these pre-production investments.

During the years ended December 31, 2023, 2022 and 2021, we recorded amortization expense for the intangible assets and deferred costs of $1.9 million, $1.3 million and $3.1 million, respectively.

Note 9. Other Noncurrent Assets

Other noncurrent assets as of December 31 consisted of the following:

	2023	2022
	(in thousands)	
Deferred tax assets	$ 18,357	$ 9,555
Deposits	10,488	9,362
Other	1,979	2,875
Total other noncurrent assets	$ 30,824	$ 21,792

Note 10. Accrued Warranty

Warranty accrual as of December 31 consisted of the following:

	2023	2022	2021
		(in thousands)	
Warranty accrual at beginning of year	$ 22,347	$ 42,020	$ 50,852
Accrual during the year	12,131	13,598	20,650
Cost of warranty services provided during the year	(48,402)	(36,227)	(23,174)
Changes in estimate for pre-existing warranties, including expirations during the period, and foreign exchange impact	51,407	2,956	(6,308)
Warranty accrual at end of year	$ 37,483	$ 22,347	$ 42,020

Note 11. Share-Based Compensation

The share-based compensation expense for the years ended December 31 was as follows:

	2023	2022	2021
		(in thousands)	
Cost of goods sold	$ 2,671	$ 2,701	$ 1,943
General and administrative expenses	7,245	11,758	5,871
Total share-based compensation expense	$ 9,916	$ 14,459	$ 7,814

The share-based compensation expense recognized by award type for the years ended December 31 was as follows:

	2023	2022	2021
		(in thousands)	
RSUs	$ 9,605	$ 11,030	$ 5,221
Stock options	996	889	1,118
PSUs	(685)	2,540	1,475
Total share-based compensation expense	$ 9,916	$ 14,459	$ 7,814

The summary of activity for our incentive plans, including discontinued operations, is as follows:

		Stock Options			RSUs		PSUs	
	Shares Available for Grant	Shares	Weighted-Average Exercise Price ($)	Options Exercisable	Units	Weighted-Average Grant Date Fair Value ($)	Units	Weighted-Average Grant Date Fair Value ($)
Balance as of December 31, 2020	6,162,713	1,499,586	$ 16.94	959,233	668,454	$ 23.60	650,523	$ 16.42
Granted	(312,173)	5,000	24.76		168,993	49.21	138,180	43.97
Exercised/vested	—	(371,971)	14.01		(135,621)	22.39	(139,924)	15.19
Forfeited/cancelled	469,827	(134,489)	26.12		(65,220)	31.86	(270,118)	23.99
Balance as of December 31, 2021	6,320,367	998,126	16.84	779,149	636,606	29.81	378,661	21.53
Granted	(1,328,995)	254,465	17.05		876,492	16.40	198,038	12.13
Exercised/vested	—	—	—		(137,695)	31.28	(149,733)	7.43
Forfeited/cancelled	280,816	(71,620)	25.54		(82,324)	23.76	(127,500)	18.47
Balance as of December 31, 2022	5,272,188	1,180,971	16.36	804,473	1,293,079	20.95	299,466	23.67
Granted	(1,332,975)	75,487	6.78		1,044,440	9.58	213,048	14.71
Exercised/vested	—	—	—		(675,752)	19.65	(44,803)	13.49
Forfeited/cancelled	348,315	(43,955)	25.81		(145,390)	18.02	(158,970)	34.23
Balance as of December 31, 2023	4,287,528	1,212,503	$ 15.42	885,855	1,516,377	$ 13.98	308,741	$ 13.53

The balance of PSUs outstanding as of December 31, 2023, includes 89,813 units with market conditions related to achieving certain stock price hurdles during the relevant performance periods 106,558 units with market conditions that vest upon achievement of certain cumulative total shareholder return targets during the relevant performance periods, and 112,370 units with other non-market performance conditions related to the achievement of annual financial performance targets during the relevant performance periods. Additionally, the balance of RSUs outstanding as of December 31, 2023, includes 330,556 units of time-based awards with a guaranteed award value that vest over a two-year period with 50% on the first and second anniversary of the grant date, respectively, and additional shares may be issued on the second anniversary of the grant date to maintain the guaranteed award value. The fair value of RSUs and PSUs, based on the share price on the date of vesting, which vested during the years ended December 31, 2023, 2022 and 2021 was $9.8 million, $3.3 million and $9.0 million, respectively. In addition, during 2023, 2022 and 2021, we repurchased 193,938 shares, 86,976 shares and 31,310 shares for $2.6 million, $1.0 million and $0.5 million, respectively, related to tax withholding requirements on vested RSU and PSU awards.

The following table summarizes the outstanding and exercisable stock option awards, including discontinued operations, as of December 31, 2023:

	Options Outstanding			Options Exercisable	
Range of Exercise Prices:	Shares	Weighted-Average Remaining Contractual Life (in years)	Weighted-Average Exercise Price ($)	Shares	Weighted-Average Exercise Price ($)
$10.87	554,921	2.3	$ 10.23	495,460	$ 10.87
$11.00 to $17.06	119,487	5.7	15.06	74,575	15.70
$18.00 to $18.70	205,671	5.6	18.02	5,671	18.70
$18.77 to $29.56	332,424	6.0	22.61	310,149	22.23
$10.87 to $29.56	1,212,503	4.2	$ 15.42	885,855	$ 15.31

The following table contains additional information pertaining to stock options, including discontinued operations, for the years ended December 31:

	2023	2022	2021
		(in thousands)	
Total intrinsic value of stock options outstanding	$ —	$ —	$ 2,032
Total intrinsic value of stock options exercisable	—	—	2,032
Cash received from the exercise of stock options	—	—	5,211
Fair value of stock options vested	5,332	4,761	4,641

As of December 31, 2023, the unamortized cost of the outstanding RSUs and PSUs was $7.1 million and $1.8 million, respectively, which we expect to recognize in the consolidated financial statements over weighted-average periods of approximately 1.5 years and 1.9 years, respectively. Additionally, the total unrecognized cost related to non-vested stock option awards was $1.0 million, which we expect to recognize in the consolidated financial statements over a weighted-average period of approximately 1.6 years.

The fair value of the stock options granted during the years ended December 31 were calculated using the Black-Scholes option pricing model with the following assumptions:

	2023	2022	2021
Weighted-average fair value	$ 4.41	$ 8.05	$ 13.27
Expected volatility	69.3%	66.4%	55.9%
Expected life	6.3 years	5.0 years	6.3 years
Risk-free interest rate	4.1%	3.5%	1.4%
Dividend yield	0.0%	0.0%	0.0%

Note 12. Debt

Long-term debt, net of current maturities, as of December 31 consisted of the following:

	2023	2022
	(in thousands)	
11% Senior secured term loan—U.S. (1)	$ 395,041	$ —
5.25% Convertible senior unsecured notes—U.S.	132,500	—
Unsecured financing—EMEA	62,891	43,556
Secured and unsecured working capital—India	13,902	15,246
Equipment finance leases—Mexico	1,098	1,909
Equipment finance leases—EMEA	623	443
Other equipment finance leases	85	19
Total debt—principal	606,140	61,173
Less: Debt issuance costs	(4,023)	—
Less: Debt discount (2)	(116,924)	—
Total debt, net of debt issuance costs and debt discount	485,193	61,173
Less: Current maturities of long-term debt	(70,465)	(59,975)
Long-term debt, net of current maturities	$ 414,728	$ 1,198

(1) Includes principal balance of $393.0 million and $2.0 million of paid in kind interest.

(2) Unamortized debt discount of $116.9 million is related to our senior secured term loan.

The following table summarizes borrowings under these facilities as of December 31:

		2023		2022	
Credit facilities	**Interest Rates**	**Total Borrowing Capacity**	**Outstanding Balance**	**Total Borrowing Capacity**	**Outstanding Balance**
		(in thousands)			
Unsecured financing—EMEA	8.29-10.38%	$ 111,271	$ 62,891	$ 108,558	$ 43,556
Secured and unsecured working capital—India	6.51-8.47%	29,037	13,902	15,261	15,246
Total credit facilities		$ 140,308	$ 76,793	$ 123,819	$ 58,802
Term debt and equipment financing	**Interest Rates**	**Total Facility**	**Outstanding Balance**	**Total Facility**	**Outstanding Balance**
11% Senior secured term loan—U.S.	11.00%	$ 395,041	$ 395,041	$ —	$ —
5.25% Convertible senior unsecured notes—U.S.	5.25%	132,500	132,500	—	—
Equipment finance leases—Mexico	4.00-5.36%	1,098	1,098	12,205	1,909
Equipment finance leases—EMEA	5.50-6.00%	10,000	623	10,000	443
Other equipment finance leases	9.38%	85	85	65	19
Total term debt and equipment financing		538,724	529,347	22,270	2,371
Total debt—principal		$ 679,032	$ 606,140	$ 146,089	$ 61,173

U.S.:

11% Senior secured term loan

On December 14, 2023, the Company entered into the Credit Agreement with Oaktree Power Opportunities Fund V Holdings L.P., Opps TPIC Holdings, LLC, and Oaktree Phoenix Investment Fund, L.P., which are funds managed by Oaktree Capital Management, L.P. (collectively, the "Purchasers"). The Credit Agreement exchanged $350.0 million of the Company's Series A Preferred Stock, along with $86.0 million of accrued paid-in-kind dividends, for the $393.0 million Term Loan and the issuance of 3,899,903 shares of Common Stock (the "Exchange").

Borrowings under the Term Loan will bear interest at a rate per annum of 11.0%, provided that the interest rate shall be automatically increased to 15.0% per annum from and after the funding of any additional term loans. The Company has the ability to pay in kind all interest payments through December 31, 2025, subject to certain exceptions set forth in the Credit Agreement. In addition, the Company can pay in kind 50% of the interest payments from January 1, 2026, through the maturity date of the Term Loan on March 31, 2027, subject to certain exceptions set forth in the Credit Agreement. If the Company elects to pay in cash any interest payments that could have been paid in kind, such interest payments can be reduced by 2.0%, resulting in a stated interest rate of 9.0% for such portion of interest. Interest payments will be paid quarterly on January 15, April 15, July 15, and October 15 of each year.

In addition, up to $50.0 million aggregate principal amount of commitments for additional term loans to be extended at any time up to approximately one year from the execution date, subject to the terms and conditions set forth in the Credit Agreement.

