

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, 2022

☐ 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 001-34627

GENERAC HOLDINGS INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of incorporation or organization)

20-5654756
(IRS Employer Identification No.)

S45 W29290 Hwy 59, Waukesha, WI
(Address of principal executive offices)

53189
(Zip Code)

(262) 544-4811
(Registrant's telephone number, including area code)

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, \$0.01 par value	GNRC	New York Stock Exchange

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 Section 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 voting common equity held by non-affiliates of the registrant on June 30, 2022, the last business day of the registrant's most recently completed second fiscal quarter, was \$13,014,830,988 based on the closing price reported for such date on the New York Stock Exchange.

As of February 17, 2023, 61,887,460 shares of the registrant's common stock were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Annual Report to Stockholders for the year ended December 31, 2022 furnished to the Securities and Exchange Commission are incorporated by reference into Part II of this Form 10-K. Portions of the registrant's Proxy Statement for the 2023 Annual Meeting of Stockholders (the "2023 Proxy Statement"), which will be filed by the registrant on or prior to 120 days following the end of the registrant's fiscal year ended December 31, 2022, are incorporated by reference into Part III of this Form 10-K.

**2022 FORM 10-K ANNUAL REPORT
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Forward-Looking Statements

This annual report contains forward-looking statements that are subject to risks and uncertainties. Forward-looking statements give our current expectations and projections relating to our financial condition, results of operations, plans, objectives, future performance and business. You can identify forward-looking statements by the fact that they do not relate strictly to historical or current facts. These statements may include words such as “anticipate,” “estimate,” “expect,” “forecast,” “project,” “plan,” “intend,” “believe,” “confident,” “may,” “should,” “can have,” “likely,” “future,” “optimistic” and other words and terms of similar meaning in connection with any discussion of the timing or nature of future operating or financial performance or other events.

The forward-looking statements contained in this annual report are based on assumptions that we have made in light of our industry experience and on our perceptions of historical trends, current conditions, expected future developments and other factors we believe are appropriate under the circumstances. As you read and consider this report, you should understand that these statements are not guarantees of performance or results. They involve risks, uncertainties (some of which are beyond our control) and assumptions. Although we believe that these forward-looking statements are based on reasonable assumptions, you should be aware that many factors could affect our actual financial results and cause them to differ materially from those anticipated in the forward-looking statements. The forward-looking statements contained in this annual report include estimates regarding:

- our business, financial and operating results, and future economic performance;
- proposed new product and service offerings; and
- management's goals, expectations and objectives and other similar expressions concerning matters that are not historical facts.

Factors that could affect our actual financial results and cause them to differ materially from those anticipated in the forward-looking statements include:

- frequency and duration of power outages impacting demand for our products;
- fluctuations in cost and quality of raw materials required to manufacture our products;
- availability of both labor and key components from our global supply chain, including single-sourced components, needed in producing our products;
- the possibility that the expected synergies, efficiencies and cost savings of our acquisitions will not be realized, or will not be realized within the expected time period;
- the risk that our acquisitions will not be integrated successfully;
- the impact on our results of possible fluctuations in interest rates, foreign currency exchange rates, commodities, product mix, logistics costs and regulatory tariffs;
- the duration and impact of the COVID-19 pandemic;
- difficulties we may encounter as our business expands globally or into new markets;
- our dependence on our distribution network;
- our ability to invest in, develop or adapt to changing technologies and manufacturing techniques;
- loss of our key management and employees;
- increase in product and other liability claims or recalls;
- failures or security breaches of our networks, information technology systems, or connected products;
- changes in environmental, health and safety, or product compliance laws and regulations affecting our products, operations, or customer demand; and
- significant legal proceedings, claims, lawsuits or government investigations.

Should one or more of these risks or uncertainties materialize, or should any of these assumptions prove incorrect, our actual results may vary in material respects from those projected in any forward-looking statements. A detailed discussion of these and other factors that may affect future results is contained in Item 1A of this Annual Report on Form 10-K. Stockholders, potential investors and other readers should consider these factors carefully in evaluating the forward-looking statements.

Any forward-looking statement made by us in this report speaks only as of the date on which it is made. Factors or events that could cause our actual results to differ may emerge from time to time, and it is not possible for us to predict all of them. We undertake no obligation to update any forward-looking statement, whether as a result of new information, future developments or otherwise, except as may be required by law.

PART I

Item 1. Business

Overview

Generac is a leading energy technology solutions company that provides backup and prime power generation systems for residential and commercial & industrial (C&I) applications, solar + battery storage solutions, smart home energy management devices and energy services, advanced power grid software platforms, and engine- & battery-powered tools and equipment. As an energy technology solutions company that is “Powering a Smarter World”, our corporate purpose is to lead the evolution to more resilient, efficient, and sustainable energy solutions around the world.

We have a long history of providing power generation products across a variety of applications, and we maintain one of the leading market positions in the power equipment markets in North America and an expanding presence internationally. We believe we have one of the widest ranges of products in the power generation marketplace, including residential, commercial and industrial standby generators; as well as portable and mobile generators used in a variety of applications. In recent years, the Company has been evolving its business model to focus on building out an ecosystem of energy technology products, solutions, and services for home and business purposes. As part of this evolution, we have made significant investments into rapidly growing markets such as residential clean energy storage, solar module-level power electronics (MLPE), and energy monitoring & management devices, all of which are distributed energy resources (DERs) that can be aggregated into virtual power plants (VPPs) within grid services programs. In addition, we have been leveraging our leading position in the growing market for natural gas fueled generators, which we believe represents a cleaner transition fuel to more renewable and energy storage sources compared to diesel, to expand into applications beyond standby power, allowing us to participate in Energy-as-a-Service and microgrid projects for C&I customers.

We have also made investments in next-generation platforms and controls for both residential and C&I applications that facilitate the connection of our products to the grid. Expanding these capabilities will enable the increasing utilization of our equipment as DERs as the nascent market for grid services expands over the next several years. Our growing presence in grid services programs will enhance the value of our power generation and storage products that might otherwise sit idle, as they are now able to be dispatched and orchestrated as part of a distributed energy solution, thereby generating additional return-on-investment for the home or business owner while also delivering value to utilities and grid operators by helping to balance, support and enhance the reliability of the electrical grid. As the traditional centralized utility model evolves over time, we believe that a more decarbonized, digitized, and decentralized grid infrastructure will build-out, and Generac’s energy technology solutions are uniquely and strategically positioned to participate in this next-generation grid referred to as “Grid 2.0”.

As our traditional power generation markets continue to grow due to multiple mega-trends that are driving increased penetration of our products, we believe we are in an excellent position to execute on this opportunity given our competitive strengths. In addition, our focus on more resilient, efficient and sustainable energy solutions has dramatically increased our served addressable market, and as a result, we believe that Generac is well-positioned for success over the long term.

Company History

Generac was founded in 1959 to commercialize a line of affordable portable generators that offered superior performance and features. The Company’s success through the years has been built upon engineering expertise, manufacturing excellence and our innovative approaches to the market. This has driven our growth into becoming a leading provider of power equipment for a variety of applications within residential, commercial, and industrial markets.

In 1980, we expanded beyond portable generators into the industrial power generation market with the introduction of our first stationary generators that provided up to 200kW of power output. We introduced our first residential standby generator in 1989 and expanded our industrial product offering and global distribution system in the 1990s, forming a series of alliances that rapidly increased our sales. Our growth accelerated in the 2000’s as we expanded our purpose-built line of residential & commercial automatic standby generators and implemented our multi-layered, omni-channel distribution philosophy. Throughout the 2000’s, a number of high-profile power outage events also helped to increase the awareness and need for back-up power and home standby generators. In 2006, the founder of Generac sold the company to affiliates of CCMP Capital Advisors, LLC, together with certain other investors and members of our management. In February 2010, we completed our initial public offering (IPO) of our common stock. Since then, we have scaled our sales & marketing capabilities and systems, while also building the Generac brand into one of the leading names in back-up power around the nation.