Obligations under the Credit Agreement and the other Loan Documents (as defined in the Credit Agreement) are guaranteed by all of the Company's U.S. wholly owned subsidiaries, and certain foreign subsidiaries (together with the Company, the "Loan parties"), and are secured by first priority security interests in substantially all assets of the Loan parties, including intellectual property. The affirmative and negative covenants are customary for credit agreements of this nature. The Credit Agreement limits the amount of indebtedness, a cash on hand balance requirement of $40.0 million through September 30, 2024 and $50.0 million thereafter in the U.S., an individual limit of $10.0 million for any single capital expenditure project, an annual total capital expenditure limit of $30.0 million, and a limit of $37.5 million on acquisitions and $25.0 million on investments. We are in compliance with all requirements as of December 31, 2023.

The Credit Agreement contains certain events of default, the occurrence and continuation of which would entitle the purchasers of the Term Loan to cause the Company's indebtedness under the Credit Agreement to become immediately due and payable, and to exercise remedies against the Loan Parties and the collateral securing the Term Loan, including cash. Under the Credit Agreement, an event of default will occur if, among other things, the Company fails to make payments under the Credit Agreement as and when due (subject in certain cases to specified grace periods), the Company or its subsidiaries breach any of the covenants under the Credit Agreement (subject to specified cure periods with respect to certain breaches), a Change of Control (as defined in the Credit Agreement) occurs, the Company, its subsidiaries or their respective assets become subject to certain legal proceedings, such as bankruptcy proceedings, the Company and/or its subsidiaries are unable to pay their debts as they become due or default on contracts with third parties which would permit the holder of indebtedness in excess of a certain threshold to accelerate the maturity of such indebtedness or that could cause a material adverse change. We had determined the event of default redemption features were embedded derivatives that required bifurcation and recognition as a derivative liability ("Event of Default Derivative"). The Event of Default Derivative instrument is recorded at fair value and marked-to-market each reporting period with changes in fair value being reflected in earnings. As of both the issuance date and December 31, 2023, the Event of Default Derivative was valued at zero. For the year ended December 31, 2023, there were no mark-to-market adjustments recorded through earnings.

We accounted for the issuance of the Notes as a single liability measured at its fair value, as the only embedded feature requiring bifurcation and recognition as a derivative (the Event of Default Derivative) had no value at issuance. The Term Loan is required to be recorded at fair value as a result of the Exchange. As of the date of the Exchange, the fair value of the Term Loan was $274.7 million and is included in long-term debt, net of current maturities on the consolidated balance sheet as of December 31, 2023, representing a $118.3 million discount on the Term Loan.

The consideration transferred associated with the Exchange is made up of (i) the fair value of the Term Loan, (ii) fair value of Common Stock issued and (iii) of costs incurred to execute the Exchange (the "Exchange Consideration Transferred"). At the time of the Exchange, the carrying value of the Series A Preferred Stock, net of issuance costs, was $368.3 million ("Extinguishment Carrying Value"). We incurred direct costs of $2.7 million ("Transaction Costs") in relation to the extinguishment which, in accordance with ASC 260, *Earnings Per Share*, ("Earnings Per Share") were included in the measurement of consideration transferred. The difference between the Exchange Consideration Transferred and the Extinguishment Carrying Value resulted in a gain on extinguishment of $82.6 million as included in paid-in capital on the consolidated balance sheet as of December 31, 2023.

The components of the gain on extinguishment of Series A Preferred Stock for the year ended December 31, 2023 were as follows (in $ thousands):

Series A Preferred Stock par value	$	350,000
Series A Preferred Stock paid in kind dividends		86,210
Series A Preferred Stock accreted redemption premium		1,482
Series A Preferred Stock unamortized warrant discount and issuance costs		(69,362)
Extinguishment Carrying Value		368,330
11% Senior secured term loan—U.S.		393,000
Debt discount		(118,288)
Fair value of Common Stock		8,346
Transaction costs		2,652
Fair value of Exchange Consideration Transferred		285,710
Gain on extinguishment of Series A Preferred Stock	$	82,620

Convertible Senior Notes:

Convertible Notes and Indenture

In March 2023, we issued and sold an aggregate of $132.5 million principal amount of convertible senior unsecured notes due 2028 (the Notes) in a private offering to persons reasonably believed to be qualified institutional buyers pursuant to Rule 144A under the Securities Act of 1933, as amended (the Securities Act). The Notes consisted of a $115.0 million initial placement and an option to purchase an additional $17.5 million aggregate principal amount of the Notes, which was fully exercised. The net proceeds from the issuance of the Notes was $109.1 million, net of $4.8 million in debt issuance costs and $18.6 million in cash used to purchase the capped call transactions discussed below. The debt issuance costs are amortized to interest expense over the term of the Notes.

The Notes were issued pursuant to an Indenture, dated March 3, 2023 (the Indenture), between the Company and U.S. Bank Trust Company, National Association, as trustee. The Indenture includes customary covenants and sets forth certain events of default after which the Notes may be declared immediately due and payable and sets forth certain types of bankruptcy or insolvency events of default involving the Company after which the Notes become automatically due and payable. The Notes do not contain any specific financial covenants.

The Notes bear interest at a rate of 5.25% per year, payable semiannually in arrears on March 15 and September 15 of each year, beginning on September 15, 2023. The Notes will mature on March 15, 2028, unless earlier converted, redeemed, or repurchased.

The Notes are convertible into cash, shares of the Company's common stock, par value $0.01 per share (the Common Stock) or a combination of cash and shares of Common Stock, at the Company's election, at an initial conversion rate of 66.5425 shares of Common Stock per $1,000 principal amount of Notes, which is equivalent to an initial conversion price of approximately $15.03 per share of Common Stock. The conversion rate is subject to adjustment under certain circumstances in accordance with the terms of the Indenture.

Before September 15, 2027, noteholders will have the right to convert all or any portion of their Notes, in multiples of $1,000 principal amounts, only under the following circumstances:

- during any calendar quarter commencing after the calendar quarter ending on June 30, 2023, if the last reported sale price of our Common Stock for at least 20 trading days (whether or not consecutive) during the period of 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter, is greater than or equal to 130% of the applicable conversion price of the Notes on each such trading day;

- during the five-business day period immediately after any five consecutive trading day period (the "measurement period") in which the trading price per $1,000 principal amount of the Notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of our Common Stock and the applicable conversion rate of the Notes on such trading day;
- if we call such Notes for redemption, at any time prior to the close of business on the second scheduled trading day immediately preceding the redemption date;
- or upon on the occurrence of specified corporate events.

On or after September 15, 2027, the Notes or any portion of the Notes are convertible at the option of the noteholders at any time prior to the close of business on the second scheduled trading day immediately preceding the maturity date.

The Company may not redeem the Notes prior to March 20, 2026. The Company may redeem for cash all or any portion of the Notes, at its option, on or after March 20, 2026 and prior to the 51st scheduled trading day immediately preceding the maturity date, if the last reported sale price of the Common Stock has been at least 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive) during any 30 consecutive trading day period (including the last trading day of such period) ending on, and including, the trading day immediately preceding the date on which the Company provides notice of redemption at a redemption price equal to 100% of the principal amount of the Notes to be redeemed, plus any accrued and unpaid interest to, but excluding, the redemption date. No sinking fund is provided for the Notes, which means that the Company is not required to redeem or retire the Notes periodically.

We accounted for the issuance of the Notes as a single liability measured at its amortized cost, as no other embedded features require bifurcation and recognition as derivatives.

In connection with the issuance and sale of the Notes, the Series A Preferred Stockholders agreed to waive compliance with all covenants under the Certificate of Designations which set forth the terms of the Series A Preferred Stock with respect to the Company’s sale and issuance of the Notes and the Company’s planned capital expenditures and incurrence of additional indebtedness of up to $17.0 million to acquire wind turbines that will provide renewable energy for our manufacturing facilities in Türkiye.

Capped Call Transactions

On February 28, 2023, in connection with the pricing of the Notes, the Company entered into privately negotiated capped call transactions (the Base Capped Call Transactions) with certain initial purchasers of the Notes or their respective affiliates and certain other financial institutions (the Option Counterparties). On March 1, 2023, in connection with the initial purchasers’ exercise of their option to purchase additional Notes, the Company entered into additional privately negotiated capped call transactions with the Option Counterparties (the Additional Capped Call Transactions, and with the Base Capped Call Transactions, the Capped Call Transactions). The Capped Call Transactions initially cover, subject to customary anti-dilution adjustments, the number of shares of the Common Stock that underlie the Notes. The Capped Call Transactions are expected generally to reduce or offset the potential dilution to the Common Stock upon conversion of any Notes and/or offset any potential cash payments the Company is required to make in excess of the principal amount of converted Notes, as the case may be, with such reduction and/or offset subject to a cap. The initial cap price of the Capped Call Transactions was $23.12 per share, which represents a premium of 100% over the reported sale price of the Common Stock on The Nasdaq Global Market of $11.56 per share on February 28, 2023, and is subject to certain adjustments under the terms of the capped call transactions.

The cost of the Capped Call Transactions was $18.6 million and was recorded as a reduction to our additional paid-in-capital in our consolidated balance sheets. The Capped Call Transactions will not be remeasured as long as they continue to meet the conditions for equity classification. As of December 31, 2023, the Capped Call Transactions were out-of-the-money.

EMEA:

In general, all of the credit agreements which the EMEA segment enters into have provisions which allow them to borrow in either U.S. dollars, Turkish Lira or Euro, regardless of the currency in which the agreement is denominated. In addition, none of the credit agreements have an expiration date, however each credit agreements' limits are reviewed annually to establish available capacity, and every time we draw under one of the credit agreements a term is set for the respective draw's repayment.

In April 2023, we entered into a credit agreement with a Turkish financial institution to provide up to 10.0 million Euro (approximately $11.0 million as of December 31, 2023) of unsecured financing, letters of credit and other non-cash items. As of December 31, 2023, we borrowed 10.6 million Euro against this credit facility. Interest on each borrowing accrues at a fixed rate in effect at the time of each borrowing and is payable monthly until the borrowing is repaid. As of December 31, 2023, there was 9.9 million Euro (approximately $11.0 million) outstanding under this credit agreement, and a weighted average interest rate on outstanding borrowings of 9.0%.

As of December 31, 2023 and 2022, available capacity under the EMEA unsecured financing agreements was reduced by $5.3 million and $3.4 million, respectively, for outstanding letters of credit.