Soon after going public, we implemented our “Powering Ahead” enterprise strategy. This strategic plan accelerated the Company’s transition from primarily a North America focused, emergency backup generator company into a more diversified industrial technology company with the addition of new and adjacent product categories and an expanded global presence, primarily through a series of acquisitions. In 2018, we transitioned into a new enterprise strategy called “Powering Our Future”, which drove further share gains in new and existing markets, capitalized on Generac’s leadership in natural gas gensets, established our connectivity strategy, and provided the initial foundation for the Company’s evolution into an energy technology solutions company, including key initial acquisitions within the residential clean energy space. This ultimately led to the introduction of our “Powering A Smarter World” enterprise strategy in 2021. This current strategic plan continues the evolution of Generac’s business model that pairs traditional and emerging power generation and storage technologies with new monitoring, management and grid services capabilities to provide solutions for the dynamic challenges presented by today’s energy landscape.

Significant Investments in Energy Technology Solutions

We've been providing power generation and resiliency solutions for homes and businesses for decades. Leveraging that expertise in power generation, Generac has made significant investments in recent years to expand its capabilities into energy technology solutions, beginning with the March 2019 acquisition of Neurio Technology Inc., a leading energy data company focused on monitoring technology and sophisticated analytics to optimize energy use within a home or business. This was followed by the April 2019 acquisition of Pika Energy Inc., a designer and manufacturer of battery storage technologies that capture and store solar or other power sources for homeowners and businesses. In October 2020, the Company acquired Enbala Power Networks Inc., one of the leading providers of distributed energy optimization and control software that helps support the operational stability of the world's power grids. In July 2021, Generac added to its residential clean energy portfolio with the acquisition of Chilicon Power LLC, a designer and provider of grid-interactive rooftop power inversion devices and monitoring solutions for the solar market. With these acquisitions, Generac has established an important presence in the rapidly growing residential clean energy market, focused on solar, battery storage and grid services applications.

In December 2021, Generac acquired ecobee Inc., a leader in sustainable home technology solutions. In addition to smart home thermostatic controls and other smart home devices, ecobee offers its customers the ability to participate in "Energy Services" programs, which allow homeowners to reduce energy consumption and utility bills via intelligent HVAC controls. The acquisition represents a major step forward in the Company's efforts to provide a broader residential energy ecosystem that includes a sophisticated user interface platform to allow homeowners to take charge of their energy generation, storage, consumption, and management through a "single pane of glass" with the ultimate goal of creating a more sustainable energy infrastructure that is increasingly decarbonized, digitized and decentralized.

As we look to the future, we expect to make continued investment in the people, processes and capabilities involved in the development of these residential clean energy technologies, as we work to further broaden our product offering and distribution network. In 2022, we built out our energy technology management team that brings decades of industry leadership experience as well as robust technical expertise. Under this new leadership team, we expect to fully integrate our energy technology investments under a common strategy that we believe will help accelerate growth in the future. Additionally, the policy backdrop for these growing markets, underscored by the Inflation Reduction Act and other state regulations, provides the necessary potential for long-term, value-creating investments. With this opportunity in front of us, we plan to build out our residential energy technology capabilities and our suite of products & solutions as we expect to play an important role in the transition to a cleaner, more sustainable, and more reliable electric grid.

Generac's efforts in expanding its energy technology solutions also cover C&I and international markets as well. In June 2021, the Company acquired Deep Sea Electronics Limited, a UK-based designer and manufacturer of advanced controls for a range of power generation and micro-grid applications used around the world. In September 2021, Generac acquired Off Grid Energy Ltd., a UK-based designer and manufacturer of industrial-grade mobile energy storage systems serving predominantly European markets. The Company advanced its C&I connectivity strategy with the October 2022 acquisition of Blue Pillar, an industrial internet of things (IoT) platform developer that designs, deploys, and manages industrial IoT solutions. Blue Pillar provides a foundation to build out a connectivity solution for our C&I products to further enable their use in grid services programs. Finally, in February 2023, Generac acquired REFU Storage Systems GmbH, a developer and supplier of battery storage hardware products, advanced software and platform services for the commercial and industrial market. REFU's energy storage systems will complement and enhance our current global product offerings and will further accelerate our development of new technologies as we continue to provide our commercial and industrial consumers with leading solutions for their adoption of renewable energy. These acquisitions will collectively help lay the groundwork to further advance our energy technology strategies across C&I markets around the world.

For a complete summary of recent acquisitions, please see Note 1, "Description of Business," to the consolidated financial statements in Item 8 of this Annual Report on Form 10-K.