Due to the short-term nature of the unsecured financings in the EMEA segment, we estimate that fair-value approximates the face value of the notes.

Mexico:

In September 2021, we entered into a sale-lease agreement with a leasing company for the initial lease of up to $7.5 million of machinery and equipment at our Matamoros, Mexico facility. The lease includes an implied effective interest rate of 4.1% annually and requires monthly payments during the 48-month term. The amount outstanding under this agreement as of December 31, 2023 was $0.8 million.

India:

In June 2023, we entered into a working capital facility with an Indian financial institution to provide up to 1.25 billion Indian rupee (approximately $15.0 million as of December 31, 2023) of unsecured financing. During the year ended December 31, 2023, we borrowed and repaid 1.15 billion Indian rupee (approximately $14.2 million) against this credit facility, and subsequently borrowed 1.03 billion Indian rupee (approximately $12.4 million). Interest on the unsecured borrowing accrues at a fixed rate in effect at the time of each borrowing and is payable monthly until the borrowing is repaid. As of December 31, 2023, there was 1.03 billion Indian rupee (approximately $12.4 million) outstanding under this credit facility, and a weighted average interest rate on outstanding borrowings of 7.24%.

The future aggregate annual principal maturities of debt as of December 31, 2023 are as follows:

Year Ending December 31,		(in thousands)
2024	$	70,465
2025		8,127
2026		7
2027		395,041
2028		132,500
Total debt—principal	$	606,140

The average interest rate on our short-term borrowings as of December 31, 2023 and 2022 was approximately 9.07% and 8.96%, respectively.

Note 13. Leases

We have operating and finance leases for our manufacturing facilities, warehouses, offices, automobiles and certain of our machinery and equipment. Our leases have remaining lease terms of between one and ten years, some of which may include options to extend the leases up to ten years.

The components of lease cost for the years ended December 31 were as follows:

	2023	2022
	(in thousands)	
Total operating lease cost	$ 39,624	$ 39,680
Finance lease cost		
Amortization of assets under finance leases	$ 4,037	$ 4,165
Interest on finance leases	139	300
Total finance lease cost	$ 4,176	$ 4,465

Total lease liabilities as of December 31 were as follows:

	2023	2022
	(in thousands)	
Operating Leases		
Operating lease right of use assets	$ 136,124	$ 152,312
Current operating lease liabilities	$ 22,017	$ 22,220
Noncurrent operating lease liabilities	117,133	133,363
Total operating lease liabilities	$ 139,150	$ 155,583
Finance Leases		
Property, plant and equipment, gross	$ 37,044	$ 35,948
Less: accumulated depreciation	(29,316)	(24,272)
Total property, plant and equipment, net	$ 7,728	$ 11,676
Current maturities of long-term debt	$ 1,035	$ 1,174
Long-term debt, net of debt issuance costs and current maturities	771	1,197
Total finance lease liabilities	$ 1,806	$ 2,371

Future minimum lease payments under noncancelable leases as of December 31, 2023 were as follows:

	Operating Leases	Finance Leases
	(in thousands)	
Year Ending December 31,		
2024	$ 33,078	$ 1,222
2025	32,702	800
2026	31,149	35
2027	26,427	19
2028	19,399	—
Thereafter	34,942	—
Total future minimum lease payments	177,697	2,076
Less: interest	(38,547)	(270)
Total lease liabilities	$ 139,150	$ 1,806

Supplemental cash flow information related to leases for the years ended December 31 was as follows:

	2023	2022
	(in thousands)	
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows from operating leases	$ 38,155	$ 38,542
Operating cash flows from finance leases	139	300
Financing cash flows from finance leases	1,300	5,100
Right of use assets obtained in exchange for new lease obligations:		
Operating leases	8,077	25,131
Finance leases	796	215

Other information related to leases as of December 31 was as follows:

	2023	2022
Weighted-Average Remaining Lease Term (In Years):		
Operating leases	5.8	6.4
Finance leases	1.7	2.1
Weighted-Average Discount Rate:		
Operating leases	8.4 %	8.3 %
Finance leases	17.3 %	6.4 %

Note 14. Financial Instruments

Foreign Exchange Forward Contracts

We use foreign exchange forward contracts to mitigate our exposure to fluctuations in exchange rates between the functional currencies of our subsidiaries and the other currencies in which they transact. We do not use such forward contracts for speculative or trading purposes.

Mexican Peso

In May 2023, we purchased a series of call option contracts to mitigate cash flow variability associated with forecasted expenses in the Mexican Peso against changes in the U.S. Dollar to Mexican Peso exchange rate. A premium obligation of $3.2 million was incurred at hedge initiation, with payment deferred until December 2023. The premium was amortized against our earnings on a straight-line basis over a period of seven months, the period including the expiry dates of the purchased call option contracts, through cost of sales within our consolidated statements of operations. These foreign exchange call option contracts qualified for accounting as cash flow hedges in accordance with Accounting Standards Codification Topic 815, *Derivatives and Hedging,* and we designated them as such.

With regards to our foreign exchange call option contracts, for the years ended December 31, 2023, 2022 and 2021, $3.2 million, $1.5 million and $2.9 million of premium amortization was recorded through cost of sales within our consolidated statements of operations, respectively.

All of our derivative assets and liabilities measured at fair value are classified as Level 2 within the fair value hierarchy. For a detailed discussion of the fair value hierarchy, refer to the discussion in Note 1, *Summary of Operations and Summary of Significant Accounting Policies – Fair Value of Financial Instruments.*

As of December 31, 2023 and 2022, we had no outstanding foreign exchange call option contracts.

The following table presents the pretax amounts reclassified from accumulated other comprehensive loss into our consolidated statements of operations:

Comprehensive Income (Loss) Component	Consolidated Statement of Operations Line Item	2023	2022	2021
			(in thousands)	
Foreign exchange forward contracts	Cost of sales	$ (2,304)	$ (2,078)	$ (3,037)

Note 15. Mezzanine Equity

On November 22, 2021 ("Series A Preferred Stock Closing Date"), we issued 350,000 shares of our preferred stock, at a price of $1,000 per share, for aggregate gross proceeds of $350.0 million. We designated this preferred stock as Series A Preferred Stock (our "Series A Preferred Stock"). In connection with the transaction, we also issued warrants to purchase an aggregate of 4,666,667 share of our Common Stock (the "Warrants") at an exercise price of $0.01 per share.

Our Series A Preferred Stock was classified as mezzanine equity in our consolidated financial statements as redemption has been deemed probable. We had determined there were embedded features that required recognition as a compound derivative liability ("Compound Derivative"). As of December 31, 2022, the Compound Derivative was valued at zero.

We allocated the gross proceeds of $350.0 million first to the standalone fair value of the Compound Derivative, which as of the Series A Preferred Stock Closing Date and December 31, 2021 was $0.0 million, with the remaining proceeds allocated to the Series A Preferred Stock and Warrants based on the relative fair value of each instrument, resulting in $252.7 million being allocated to the Series A Preferred Stock, and $97.3 million being allocated to the Warrants. We incurred $10.7 million in issuance costs associated with the Series A Preferred Stock. These costs are allocated to the Series A Preferred Stock, and the Warrants consistent with the allocation of proceeds.

On December 14, 2023, we extinguished all 350,000 shares of the outstanding Series A Preferred Stock and $86.0 million of accrued and unpaid dividends thereon in exchange for the issuance of the $393.0 million Term Loan and 3,899,903 shares of Common Stock as part of the Exchange. See Note 12, *Debt* and Note 20, *Stockholders' Equity*.

Note 16. Restructuring charges, net

Restructuring charges, net for the years ended December 31 were as follows:

	Year Ended December 31, 2023			
	U.S.	Mexico	EMEA	Total
		(in thousands)		
Severance	$ 310	$ 675	$ 4,090	$ 5,075
Other restructuring costs	(25)	—	—	(25)
Total restructuring charges, net	$ 285	$ 675	$ 4,090	$ 5,050

	Year Ended December 31, 2022			
	U.S.	Mexico	EMEA	Total
		(in thousands)		
Severance	$ 113	$ (794)	$ 472	$ (209)
Other restructuring costs	472	—	—	472
Total restructuring charges, net	$ 585	$ (794)	$ 472	$ 263

	Year Ended December 31, 2021			
	U.S.	Mexico	EMEA	Total
		(in thousands)		
Severance	$ 4,780	$ 6,629	$ 1,131	$ 12,540
Other restructuring costs	3	—	—	3
Total restructuring charges, net	$ 4,783	$ 6,629	$ 1,131	$ 12,543

The following is a summary of our restructuring liability activity for the periods presented:

	U.S.	Mexico	EMEA	Total
		(in thousands)		
Balance at December 31, 2020	$ —	$ —	$ —	$ —
Restructuring charges, net	4,783	6,629	1,131	12,543
Payments	(2,145)	(4,468)	(1,131)	(7,744)
Balance at December 31, 2021	2,638	2,161	—	4,799
Restructuring charges, net	585	(794)	472	263
Payments	(2,766)	(1,367)	(442)	(4,575)
Balance at December 31, 2022	457	—	30	487
Restructuring charges, net	285	675	4,090	5,050
Payments	(742)	(675)	(3,932)	(5,349)
Balance at December 31, 2023	$ —	$ —	$ 188	$ 188

Note 17. Commitments and Contingencies

Legal Proceedings

From time to time, we may be involved in disputes or litigation relating to claims arising out of its operations.

In January 2021, we received a complaint that was filed by the administrator for the Senvion Gmbh (Senvion) insolvency estate in German insolvency court. The complaint asserts voidance against us in the aggregate amount of $13.3 million. The alleged voidance claims relate to payments that Senvion made to us for wind blades that we produced prior to Senvion filing for insolvency protection. We filed a response to these alleged voidance claims in August 2021 and filed a supplemental response in April 2022. We believe we have meritorious defenses to the alleged voidance claims. Due to the current stage of this claim, we have determined that the ultimate outcome cannot be estimated at this time.

From time to time, we are party to various lawsuits, claims, and other legal proceedings that arise in the ordinary course of business, some of which are covered by insurance. Upon resolution of any pending legal matters, we may incur charges in excess of presently established reserves. Our management does not believe that any such charges would, individually or in the aggregate, have a material adverse effect on our financial condition, results of operations or cash flows.