Products and Solutions

We design, manufacture, and distribute a broad range of energy technology products and solutions. We design and manufacture stationary, portable and mobile power generators with single-engine outputs ranging between 800W and 3,250kW. We have developed a line of turn-key energy storage systems for use in residential solar-plus-storage applications. We also have a line of industrial-grade mobile energy storage systems that serve the global rental equipment markets. We have a growing selection of energy monitoring and management devices that serve to build out our residential energy ecosystem product offering. We participate in the market for grid services by providing distributed energy optimization and control software to utilities and other grid operators. Other power products that we design and manufacture include light towers and a broad line of outdoor power equipment that we refer to as "chore products", which includes a variety of property maintenance equipment powered by both engines and batteries. We classify our products into three categories based on similar range of power output geared for varying end customer uses: Residential products, Commercial & Industrial (C&I) products and Other products & services. The following summary outlines our portfolio of products and solutions, including their key attributes and customer applications.

Residential Products

Our residential automatic standby generators range in output from 7.5kW to 150kW, which predominantly operate on natural gas and liquid propane, and are permanently installed with an automatic transfer switch, which we also manufacture. Air-cooled engine residential standby generators range in outputs from 7.5kW to 26kW and serve as an emergency backup for small to medium-sized homes. Liquid-cooled engine generators serve as emergency backup for larger homes and small businesses and range in output from 22kW to 150kW.

As the product category leader, we believe we have the broadest line of home standby generators in the marketplace and all of them are offered as Smart Grid Ready, which enables customers to connect and enroll their generator as a distributed energy resource in available grid services applications. The deployment of our residential generators in grid services applications where available can improve grid resiliency, while also offering a direct financial incentive for homeowners to participate in these grid services programs, which can help to partially offset the purchase cost of the generator over the product's lifespan. This functionality leverages our remote monitoring system for home standby generators called Mobile Link™. This remote monitoring capability is a standard, WiFi-enabled feature on every home standby generator that we offer and allows our customers to check the status of their generator conveniently from their smart phone or tablet, and also provides the capability to similarly receive maintenance and service alerts. The data that is provided by this remote monitoring functionality allows us to better understand our installed base of products, while optimizing both product quality and customer satisfaction.

Leveraging the technologies acquired in the 2019 acquisition of Pika Energy, we have developed a line of clean energy products marketed under the Generac brand and using the name PWRcell™. This residential storage solution consists of a system of batteries, an inverter, photovoltaic (PV) optimizers, power electronic controls, and other components. This system captures and stores electricity from solar panels or other power sources and helps reduce home energy costs while also protecting homes from shorter duration power outages. PWRcell can range in size from 9kWh up to 36kWh of storage capacity. Our PWRcell energy storage systems also have Smart Grid Ready capabilities, empowering homeowners to contribute to grid stability and earn an incremental return on investment by connecting to grid services programs, which can help to partially offset the purchase cost of the system over the product's lifespan.

In 2021, we acquired ecobee, a leader in sustainable smart home solutions such as smart thermostats and a suite of home monitoring products, all designed with a focus on conservation, convenience, peace of mind and comfort. ecobee's smart home energy management devices and complementary sensors intelligently optimize heating and cooling systems, often the largest energy consuming system within a home, to deliver significant energy savings for homeowners. In addition, we are leveraging ecobee's cutting-edge technologies and software development expertise to create a user interface platform, or "single pane of glass" to allow homeowners to monitor and control Generac's entire suite of products using one common interface. These capabilities will help allow the creation of a clean, efficient, and reliable smart home energy ecosystem capable of connecting to our grid services distributed energy resource management software (DERMS) called Concerto.

In 2022, we launched PWRmanager, the second generation of our load management controls, allowing customers to program and remotely control certain loads in a house and thereby manage battery run times from their smart phones or tablets. We also entered the smart water heater controller market in 2021 via the acquisition of Apricity Code, an advanced engineering and product design company that has developed certain products which help homeowners reduce energy consumption and utility bills by intelligently managing the timing of a water heater's energy consumption. Through ecobee, PWRmanager and Apricity, we are expanding our suite of grid edge devices that can be deployed in grid services applications, offering increased energy savings and economic benefits to a larger segment of the population. We also added IoT propane tank monitoring solutions with the 2021 acquisition of Tank Utility to further optimize propane fuel logistics. This addition expands Generac's connectivity functionality and provides incremental value to our dealers and peace of mind to our home standby generator owners that use propane as a fuel source. The capabilities acquired via ecobee, Apricity Code, and Tank Utility, paired with our existing remote monitoring system, provide the foundation for Generac's residential connectivity strategy, which will be integral in the continued development of our smart home energy ecosystem.

We are developing additional new Generac-branded clean energy products that we expect to bring to market as we continue to build out a broader range of residential clean energy solutions, giving our distributors access to a more diverse line up of products that can serve a variety of applications. We are developing a rooftop MLPE solution to be used in residential solar solutions that will allow Generac to participate in residential solar installations that do not include an energy storage system. Additionally, we currently anticipate launching PWRgenerator during 2023, a one-of-a-kind natural gas generator with DC output that is purpose-built to re-charge PWRcell energy storage systems. This innovative new product is more fuel-efficient and quieter than our traditional home standby generators and can enable grid independence for homeowners.

We also provide a broad product line of portable and inverter generators that range in size from 800W to 17.5kW, and in 2022, we introduced multiple portable battery solutions that provide clean, emission-free power at the push of a button. These products serve as an emergency home backup source of electricity and are also used for construction and recreational purposes. Our portable generators are targeted at homeowners, with price points ranging between the consumer value end of the market through the premium homeowner market; at professional contractors, starting at the value end through the premium contractor segment; and at the recreational market with our inverter generator products, which are quieter than traditional portable generators. In addition, we offer manual transfer switches to supplement our portable generator product offering.

We provide a broad product line of outdoor power equipment referred to as chore products, which are used in property maintenance applications for larger-acreage residences, commercial properties, municipalities, and farms. These products include trimmers, field and brush mowers, log splitters, stump grinders, chipper shredders, lawn and leaf vacuums, pressure washers and water pumps. We also offer commercial-grade, battery-powered turf care products through Mean Green Products, which was acquired in 2020. In addition to Generac's efforts to expand Mean Green's production capacity and distribution capabilities, this acquisition will help to accelerate the electrification of our higher-powered lineup of chore products. Chore products are largely sold in North America through direct-to-consumer online catalogs, retail hardware stores, and outdoor power equipment dealers primarily under the DR® brand name.

Residential products comprised 63.8%, 65.8% and 62.6%, respectively, of total net sales in 2022, 2021 and 2020.

Commercial & Industrial Products

We offer a full line of C&I generators that are sold around the world. We are a leader in cleaner-burning natural gas fueled generators, and also have a full offering of C&I generators that are fueled by diesel and Bi-Fuel™. We believe we have one of the broadest product offerings in the industry with power outputs ranging from 10kW up to 3,250kW. Through the Deep Sea acquisition in 2021, we have expanded our capabilities in the design and manufacture of advanced controls for a range of C&I power generation applications, such as microgrids and Energy-as-a-Service. Our natural gas C&I stationary generators have Smart Grid Ready capabilities, enabling our customers to contribute to grid resiliency and generate an incremental return on investment by connecting and enrolling their generator as a distributed energy resource used in grid services applications where available.

Our light-commercial standby generators and related transfer switches include a full range of affordable systems from 22kW to 150kW, providing three-phase power sufficient for most small and mid-sized businesses such as grocery stores, convenience stores, restaurants, gas stations, pharmacies, retail banks, small health care facilities and other small-footprint retail applications. Our light-commercial generators predominantly run on natural gas and liquid propane.

We design and manufacture a broad product line of modeled and configured stationary generators and related transfer switches for various industrial standby, continuous-duty, and prime rated applications. Our single-engine industrial generators range in output from 10kW up to 3,250kW, include stationary and containerized packages, and can include our Modular Power Systems (MPS) technology that extends our product range up to much larger multi-megawatt systems through an integrated paralleling configuration. Over the past several years, we have introduced larger and higher-powered gaseous-fueled generators, with the highest output of 1,000kW for a single-engine set. Our industrial standby generators are primarily used as emergency backup for larger applications in the healthcare, telecom, datacom, commercial office, retail, municipal and manufacturing markets. In recent years, we've focused our efforts to utilize our gaseous-fueled generators in "beyond standby" applications including distributed generation and microgrid projects and have developed purpose-built products for these applications that have grid-connected capability. The addition of Smart Grid Ready functionality and the significant expansion of our in-house advanced controls capabilities further enhances the potential utilization of our generators in these applications.