Insurance/Self-Insurance

We use a combination of insurance and self-insurance for a number of risks, including claims related to our associate health care, workers' compensation and general liability. Liabilities associated with these risks are estimated based on, among other things, historical claims experience, severity factors, and other actuarial assumptions. Our loss exposure related to self-insurance is limited by stop loss coverage on a per occurrence and aggregate basis. We regularly analyze our reserves for incurred but not reported claims, and for reported but not paid claims related to our self-funded insurance programs. While we believe our reserves are adequate, significant judgment is involved in assessing these reserves such as assessing historical paid claims, average lags between the claims' incurred date, reported dates and paid dates, and the frequency and severity of claims. There may be differences between actual settlement amounts and recorded reserves and any resulting adjustments are included in expense once a probable amount is known.

Collective Bargaining Agreements

Certain of our associates in Türkiye and Matamoros, Mexico are covered by collective bargaining agreements. Our collective bargaining agreement with our associates in Türkiye is in effect through December 2024. We have separate collective bargaining agreements for each of our Matamoros, Mexico manufacturing facilities. Our collective bargaining agreement at one of our Matamoros, Mexico manufacturing facilities is in effect through March 2025 and our collective bargaining agreement for our other facility in Matamoros, Mexico that we took over from Nordex is in effect through April 2025.

Escheat Audit

In November 2020, we were notified by the state of Delaware that they intend to examine our books and records to determine compliance with Delaware escheat laws. Since that date, additional states have joined with Delaware in the audit process and additional states may join in the audit process. The audit is conducted by an outside firm on behalf of the states and covers the period from 2005 to 2019. We believe that the audits may take several years to complete. Due to the preliminary stage of this audit, we have determined that the ultimate outcome cannot be reasonably estimated at this time. Any claims or liabilities resulting from these audits could have a material impact on our financial condition, results of operations and cash flows.

Note 18. Income Taxes

Total income taxes for the years ended December 31, 2023, 2022 and 2021 were allocated as follows:

	2023	2022	2021
		(in thousands)	
Income tax provision from continuing operations	$ (17,562)	$ (29,613)	$ (29,826)
Income tax (provision) benefit from discontinued operations	204	(6,194)	3,066
Total income tax provision	$ (17,358)	$ (35,807)	$ (26,760)

Geographic sources of income (loss) before income taxes from continuing operations are as follows for the years ended December 31:

	2023	2022	2021
		(in thousands)	
U.S.	$ (224,458)	$ (123,795)	$ (153,273)
Türkiye	3,887	60,301	(8,551)
Mexico	21,614	14,034	10,297
India	11,496	24,639	26,453
Other	8,570	(1,116)	(994)
Total loss before income taxes	$ (178,891)	$ (25,937)	$ (126,068)

Tax Legislation

In August 2022, the U.S. enacted the Inflation Reduction Act of 2022 (IRA), which, among other things, introduced a 15% minimum tax based on adjusted financial statement income of certain large corporations with a three-year average adjusted financial statement income in excess of $1 billion, a 1% excise tax on the fair market value of stock repurchases by covered corporations and several tax incentives to promote clean energy. The provisions of the IRA will be effective for periods beginning after December 31, 2022. The Company does not expect the minimum tax or excise tax provisions of the IRA to have a material impact on its consolidated financial statements.

We do not provide deferred taxes related to U.S. GAAP basis in excess of outside tax basis in the investment in our foreign subsidiaries to the extent such amounts relate to indefinitely reinvested earnings and profits of such foreign subsidiaries. As of December 31, 2023, our undistributed earnings from continuing operations of certain of our foreign subsidiaries amounted to approximately $163.9 million, and we consider those earnings reinvested indefinitely.

The income tax provision includes U.S. federal, state, and local taxes, Türkiye, Mexico and India taxes currently payable and those deferred because of temporary differences between the financial statement and the tax bases of assets and liabilities.

The components of the income tax provision (benefit) for the years ended December 31 are as follows:

	2023	2022 (in thousands)	2021
Current:			
U.S. federal	$ —	$ —	$ (630)
U.S. state and local taxes	692	(1,316)	(23)
Foreign	28,676	26,800	22,048
Total current	29,368	25,484	21,395
Deferred:			
U.S. federal	—	—	3,869
U.S. state and local taxes	—	—	2,374
Foreign	(11,806)	4,129	2,188
Total deferred	(11,806)	4,129	8,431
Total income tax provision	$ 17,562	$ 29,613	$ 29,826

The following is a reconciliation from the U.S. statutory income tax rate to our effective income tax rate for the years ended December 31:

	2023	2022	2021
U.S. statutory income tax rate	21.0 %	21.0 %	21.0 %
Foreign rate differential	(0.9)	22.3	(13.5)
Foreign permanent differences	0.7	(31.2)	—
Tax rate change	—	(0.6)	0.1
Withholding taxes	(3.8)	(25.8)	(4.6)
GILTI income	(0.2)	(3.2)	(6.6)
Unrecognized tax benefits	—	(15.5)	(1.7)
Share-based compensation	(0.4)	(5.9)	(0.5)
Valuation allowance	(24.5)	(104.2)	(22.8)
State taxes	0.8	9.5	1.0
Deferred tax adjustments	(2.4)	7.7	(0.9)
State incentive credits	(0.4)	5.1	—
Foreign currency / inflationary adjustments	0.3	10.2	3.8
Other	—	(3.6)	1.0
Effective income tax rate	(9.8)%	(114.2)%	(23.7)%

The following is a summary of the components of deferred tax assets and liabilities, included in other noncurrent assets and other noncurrent liabilities, respectively, in the consolidated balance sheets as of December 31:

	2023	2022	2021
		(in thousands)	
Deferred tax assets:			
Net operating loss and credit carry forwards	$ 86,460	$ 51,180	$ 40,028
Deferred revenue	—	—	1,504
Non-deductible accruals	8,079	(520)	3,572
Equity compensation	3,845	4,468	2,892
Lease liabilities	23,949	26,244	24,043
Non-deductible interest	7,823	5,976	5,618
Tax credits	1,931	1,931	1,931
Other	26,752	18,325	9,472
Gross deferred tax assets	158,839	107,604	89,060
Valuation allowance	(105,914)	(58,908)	(38,262)
Total deferred tax assets	52,925	48,696	50,798
Deferred tax liabilities:			
Deferred revenue	(3,602)	(3,848)	(2,155)
Depreciation	(9,458)	(12,779)	(16,453)
Lease assets	(22,264)	(25,398)	(23,357)
Other	249	(2,385)	(3,326)
Total deferred tax liabilities	(35,075)	(44,410)	(45,291)
Net deferred tax assets	$ 17,850	$ 4,286	$ 5,507

The deferred tax valuation allowance as of December 31 consisted of the following:

	2023	2022	2021
		(in thousands)	
Valuation allowance at beginning of year	$ (58,908)	$ (38,262)	$ (11,616)
Benefits obtained (costs accumulated)	(47,006)	(20,646)	(26,646)
Valuation allowance at end of year	$ (105,914)	$ (58,908)	$ (38,262)

The valuation allowance at December 31, 2023 primarily relates to the U.S. federal and state deferred tax assets and certain foreign net operating losses (NOLs) that we believe do not meet the more-likely-than-not criteria for recording the related benefits. During the years ended December 31, 2023, 2022, and 2021, we recognized tax expense of $47.0 million, $20.6 million, and $26.6 million, respectively, due to changes in the valuation allowance in Switzerland, Spain and the U.S.. During the years ended December 31, 2023, 2022, and 2021, we recognized tax (benefit) expense of $(13.1) million, $12.6 million, and $1.9 million, respectively, for the establishment of a valuation allowance on our discontinued operations in China.

As of December 31, 2023, we have U.S. federal and state NOL carryforwards of $392.7 million and $317.0 million, respectively, with foreign NOL carryforwards of approximately $4.7 million and foreign tax credits of approximately $1.9 million available to offset future U.S. and India taxable income. A portion of the U.S. federal and all state NOL carryforwards expire in varying amounts through 2043 with most of the U.S. federal and some of the state NOLs having indefinite lives. We also have foreign tax credits that expire in 2026 and foreign NOL carryforwards that expire in varying amounts through 2031. The utilization of our NOLs is subject to an annual limitation under Section 382 of the Internal Revenue Code due to changes in ownership. Based on our analysis, we do not believe such limitation will impact our realization of the NOL carryforwards.

We recognize the impact of a tax position in the financial statements if that position is more-likely-than-not to be sustained on audit, based on the technical merits of the position. We disclose all unrecognized tax benefits, which include the reserves recorded for uncertain tax positions on filed tax returns and the unrecognized portion of affirmative claims. Included in the balance of unrecognized tax benefits from continuing operations as of December

31, 2023 are $13.4 million, of tax benefits that, if recognized, would reduce our annual effective rate. We do not anticipate any decreases to unrecognized tax benefits in the coming year. Our policy is to recognize any interest and penalties related to our tax positions as a component of our income tax provision or benefit. There was no material estimated interest or penalties to accrue in 2023, 2022, or 2021 related to the unrecognized tax benefits.

The following is a reconciliation of the beginning and ending amount of total unrecognized tax benefits for the years ended December 31:

	2023	2022	2021
		(in thousands)	
Unrecognized tax benefits at beginning of year	$ 13,438	$ 9,020	$ 6,629
Increases related to prior year tax positions	—	—	—
Increases related to current year tax positions	—	4,418	2,391
Unrecognized tax benefits at end of year	$ 13,438	$ 13,438	$ 9,020

We operate in and file income tax returns in various jurisdictions where we have continuing operations including Mexico, Türkiye, India, U.S., Denmark, Germany, Spain, United Kingdom, France and Switzerland, which are subject to examination by tax authorities. In the U.S., the federal tax returns for 2020 through 2022 remain open to examination. For U.S. state and local taxes as well as in non-U.S. jurisdictions, the statute of limitations generally varies between three and ten years. However, to the extent allowable by law, the tax authorities may have a right to examine and make adjustment to prior periods when amended returns have been filed, or when NOLs or tax credits were generated and carried forward for subsequent utilization.

Pillar Two legislation, commonly referred to as the global minimum tax, has been enacted or substantively enacted in certain jurisdictions where the Company operates. The legislation will be effective for the financial year beginning January 1, 2024. The Company is in scope of the enacted or substantively enacted legislation and has performed an assessment of the potential exposure to Pillar Two income taxes under the safe harbor. The assessment of the potential exposure to Pillar Two income taxes is based on the most recent tax filings, country-by-country reporting and financial statements for the constituent entities.

Based on the assessment, the Pillar Two effective tax rates in most of the jurisdictions in which the Company operates are above 15%. However, there are a limited number of jurisdictions where the transitional safe harbor relief does not apply and the Pillar Two effective tax rate is close to 15%. We do not expect a material exposure to Pillar Two income taxes in those jurisdictions.

Note 19. Net Loss Per Common Share

The following table sets forth the computation of basic and diluted net loss per common share:

	2023	2022	2021
	(in thousands, except per share data)		
Numerator:			
Net loss from continuing operations	$ (196,453)	$ (55,550)	$ (155,894)
Preferred stock dividends and accretion	(58,453)	(58,903)	(6,040)
Gain on extinguishment of Series A Preferred Stock	82,620	—	—
Net loss from continuing operations attributable to common stockholders	(172,286)	(114,453)	(161,934)
Net loss from discontinued operations	$ (5,326)	$ (9,755)	$ (3,654)
Net loss attributable to common stockholders	$ (177,612)	$ (124,208)	$ (165,588)
Denominator:			
Basic weighted-average shares outstanding	42,671	41,959	37,415
Effect of dilutive awards	—	—	—
Diluted weighted-average shares outstanding	42,671	41,959	37,415
Loss from continuing operations per common share:			
Basic	$ (4.04)	$ (2.73)	$ (4.33)
Diluted	$ (4.04)	$ (2.73)	$ (4.33)
Loss from discontinued operations per common share:			
Basic	$ (0.12)	$ (0.23)	$ (0.10)
Diluted	$ (0.12)	$ (0.23)	$ (0.10)
Loss per common share:			
Basic	$ (4.16)	$ (2.96)	$ (4.43)
Diluted	$ (4.16)	$ (2.96)	$ (4.43)
Dilutive shares excluded from the calculation due to net losses in the period	169	606	1,569
Anti-dilutive share-based compensation awards that would be excluded from the calculation if income was reported in the period	264	199	1

Note 20. Stockholders' Equity

Common Stock Purchase Agreement

On December 14, 2023, we entered into a Common Stock Purchase Agreement with the Purchasers as part of the Exchange (see Note 12, *Debt*). Pursuant to the agreement, an aggregate of $43.0 million of accrued and unpaid dividends on the shares of Series A Preferred Stock was extinguished in exchange for the issuance 3,899,903 shares of Common Stock.

Accumulated Other Comprehensive Loss

The following table presents the changes in accumulated other comprehensive loss (AOCL) by component for the years ended December 31, 2023, 2022 and 2021:

	Foreign currency translation adjustments	Interest rate swap	Foreign exchange forward contracts	Total AOCL
	(in thousands)			
Balance at December 31, 2020	$ (30,111)	$ (3,443)	$ 564	$ (32,990)
Other comprehensive income (loss) before reclassifications	(18,419)	4,414	(3,341)	(17,346)
Amounts reclassified from AOCL	—	—	(3,037)	(3,037)
Net tax effect	—	(971)	338	(633)
Net current period other comprehensive income (loss)	(18,419)	3,443	(6,040)	(21,016)
Balance at December 31, 2021	(48,530)	—	(5,476)	(54,006)
Other comprehensive income before reclassifications	37,685	—	3,012	40,697
Amounts reclassified from AOCL	—	—	(2,078)	(2,078)
Net tax effect	—	—	—	—
Net current period other comprehensive income	37,685	—	934	38,619
Balance at December 31, 2022	(10,845)	—	(4,542)	(15,387)
Other comprehensive income before reclassifications	2,317	—	2,304	4,621
Amounts reclassified from AOCL	901	—	2,238	3,139
Net tax effect	—	—	—	—
Net current period other comprehensive income	3,218	—	4,542	7,760
Balance at December 31, 2023	$ (7,627)	$ —	$ —	$ (7,627)

Note 21. Concentration of Customers

Revenues from certain customers (in thousands) in excess of 10 percent of total consolidated Company revenues for the years ended December 31 are as follows:

	2023		2022		2021	
Customer	Revenues (in thousands)	% of Total	Revenues (in thousands)	% of Total	Revenues (in thousands)	% of Total
Vestas	$ 520,353	35.8 %	$ 551,306	36.2 %	$ 455,217	30.9 %
Nordex	440,833	30.3	496,999	32.6	374,076	25.4
GE	357,750	24.6	316,788	20.8	427,053	29.0

Trade accounts receivable from certain customers in excess of 10 percent of total consolidated Company trade accounts receivable as of December 31 are as follows:

	2023	2022
Customer	% of Total	% of Total
Nordex	61.4 %	65.2 %
ENERCON	17.6 %	10.9 %
GE	11.5 %	9.1 %

Note 22. Segment Reporting

FASB ASC Topic 280, *Segment Reporting*, establishes standards for the manner in which companies report financial information about operating segments, products, services, geographic areas and major customers. In managing our business, management focuses on growing our revenues and earnings in select geographic areas serving primarily the wind energy market. We have continuing operations in the United States, Mexico, Türkiye and India.

The Company's reportable segments are (1) the United States (U.S.), (2) Mexico, (3) Europe, the Middle East and Africa (EMEA) and (4) India. These reportable segments are reflective of how the Company's chief operating decision maker reviews operating results for the purposes of allocating resources and assessing performance.

As further described below, our operating segments are defined geographically as the U.S., Mexico, EMEA and India. Our U.S. and India segments operate in the U.S. dollar. Our Mexico segment operates in its local currency and includes a U.S. parent company that operates in the U.S. dollar. Our EMEA segment operates in the Euro, effective January 1, 2022. Prior to this, our EMEA segment operated in the Turkish Lira.

We divide our business operations into four geographic operating segments as follows:

Our U.S. segment includes (1) the manufacturing of wind blades at our Newton, Iowa facility, in which production was temporarily shutdown at the end of the fourth quarter of 2021, (2) the manufacturing of precision molding and assembly systems used for our automotive business at our Warren, Rhode Island facility, (3) the manufacturing of composite solutions for the automotive industry, which we also conduct at our Warren, Rhode Island facility, (4) wind blade inspection and repair services, (5) our advanced engineering center in Kolding, Denmark, which provides technical and engineering resources to our manufacturing facilities, (6) our engineering center in Berlin, Germany and (7) our corporate headquarters, the costs of which are included in general and administrative expenses.

Our Mexico segment includes (1) the manufacturing of wind blades at our three facilities in Juárez, Mexico and two facilities in Matamoros, Mexico, (2) the manufacturing of precision molding and assembly systems and composite solutions for the automotive industry at our fourth Juárez, Mexico facility and (3) wind blade inspection and repair services.

Our EMEA segment includes (1) the manufacturing of wind blades at our two facilities in Izmir, Türkiye, and wind blade inspection and repair services in Türkiye, (2) our wind blade inspection and repair service facility in Madrid, Spain, (3) wind blade inspection and repair services in the United Kingdom, and (4) wind blade inspection and repair services in France.

Our India segment manufactures wind blades from our manufacturing facility in Chennai, India.

The following tables set forth certain information regarding each of our segments as of or for the years ended December 31:

	2023	2022	2021
		(in thousands)	
Net sales by segment:			
U.S.	$ 51,100	$ 89,170	$ 192,339
Mexico	589,539	646,615	597,598
EMEA	573,483	568,992	482,220
India	241,061	217,964	200,229
Total net sales	$ 1,455,183	$ 1,522,741	$ 1,472,386
Net sales by geographic location:			
United States	$ 51,100	$ 89,170	$ 192,339
Mexico	589,539	646,615	597,598
Türkiye	566,617	566,155	480,992
Spain	6,866	2,837	1,228
India	241,061	217,964	200,229
Total net sales	$ 1,455,183	$ 1,522,741	$ 1,472,386
Depreciation and amortization:			
U.S.	$ 6,347	$ 7,002	$ 8,269
Mexico	17,353	17,161	17,047
EMEA	9,305	8,919	5,814
India	5,864	5,690	6,476
Total depreciation and amortization	$ 38,869	$ 38,772	$ 37,606
Income (loss) from continuing operations:			
U.S.	$ (47,909)	$ (46,387)	$ (45,899)
Mexico	(174,009)	(76,096)	(84,691)
EMEA	33,571	77,195	39,609
India	24,754	17,479	(845)
Total loss from continuing operations	$ (163,593)	$ (27,809)	$ (91,826)
Capital expenditures:			
U.S.	$ 6,928	$ 6,233	$ 9,422
Mexico	6,698	2,084	10,659
EMEA	21,570	4,110	2,103
India	756	4,304	12,352
Total capital expenditures	$ 35,952	$ 16,731	$ 34,536
Tangible long-lived assets:			
U.S.	$ 10,660	$ 23,076	
Mexico	49,921	56,495	
EMEA (Türkiye)	40,435	27,005	
India	27,792	30,265	
Total tangible long-lived assets	$ 128,808	$ 136,841	
Total assets:			
U.S.	$ 130,545	$ 187,014	
Mexico	258,268	325,614	
EMEA (Türkiye)	236,859	231,337	
India	176,888	183,029	
Total assets from continuing operations	$ 802,560	$ 926,994	