Our MPS technology combines the power of several smaller generators to produce the output of a larger generator, providing our customers with redundancy and scalability in a cost-effective manner. For larger industrial applications, our MPS products offer customers an efficient, affordable way to scale their standby power needs, while offering superior reliability given their built-in redundancy which allows individual units to be taken off-line for routine maintenance while retaining coverage for critical circuits.

We also offer a full line of industrial transfer switches to meet varying needs from light industrial applications all the way up to the most demanding critical installations. Over the last couple of years, we have significantly increased and upgraded our industrial transfer switch product offering, which we believe will help to enhance our attachment rate and related market share for these products. Generac's innovative feature set and flexible platforms offer a variety of switching technologies for customized solutions to meet any project needs.

We also provide a broad product line of C&I mobile products such as light towers, mobile generators, and mobile energy storage systems, which provide temporary lighting and power for various end markets, such as road and commercial construction, energy, mining, military, and special events. We also manufacture commercial mobile pumps and dust-suppression equipment for a wide variety of applications. These mobile products are typically sold to national and regional rental companies who then rent the equipment to the end user.

As we advance further into energy technology for C&I applications, we believe the acquisitions of Off Grid Energy in 2021 and REFU Storage Systems in February 2023 will enable us to capture share of the rapidly expanding Battery Energy Storage System (or BESS) market in the future. We will also continue to develop other energy technology products, such as hybrid mobile solutions that pair an energy storage system with a diesel generator to reduce emissions and noise pollution, as well as mobile battery-powered light towers. We will also continue to sell various gaseous-engine control systems and accessories, which are sold to gas-engine manufacturers and aftermarket customers.

C&I products comprised 27.6%, 26.7% and 28.3%, respectively, of total net sales in 2022, 2021 and 2020.

Other Products and Services

Our “Other Products and Services” category primarily consists of aftermarket service parts and product accessories sold to our customers, installation and maintenance services, extended warranty revenue, grid services revenue paid by utilities, remote monitoring subscription revenue, and other service offerings provided by our owned industrial distributors.

Included in this “Other Products and Services” category are revenues from Generac Grid Services (GGS), which was formed in September 2021 and builds upon our 2020 Enbala acquisition. The formation of GGS formalized our efforts in the market for grid services by creating a focused team that collaborates across the enterprise to sell turn-key hardware and software solutions used by utilities and grid operators that enable the connection of DERs to help support the operational stability of the world’s power grids. Generac’s Concerto energy-balancing software platform provides a highly flexible approach for creating controllable and dispatchable energy resources from flexible loads, energy storage and renewable energy and gives utilities and grid operators the flexibility to operate virtual power plants in real-time to better manage the escalating complexities of increasingly variable energy assets. The Concerto software platform also enables Generac to enter into performance contracts, in which the Company recruits, aggregates, and manages a fleet of DERs with the purpose of efficiently managing and monetizing power capacity to utilities and grid operators.

The acquisition of ecobee further enhanced our efforts in grid services. In addition to smart home energy management product sales, ecobee recognizes service revenue resulting from the value its platform provides in connecting its devices to grid services programs, enabling direct monitoring and control of a significant portion of the home’s electrical load. The addition of this capability increases Generac’s share of the grid services market and meaningfully enhances Generac’s software development capabilities.

The 2022 acquisition of Blue Pillar expanded our C&I connectivity capabilities and enhanced our grid services offerings for C&I customers by providing a standard protocol for all of our C&I products to be connected to our Concerto platform. In addition to connectivity device sales, Blue Pillar recognizes software and support revenue resulting from the monitoring and management capabilities its platform provides customers. Our Mobile Link subscription service provides this same service for our residential home standby customers, whereby we collect subscription revenue for this remote monitoring service.