Exhibit Index

Number	Description
3.1	Amended and Restated Certificate of Incorporation of the Registrant, as currently in effect (incorporated by reference to Exhibit 3.2 to the Registrant's Registration Statement on Form S-1 (File No. 333-212093) filed on July 11, 2016)
3.2	Third Amended and Restated By-laws of the Registrant as currently in effect (incorporated by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K (File No. 001-37839) filed on May 19, 2022)
4.1	Specimen Stock Certificate (incorporated by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-1 (File No. 333-212093) filed on July 11, 2016)
4.2	Third Amended and Restated Investor Rights Agreement by and among the Registrant and the investors named therein, dated June 17, 2010, as amended (incorporated by reference to Exhibit 4.2 to the Registrant's Registration Statement on Form S-1 (File No. 333-212093) filed on June 17, 2016)
4.3	Form of senior indenture, to be entered into between the Registrant and the trustee designated therein (incorporated by reference to Exhibit 4.3 to the Registrant's Registration Statement on Form S-3 (File No. 333-220307) filed on September 1, 2017)
4.4	Form of subordinated indenture, to be entered into between the Registrant and the trustee designated therein (incorporated by reference to Exhibit 4.5 to the Registrant's Registration Statement on Form S-3 (File No. 333-220307) filed on September 1, 2017)
4.5	Description of Registrant's Securities Registered Pursuant to Section 12 of the Securities Act of 1934 (incorporated by reference to the Registrant's Annual Report on Form 10-K (File No. 001-37839) filed on March 2, 2020)
4.6	Indenture, dated as of March 3, 2023, between TPI Composites, Inc. and U.S. Bank Trust Company, National Association, as trustee (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K (File No. 001-37839) filed on March 3, 2023)
4.7	Form of 5.25% Convertible Senior Notes due 2028 (included in Exhibit 4.1) (incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K (File No. 001-37839) filed on March 3, 2023).
10.1‡	2008 Stock Option and Grant Plan, as amended by Amendment No. 1, dated August 14, 2008 and Amendment No. 2, dated December 30, 2008, and forms of award agreements thereunder (incorporated by reference to Exhibit 10.1 to the Registrant's Registration Statement on Form S-1 (File No. 333-212093) filed on June 17, 2016)
10.2‡	Amended and Restated 2015 Stock Option and Incentive Plan and forms of award agreements thereunder (incorporated by reference to Exhibit 10.2 to the Registrant's Registration Statement on Form S-1 (File No. 333-212093) filed on June 17, 2016)
10.3†	Supply Agreement between General Electric International, Inc. and TPI Mexico III, LLC, entered into as of October 4, 2016 (incorporated by reference to Exhibit 10.4 of the Registrant's Current Report on Form 8-K (File No. 001-37839) filed on December 30, 2020)
10.4†	Supply Agreement between General Electric International, Inc. and TPI Mexico, LLC, entered into as of October 18, 2013, as amended (incorporated by reference to Exhibit 10.10 to the Registrant's Current Report on Form 8-K (File No. 001-37839) filed on December 30, 2020)
10.5†	First Amendment to Supply Agreement between General Electric International, Inc. and TPI Mexico, LLC, entered into as of October 4, 2016 (incorporated by reference to Exhibit 10.2 of the Registrant's Current Report on Form 8-K (File No. 001-37839) filed on December 30, 2020)

10.6	Lease between TPI Iowa, LLC and Opus Northwest L.L.C., dated November 13, 2007, as amended (incorporated by reference to Exhibit 10.11 to the Registrant's Registration Statement on Form S-1 (File No. 333-212093) filed on June 17, 2016)
10.7	Sixth Amendment to Lease between TPI Iowa, LLC and ILPT Newton Iowa, LLC, dated October 10, 2022 (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q (File No. 001-37839) filed on November 3, 2022)
10.8	Commencement Date Memorandum between TPI Iowa LLC and Opus Northwest, L.L.C., entered into as of July 25, 2008 (incorporated by reference to Exhibit 10.12 to the Registrant's Registration Statement on Form S-1 (File No. 333-212093) filed on June 17, 2016)
10.9	Lease between TPI Kompozit Kanat Sanayi ve Ticaret A.S. and Med Union Containers A.S., dated March 16, 2012 (incorporated by reference to Exhibit 10.13 to the Registrant's Registration Statement on Form S-1 (File No. 333-212093) filed on June 17, 2016)
10.10	Lease between the Registrant (f/k/a LCSI Holding, Inc.) and Gainey Center II LLC, dated June 12, 2007, as amended (incorporated by reference to Exhibit 10.15 to the Registrant's Registration Statement on Form S-1 (File No. 333-212093) filed on June 17, 2016)
10.11	Lease between TPI, Inc. (f/k/a TPI Composites, Inc.) and Borden & Remington Fall River LLC, dated as of December 1, 2008, as superseded by Standard Industrial Lease between TPI, Inc. and Borden & Remington Fall River LLC, dated June 28, 2010, as amended (incorporated by reference to Exhibit 10.16 to the Registrant's Registration Statement on Form S-1 (File No. 333-212093) filed on June 17, 2016)
10.12	Lease between Composite Solutions, Inc. and TN Realty, LLC, dated September 30, 2004, as amended (incorporated by reference to Exhibit 10.17 to the Registrant's Registration Statement on Form S-1 (File No. 333-212093) filed on June 17, 2016)
10.13	Lease between TPI-Composites S. de R.L. de C.V. and Deutsche Bank México, S.A. Institución de Banca Múltiple, Division Fiduciaria, as Trustee of Trust F/1638, dated April 15, 2013, as amended (incorporated by reference to Exhibit 10.18 to the Registrant's Registration Statement on Form S-1 (File No. 333-212093) filed on June 17, 2016)
10.14	Amendment Agreement, among Macquarie Mexico Real Estate Management S.A. de. C.V., TPI-Composites, S. de R.L. de C.V. and TPI Composites, Inc., dated November 27, 2018 (incorporated by reference to Exhibit 10.17 to the Registrant's Annual Report on Form 10-K (File No. 001-37839) filed on March 5, 2019)
10.15	Lease between TPI-Composites S. de R.L. de C.V. and The Bank of New York Mellon, S.A., as Trustee in the Trust F/00335, dated September 25, 2013 (incorporated by reference to Exhibit 10.19 to the Registrant's Registration Statement on Form S-1 (File No. 333-212093) filed on June 17, 2016)
10.16	Lease between TPI Mexico, LLC and Trailer Transfer, Inc., dated October 16, 2013 (incorporated by reference to Exhibit 10.20 to the Registrant's Registration Statement on Form S-1 (File No. 333-212093) filed on June 17, 2016)
10.17	Lease between TPI Mexico, LLC and Lanestone 1, LLC, dated April 14, 2014 (incorporated by reference to Exhibit 10.21 to the Registrant's Registration Statement on Form S-1 (File No. 333-212093) filed on June 17, 2016)
10.18	Form of Employment Agreement between the Registrant and each of its executive officers (incorporated by reference to Exhibit 10.21 to the Registrant's Annual Report on Form 10-K (File No. 001-37839) filed on February 25, 2021)
10.19	Form of Indemnification Agreement (incorporated by reference to Exhibit 10.24 to the Registrant's Registration Statement on Form S-1 (File No. 333-212093) filed on June 17, 2016)

10.20	Lease between TPI Composites, S. de R.L. de C.V. and Vesta Baja California, S. de R.L. de C.V., dated November 20, 2015 (incorporated by reference to Exhibit 10.26 to the Registrant’s Registration Statement on Form S-1 (File No. 333-212093) filed on June 17, 2016)
10.21	Lease between TPI Turkey IZBAS, LLC and Dere Konstruksiyon Demir Celik Insaat Taahhut Muhendislik Musavirlik Sanayi ve Ticaret Anonim Sirketi, dated December 9, 2015 (incorporated by reference to Exhibit 10.27 to the Registrant’s Registration Statement on Form S-1 (File No. 333-212093) filed on June 17, 2016)
10.22	Lease between TPI Composites (Taicang) Co., Ltd. and Suzhou Suchen Chemical & Plastics Co., Ltd., dated August 5, 2014 (incorporated by reference to Exhibit 10.28 to the Registrant’s Registration Statement on Form S-1 (File No. 333-212093) filed on June 17, 2016)
10.23	Lease between TPI Kompozit Kanat San. ve Tic. A.S. and BORO Insaat Yatirim Sanayi ve Ticaret A.S., dated October 16, 2015 (incorporated by reference to Exhibit 10.30 to the Registrant’s Registration Statement on Form S-1 (File No. 333-212093) filed on June 17, 2016)
10.24	Senior Executive Cash Incentive Bonus Plan (incorporated by reference to Exhibit 10.34 to the Registrant’s Registration Statement on Form S-1 (File No. 333-212093) filed on July 11, 2016)
10.25	Lease between Phoenix Newton LLC and TPI Iowa II, LLC, dated January 5, 2018 (incorporated by reference to Exhibit 10.33 to the Registrant’s Annual Report on Form 10-K (File No. 001-37839) filed on March 8, 2018)
10.26	Master Lease Agreement Subject to Condition between TPI Composites II, S. de R.L. de C.V. and QVC II, S. de. R.L. de C.V. dated May 25, 2017, as amended (incorporated by reference to Exhibit 10.34 to the Registrant’s Annual Report on Form 10-K (File No. 001-37839) filed on March 8, 2018)
10.27	Second Amended and Restated Non-Employee Director Compensation Policy (incorporated by reference to Exhibit 10.34 to the Registrant's Annual Report on Form 10-K (File No. 001-37839) filed on February 25, 2021)
10.28	Agreement to Lease between Aarush (Phase III) Logistics Park Private Limited, Aarush (Phase IV) Logistics Parks Private Limited, Aarush (Phase V) Logistics Parks Private Limited, Aarush Logistics Parks Private Limited, Aarush (Phase II) Logistics Parks Private Limited and Prospect One Manufacturing LLP, dated February 4, 2019 (incorporated by reference to Exhibit 10.36 to the Registrant’s Annual Report on Form 10-K (File No. 001-37839) filed on March 5, 2019)
10.29	Credit Agreement entered into as of April 6, 2018, by and among the Registrant, JPMorgan Chase Bank, N.A., as Administrative Agent, and Well Fargo Bank, National Association and Capital One National Association, as Co-Syndication Agents, and the lenders from time to time party thereto (incorporated by reference to Exhibit 10.1 to the Registrant’s Quarterly Report on Form 10-Q (File No. 001-37839) filed on May 3, 2018)
10.30	Amendment No. 1 dated as of May 24, 2019 to the Credit Agreement entered into as of April 6, 2018, by and among the Registrant, JPMorgan Chase Bank, N.A., as Administrative Agent, and Well Fargo Bank, National Association and the lenders party thereto (incorporated by reference to Exhibit 10.1 to the Registrant’s Quarterly Report on Form 10-Q (File No. 001-37839) filed on August 7, 2019)
10.31	Amendment No. 2 dated as of June 29, 2020, by and among the Registrant, JPMorgan Chase Bank, N.A., as Administrative Agent, and Well Fargo Bank, National Association and Capital One National Association, as Co-Syndication Agents, and the lenders from time to time party thereto (incorporated by reference to Exhibit 10.1 to the Registrant’s Current Report on Form 8-K (File No. 001-37839) filed on June 30, 2020)

10.32	Incremental Facility Agreement dated as of February 26, 2020, by and among the Registrant, JPMorgan Chase Bank, N.A., as Administrative Agent, and Well Fargo Bank, National Association and Capital One National Association, as Co-Syndication Agents, and the lenders from time to time party thereto (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K (File No. 001-37839) filed on February 27, 2020)
10.33	Form of Employee Restricted Stock Unit Award (Time-Based Vesting) under the Amended and Restated 2015 Stock Option And Incentive Plan (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q (File No. 001-37839) filed on May 3, 2018)
10.34	Form of Executive Restrictive Stock Unit Award (Time-Based Vesting) under the Amended and Restated 2015 Stock Option And Incentive Plan (incorporated by reference to Exhibit 10.3 to the Registrant's Quarterly Report on Form 10-Q (File No. 001-37839) filed on May 3, 2018)
10.35	Form of Employee Restricted Stock Unit Award (Adjusted EBITDA Performance-Based Vesting) under the Amended and Restated 2015 Stock Option And Incentive Plan (incorporated by reference to Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q (File No. 001-37839) filed on May 3, 2018)
10.36	Form of Executive Restricted Stock Unit Award (Adjusted EBITDA Performance-Based Vesting) under the Amended and Restated 2015 Stock Option And Incentive Plan (incorporated by reference to Exhibit 10.5 to the Registrant's Quarterly Report on Form 10-Q (File No. 001-37839) filed on May 3, 2018)
10.37	Form of Employee Restricted Stock Unit Award (Stock Price Performance-Based Vesting) under the Amended and Restated 2015 Stock Option And Incentive Plan (incorporated by reference to Exhibit 10.6 to the Registrant's Quarterly Report on Form 10-Q (File No. 001-37839) filed on May 3, 2018)
10.38	Form of Executive Restricted Stock Unit Award (Stock Price Performance-Based Vesting) under the Amended and Restated 2015 Stock Option And Incentive Plan (incorporated by reference to Exhibit 10.7 to the Registrant's Quarterly Report on Form 10-Q (File No. 001-37839) filed on May 3, 2018)
10.39	Investor Rights Agreement, dated as of November 22, 2021, among the Registrant, Oaktree Power Opportunities Fund V (Delaware) Holdings, L.P., Opps TPIC Holdings, LLC and Oaktree Phoenix Investment Fund, L.P. (incorporated by reference to Exhibit 10.1 to the Registrant's Form 8-K (File No. 001-37839) filed on November 24, 2021)
10.40	Limited Waiver to Credit Agreement, dated as of November 8, 2021, among the Lenders party thereto and JPMorgan Chase Bank, N.A., as Administrative Agent (incorporated by reference to Exhibit 10.3 to the Registrant's Form 8-K (File No. 001-37839) filed on November 10, 2021)
10.41	Credit Agreement and Guaranty, dated as of December 14, 2023, among the Company, the subsidiary guarantors from time to time party thereto, the lenders from time to time party thereto and Oaktree Fund Administration, LLC (incorporated by reference to Exhibit 10.1 of the Registrant's Form 8-K (File No. 001-37839) filed on December 14, 2023).
10.42	Common Stock Purchase Agreement, dated as of December 14, 2023, among the Company, Oaktree Power Opportunities Fund V (Delaware) Holdings, L.P., Opps TPIC Holdings, LLC and Oaktree Phoenix Investment Fund, L.P.(incorporated by reference to Exhibit 10.1 of the Registrant's Form 8-K (File No. 001-37839) filed on December 14, 2023)
10.43	Amended and Restated Investor Rights Agreement, dated as of December 14, 2023, among the Company, Oaktree Power Opportunities Fund V (Delaware) Holdings, L.P., Opps TPIC Holdings, LLC and Oaktree Phoenix Investment Fund, L.P. (incorporated by reference to Exhibit 10.1 of the Registrant's Form 8-K (File No. 001-37839) filed on December 14, 2023)
10.44	Form of Capped Call Transaction Confirmation (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K (File No. 001-37839) filed on March 3, 2023)
21.1*	List of Subsidiaries

23.1*	Consent of KPMG LLP, Independent Registered Public Accounting Firm
24.1	Power of Attorney (incorporated by reference to the signature page of this Annual Report on Form 10-K)
31.1*	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2*	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1**	Certification of Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2**	Certification of Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
97.1*	Compensation Recovery Policy
101.INS*	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data file because its XBRL tags are embedded within the Inline XBRL document
101.SCH*	Inline XBRL Taxonomy Extension Schema Document
101.CAL*	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF*	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB*	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE*	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104 *	Cover Page Interactive Data File (formatted as Inline XBRL with applicable taxonomy extension information contained in Exhibits 101.*)

* Filed herewith.

** The certifications furnished in Exhibits 32.1 and 32.2 hereto are deemed to accompany this Annual Report on Form 10-K and will not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, except to the extent that the Registrant specifically incorporates it by reference.

† Confidential treatment has been granted for certain provisions of this Exhibit pursuant to Rule 406 promulgated under the Securities Act of 1933.

‡ Indicates compensatory plan or arrangement

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this Report to be signed on its behalf by the undersigned, thereunto duly authorized.

TPI COMPOSITES, INC.

Date: February 22, 2024

By: /s/ Ryan Miller
Ryan Miller
Chief Financial Officer
(Principal Financial Officer)

We, the undersigned officers and directors of TPI Composites, Inc., hereby severally constitute and appoint William E. Siwek and Ryan Miller and each of them singly (with full power to each of them to act alone), our true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution in each of them for him or her and, place and stead, and in any and all capacities, to sign conformed for us and in our names in the capacities indicated below any and all signatures and amendments to this report, and to file the same, with all exhibits thereto, filing date and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises, as full to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this Report has been signed below by the following persons on behalf of the Registrant in the capacities and on the dates indicated.

Name	Title	Date
/s/ William E. Siwek William E. Siwek	President, Chief Executive Officer and Director (Principal Executive Officer)	February 22, 2024
/s/ Ryan Miller Ryan Miller	Chief Financial Officer (Principal Financial and Accounting Officer)	February 22, 2024
/s/ Jayshree S. Desai Jayshree S. Desai	Director	February 22, 2024
/s/ Philip J. Deutch Philip J. Deutch	Director	February 22, 2024
/s/ Paul G. Giovacchini Paul G. Giovacchini	Lead Independent Director	February 22, 2024
/s/ Bavan M. Holloway Bavan M. Holloway	Director	February 22, 2024
/s/ Linda P. Hudson Linda P. Hudson	Director	February 22, 2024
/s/ James A. Hughes James A. Hughes	Director	February 22, 2024
/s/ Tyrone M. Jordan Tyrone M. Jordan	Director	February 22, 2024
/s/ Steven C. Lockard Steven C. Lockard	Director and Chairman of the Board	February 22, 2024

Exhibit 21.1

Subsidiaries of Registrant

Name	Jurisdiction of Incorporation/Organization
Composite Solutions, Inc.	Delaware
TPI Inc.	Delaware
TPI Technology, Inc.	Delaware
TPI Arizona, LLC	Delaware
TPI Iowa, LLC	Delaware
TPI China, LLC	Delaware
TPI Mexico, LLC	Delaware
TPI Mexico II, LLC	Delaware
TPI Composites S. de R.L. de C.V.	Mexico
TPI Composites II, S. de R.L. de C.V.	Mexico
TPI Turkey, LLC	Delaware
TPI Kompozit Kanat Sanayi Ve Ticaret A.S.	Türkiye
TPI Holdings Switzerland GmbH	Switzerland
TPI Composites India Private Limited	India

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

The Board of Directors
TPI Composites, Inc.:

We consent to the incorporation by reference in the registration statements (Nos. 333-212648, 333-216936, 333-223587, 333-230203 and 333-236941 on Form S-8, No. 333-220307 on Form S-3/A, and No. 333-248952 on Form S-3/ASR) on Form 10-K of our report dated February 22, 2024, with respect to the consolidated financial statements of TPI Composites, Inc., and the effectiveness of internal control over financial reporting.

/s/ KPMG LLP

Phoenix, Arizona
February 22, 2024

Exhibit 31.1

CERTIFICATION

I, William E. Siwek, certify that:

1. I have reviewed this annual report on Form 10-K of TPI Composites, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: February 22, 2024	By:	/s/ William E. Siwek
		William E. Siwek
		Chief Executive Officer
		(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION

I, Ryan Miller, certify that:

1. I have reviewed this annual report on Form 10-K of TPI Composites, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 22, 2024

By: /s/ Ryan Miller
Ryan Miller
Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

Certification Pursuant To
18 U.S.C. Section 1350,
As Adopted Pursuant To
Section 906 of the Sarbanes-Oxley Act of 2002

I, William E. Siwek, Chief Executive Officer of TPI Composites, Inc., certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

1. the report on Form 10-K of TPI Composites, Inc. for the fiscal year ended December 31, 2023 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. Section 78m or 78o(d)); and

2. the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of TPI Composites, Inc.

Date: February 22, 2024	By:	/s/ William E. Siwek
		William E. Siwek
		Chief Executive Officer
		(Principal Executive Officer)

Exhibit 32.2

Certification Pursuant To
18 U.S.C. Section 1350,
As Adopted Pursuant To
Section 906 of the Sarbanes-Oxley Act of 2002

I, Ryan Miller, Chief Financial Officer of TPI Composites, Inc., certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

1. the report on Form 10-K of TPI Composites, Inc. for the fiscal year ended December 31, 2023 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. Section 78m or 78o(d)); and

2. the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of TPI Composites, Inc.

Date: February 22, 2024	By:	/s/ Ryan Miller
		Ryan Miller
		Chief Financial Officer
		(Principal Financial Officer)

Exhibit 97.1

TPI COMPOSITES, INC.
COMPENSATION RECOVERY POLICY
Adopted as of November 15, 2023

TPI Composites, Inc., a Delaware corporation (the "Company"), has adopted a Compensation Recovery Policy (this "Policy") as described below.

1. Overview

The Policy sets forth the circumstances and procedures under which the Company shall recover Erroneously Awarded Compensation from Covered Persons (as defined below) in accordance with rules issued by the United States Securities and Exchange Commission (the "SEC") under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the Nasdaq Stock Market. Capitalized terms used and not otherwise defined herein shall have the meanings given in Section 3 below.

2. Compensation Recovery Requirement

In the event the Company is required to prepare a Financial Restatement, the Company shall recover reasonably promptly all Erroneously Awarded Compensation with respect to such Financial Restatement.