Other products and services comprised 8.6%, 7.5% and 9.1%, respectively, of total net sales in 2022, 2021 and 2020.

Mega-Trends, Strategic Growth Themes, and Additional Business Drivers

In 2021, we unveiled our “Powering A Smarter World” strategic plan, which serves as the framework for the significant investments we have made and will continue to make to capitalize on the long-term growth prospects of Generac. Our enterprise strategy is based on the combination of several key mega-trends that we believe will drive several significant strategic growth themes for our business.

Key Mega-Trends:

- *“Grid 2.0”*: which is the evolution of the traditional electrical utility model as supply/demand imbalances are created due to the accelerating adoption of renewable energy generation and the “electrification of everything” in society’s energy consumption. It includes the decarbonization, digitization, and decentralization of the grid and a migration toward distributed energy resources that is expected to drive demand for a variety of clean energy and grid services solutions going forward.
- *Impact of climate change*: which includes the expectation of more volatile and severe weather driving increased power outage activity, and more global regulation accelerating renewable investments.
- *Natural gas as an important transition fuel to the future*: as natural gas will remain in demand as a source of cleaner, reliable power generation for backup power and beyond standby applications, compared to diesel fuel.
- *Legacy infrastructure needs a major investment cycle*: to rebuild and upgrade aging networks and systems including transportation, water and power.
- *Telecommunications infrastructure shifting to next generation*: which involves the “5G” architecture that will enable new technologies requiring significant improvement in network uptime through backup power solutions.
- *Home as a Sanctuary*: in recent years, there has been a trend of more people working, shopping, entertaining, aging in place, and generally spending more time at home. As a result of this and the “electrification of everything” trend, homeowners are becoming increasingly sensitive to power outages due to lost productivity and functionality. These trends combined with ongoing elevated power outage activity has led to significantly increased awareness regarding the importance and need for backup power security.

Strategic Growth Themes:

Power quality issues continue to increase. Power disruptions are an important driver of consumer awareness for back-up power and have historically influenced demand for generators, both in the United States and internationally. Increased frequency and duration of major power outage events, that have a broader impact beyond a localized level, increases product awareness and may drive consumers to accelerate their purchase of a standby or portable generator during the immediate and subsequent period, which we believe may last for six to twelve months following a major outage event. Energy storage systems offer similar resiliency advantages to consumers and can benefit from these same awareness drivers, at least for short duration power outages. The optional standby market for C&I power generation is also driven by power quality issues and the related need for backup power. Attitudes around climate change have shifted and undergone increased global focus, and an aging and underinvested electrical grid infrastructure remains highly vulnerable to the expectation of more volatile and severe weather. Additionally, rapid growth in renewable power sources such as solar and wind is resulting in increased intermittency of supply, further impairing the reliable supply of electricity at a time when demand is starting to increase meaningfully with the electrification of a wide range of consumer and commercial products, including transportation, HVAC systems, and other major appliances. These developments are causing a growing supply/demand imbalance for grid operators across North America, which has led to recent high-profile examples of rolling blackouts necessary to maintain grid integrity. In fact, the North American Electric Reliability Corporation has labeled significant portions of the continent as being at high risk of resource adequacy shortfalls during normal seasonal peak conditions in the 2023-2027 period due in part to these supply/demand dynamics. Further, in California, Public Safety Power Shutoff events have occurred whereby public utilities are turning off power supply to their customers under certain circumstances to prevent their transmission equipment from starting wildfires, which we anticipate may continue in the future. Taken together, we expect these factors to continue driving increased awareness of the need for backup power and demand for Generac’s products within multiple categories.

Home standby penetration opportunity is significant. Many potential customers are still not aware of the costs and benefits of automatic backup power solutions. With only approximately 5.75% penetration of the addressable market of homes in the United States (which we define as single-family detached, owner-occupied households with a home value of over \$150,000, as defined by the U.S. Census Bureau's 2021 American Housing Survey for the United States), we believe there are significant opportunities to further penetrate the residential standby generator market both domestically and internationally. We believe by expanding our distribution network, continuing to develop our product lines, and targeting our marketing efforts, we can continue to build awareness and increase penetration for our home standby generators. Additionally, Smart Grid Ready capabilities have the potential to turn an asset previously utilized only in emergency power outage situations into a source of recurring revenue for the homeowner and a contributor to grid stability for utilities and grid operators, therefore driving incremental interest in the product category.