3. Definitions

a. "Applicable Recovery Period" means the three completed fiscal years immediately preceding the Restatement Date for a Financial Restatement. In addition, in the event the Company has changed its fiscal year: (i) any transition period of less than nine months occurring within or immediately following such three completed fiscal years shall also be part of such Applicable Recovery Period and (ii) any transition period of nine to 12 months will be deemed to be a completed fiscal year.

b. "Applicable Rules" means any rules or regulations adopted by the Exchange pursuant to Rule 10D-1 under the Exchange Act and any applicable rules or regulations adopted by the SEC pursuant to Section 10D of the Exchange Act.

c. "Board" means the Board of Directors of the Company.

d. "Committee" means the Compensation Committee of the Board or, in the absence of such committee, a majority of independent directors serving on the Board.

e. "Covered Person" means any Executive Officer. A person's status as a Covered Person with respect to Erroneously Awarded Compensation shall be determined as of the time of receipt of such Erroneously Awarded Compensation regardless of the person's current role or status with the Company (e.g., if a person began service as an Executive Officer after the beginning of an Applicable Recovery Period, that person would not be considered a Covered Person with respect to Erroneously Awarded Compensation received before the person began service as an Executive Officer, but would be considered a Covered Person with respect to Erroneously Awarded Compensation received after the person began service as an Executive Officer where such person served as an Executive Officer at any time during the performance period for such Erroneously Awarded Compensation).

f. "Effective Date" means October 2, 2023.

g. "Erroneously Awarded Compensation" means the amount of any Incentive-Based Compensation received by a Covered Person on or after the Effective Date and during the Applicable Recovery Period that exceeds the amount that otherwise would have been received by the Covered Person had such compensation been determined based on the restated amounts in a Financial Restatement, computed without regard to any taxes paid. Calculation of Erroneously Awarded Compensation with respect to Incentive-Based Compensation based on stock price or total shareholder return, where the amount of Erroneously Awarded Compensation is not subject to mathematical recalculation directly from the information in a Financial Restatement, shall be based on a reasonable estimate of the effect of the Financial Restatement on the stock price or total shareholder return upon which the Incentive-Based Compensation was received, and the Company shall maintain documentation of the determination of such reasonable estimate and provide such documentation to the Exchange in accordance with the Applicable Rules. Incentive-Based Compensation is deemed received, earned, or vested when the Financial Reporting Measure is attained, not when the actual payment, grant, or vesting occurs.

h. "Exchange" means the Nasdaq Stock Market LLC.

i. An "Executive Officer" means any person who served the Company in any of the following roles at any time during the performance period applicable to Incentive-Based Compensation and received Incentive-Based Compensation after beginning service in any such role (regardless of whether such Incentive-Based Compensation was received during or after such person's service in such role): the president, principal financial officer, principal accounting officer (or if there is no such accounting officer the controller), any vice president in charge of a principal business unit, division or function (such as sales, administration or finance), any other officer who performs a policy making function or any other person who performs similar policy making functions for the Company. Executive officers of parents or subsidiaries of the Company may be deemed executive officers of the Company if they perform such policy making functions for the Company.

j. "Financial Reporting Measures" mean measures that are determined and presented in accordance with the accounting principles used in preparing the Company's financial statements, any measures that are derived wholly or in part from such measures (including, for example, a non-GAAP financial measure), and stock price and total shareholder return.

k. "Incentive-Based Compensation" means any compensation provided, directly or indirectly, by the Company or any of its subsidiaries that is granted, earned, or vested based, in whole or in part, upon the attainment of a Financial Reporting Measure and any equity-based compensation provided by the Company or any of its subsidiaries, including, without limitation, stock options, restricted stock awards, restricted stock units and stock appreciation rights.

l. A "Financial Restatement" means a restatement of previously issued financial statements of the Company due to the material noncompliance of the Company with any financial reporting requirement under the securities laws, including any required restatement to correct an error in previously-issued financial statements that is material to the previously-issued financial statements or that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period.

m. "Restatement Date" means, with respect to a Financial Restatement, the earlier to occur of: (i) the date the Board concludes, or reasonably should have concluded, that the Company is required to prepare the

Financial Restatement or (ii) the date a court, regulator or other legally authorized body directs the Company to prepare the Financial Restatement.

4. Exception to Compensation Recovery Requirement

The Company may elect not to recover Erroneously Awarded Compensation pursuant to this Policy if the Committee determines that recovery would be impracticable, and one or more of the following conditions, together with any further requirements set forth in the Applicable Rules, are met: (i) the direct expense paid to a third party, including outside legal counsel, to assist in enforcing this Policy would exceed the amount to be recovered, and the Company has made a reasonable attempt to recover such Erroneously Awarded Compensation; or (ii) recovery would likely cause an otherwise tax-qualified retirement plan to fail to be so qualified under applicable regulations.

5. Discretionary Compensation Recovery Circumstances

In addition to (and without limiting) the provisions of paragraph 2 above, in the event the Company is required to prepare a Financial Restatement after the Effective Date and the Board (or a duly established committee thereof), in its sole discretion, determines that a Covered Person engaged in wrongdoing or committed grossly negligent acts or omissions that contributed to the circumstances requiring the Financial Restatement, the Company may recover from such Covered Person up to 100% (as determined by the Board or a duly established committee thereof in its sole discretion) of the Incentive-Based Compensation received by such Covered Person from the Company on or after the Effective Date and during the Applicable Recovery Period.

6. Tax Considerations

To the extent that, pursuant to this Policy, the Company is entitled to recover any Erroneously Awarded Compensation that is received by a Covered Person, the gross amount received (i.e., the amount the Covered Person received, or was entitled to receive, before any deductions for tax withholding or other payments) shall be returned by the Covered Person.

7. Method of Compensation Recovery

The Committee shall determine, in its sole discretion, the method for recovering Erroneously Awarded Compensation hereunder, which may include, without limitation, any one or more of the following:

a. requiring reimbursement of cash Incentive-Based Compensation previously paid;

b. seeking recovery of any gain realized on the vesting, exercise, settlement, sale, transfer or other disposition of any equity-based awards;

c. cancelling or rescinding some or all outstanding vested or unvested equity-based awards;

d. adjusting or withholding from unpaid compensation or other set-off;

e. cancelling or offsetting against planned future grants of equity-based awards; and/or

f. any other method permitted by applicable law or contract.

Notwithstanding the foregoing, a Covered Person will be deemed to have satisfied such person’s obligation to return Erroneously Awarded Compensation to the Company if such Erroneously Awarded Compensation is returned in the exact same form in which it was received; provided that equity withheld to satisfy tax obligations will be deemed to have been received in cash in an amount equal to the tax withholding payment made.

8. Policy Interpretation

This Policy shall be interpreted in a manner that is consistent with the Applicable Rules and any other applicable law. The Committee shall take into consideration any applicable interpretations and guidance of the SEC in interpreting this Policy, including, for example, in determining whether a financial restatement qualifies as a Financial Restatement hereunder. To the extent the Applicable Rules require recovery of Incentive-Based Compensation in additional circumstances besides those specified above, nothing in this Policy shall be deemed to limit or restrict the right or obligation of the Company to recover Incentive-Based Compensation to the fullest extent required by the Applicable Rules.

9. Policy Administration

This Policy shall be administered by the Committee; provided, however, that the Board shall have exclusive authority to authorize the Company to prepare a Financial Restatement. In doing so, the Board may rely on a recommendation of the Audit Committee of the Board. The Committee shall have such powers and authorities related to the administration of this Policy as are consistent with the governing documents of the Company and applicable law. The Committee shall have full power and authority to take, or direct the taking of, all actions and to make all determinations required or provided for under this Policy and shall have full power and authority to take, or direct the taking of, all such other actions and make all such other determinations not inconsistent with the specific terms and provisions of this Policy that the Committee deems to be necessary or appropriate to the administration of this Policy. The interpretation and construction by the Committee of any provision of this Policy and all determinations made by the Committee under this policy shall be final, binding and conclusive.

10. Compensation Recovery Repayments not Subject to Indemnification

Notwithstanding anything to the contrary set forth in any agreement with, or the organizational documents of, the Company or any of its subsidiaries, Covered Persons are not entitled to indemnification for Erroneously Awarded Compensation or for any losses arising out of or in any way related to Erroneously Awarded Compensation recovered under this Policy.

11. Existing Company Policies

In the case of Executive Officers, this Policy (a) shall be effective as of the Effective Date and shall supersede any Company compensation recovery policy in effect immediately prior to the Effective Date, including, without limitation, the Company's Policy for Recoupment of Incentive Compensation, as amended from time to time and (b) shall apply to all Incentive-Based Compensation received by such Executive Officers on or after the Effective Date.

12. Notice and Acknowledgment

The Company shall provide notice and seek acknowledgement of this Policy from each Covered Person, provided that failure to provide such notice or obtain such acknowledgement will have no impact on the applicability or enforceability of this Policy. The Company must be in receipt of each Covered Person's acknowledgement as a condition to such Covered Person's eligibility to receive any Incentive-Based Compensation after the Effective Date.

FORM OF ACKNOWLEDGEMENT
PERTAINING TO THE TPI COMPOSITES, INC.
COMPENSATION RECOVERY POLICY

The Board of Directors of TPI Composites, Inc. (the "Company") has adopted a Compensation Recovery Policy (as amended from time to time, the "Policy") applicable to each Covered Person (as defined in the Policy), which provides that:

> In the event the Company is required to prepare a Financial Restatement, the Company shall recover reasonably promptly all Erroneously Awarded Compensation with respect to such Financial Restatement.

All capitalized terms shall be as defined in the Policy.

I acknowledge that I have received and have had an opportunity to review the Policy. In addition, I acknowledge and agree that I am a Covered Person for purposes of the Policy and that any Incentive-Based Compensation (as defined in the Policy) received by me on or after the Effective Date (as defined in the Policy) shall be subject to the provisions of the Policy (including, without limitation, any required reduction, cancellation, forfeiture or recoupment of such Incentive-Based Compensation); and I further acknowledge and agree that I am not entitled to indemnification or right of advancement of expenses in connection with any enforcement of the Policy by the Company. To the extent the Company's recovery right under the Policy conflicts with any other contractual rights I may have with the Company, I understand that the terms of the Policy shall supersede any such contractual rights.

Date: February 22, 2024 By: /s/