Solar, storage, and energy management markets developing quickly. We believe the electric utility landscape will undergo significant changes in the decade ahead due to rising utility rates, grid instability and power quality issues, environmental concerns, and the continuing performance and cost improvements in renewable energy and batteries. On-site power generation from renewable sources such as solar and wind, and cleaner-burning natural gas generators is projected to become more prevalent as will the need to monitor, manage, and store this power – potentially developing into a significant market opportunity. We expect to further advance our capabilities in clean energy by increasing our product development, sourcing, distribution, and marketing efforts, as we leverage our significant competencies in the residential standby generator market to augment our market position in the emerging residential solar, storage, monitoring and management markets. Additionally, these markets are receiving an increasing level of regulatory and legislative support, most notably from the Inflation Reduction Act that was passed in 2022. This legislation includes significant subsidies and investment tax credits for consumers and business over the coming decade and provides necessary opportunity for long-term, value-creating investments for market participants.

Grid services and Energy-as-a-Service open new revenue streams. We expect the evolution of the traditional electrical utility model toward decarbonized, digitized, and decentralized solutions will continue to drive the need for grid operators to access and control DERs. This will require highly intelligent software platforms that are able to optimize an increasingly complex supply and demand equation, such as our Concerto software platform. As the grid services market matures, Generac will continue to explore opportunities beyond the traditional software-as-a-service subscription model, including but not limited to the aggregation and sale of power from a fleet of DERs in performance-based contracts, wholesale power market participation, turn-key solutions that combine hardware and software with services, and other monitoring and management services. Additionally, growing interest in our C&I products across a variety of “beyond standby” applications is driving an increase in demand for subscription-like models for end customers, in which Generac will partner with third parties to deliver peace of mind and resiliency solutions while also enabling contributions to grid stability with minimal upfront capital outlays. The significant advancements made in recent years in the connectivity of our products is core to these newer capabilities, which play a key role in the evolution of Generac into an energy technology solutions company.

Natural gas generators driving strong growth. We believe natural gas will continue to be an important and cleaner transition fuel of the future, in comparison to diesel, as the world continues to shift towards lower emission power generation sources. Demand for natural gas generators continues to represent an increasing portion of the overall C&I market, which we believe will continue to grow at a faster rate than traditional diesel fueled generators. We also continue to explore and expand our capabilities within new gaseous generator market opportunities, including continuous-duty, prime rated, distributed generation, demand response, microgrids and overall use as a distributed energy resource in areas where grid stability is needed. Many of these applications are made possible by our natural gas generators having Smart Grid Ready capabilities, which allows for end users to participate in available grid services programs, helping to offset the purchase price of the equipment over the product's lifespan. Expanding our natural gas product offering into larger power nodes is also a part of this growth theme in taking advantage of the continuing shift from diesel to natural gas generators.

Rollout of 5G will require improved network reliability. As the number of “connected” devices continues to rapidly increase and wireless networks are now being considered critical infrastructure in the United States, network reliability and up-time are necessary for our increasingly connected society. This will require highly resilient cell tower sites across the network, and therefore necessitates the need for backup power sources on site at these cell towers. Generac is the leading supplier of backup power to the telecommunications market in the United States, where approximately half of all existing tower sites have yet to be hardened with backup power. As more mission-critical data is transmitted over wireless networks, we believe this penetration rate must increase considerably to maintain a higher level of reliability across the network. Increased adoption of high-speed wireless networks around the globe may lead to similar demand trends internationally as growing cell tower density and the need for onsite backup power expand the market opportunity for our international telecom products. We have relationships with key Tier 1 carriers and tower companies globally in addition to having the distribution partners to support the global market from a service standpoint. We believe these factors coupled with Generac's ability to customize solutions to each customer's needs help us to maintain our strength within the global telecommunications market.

Other Business Drivers

Impact of residential investment cycle. The market for a number of our residential products is affected by the residential investment cycle and overall consumer confidence and sentiment. When homeowners are confident of their household income, the value of their home and overall net worth, they are more likely to invest in their home. These trends can have an impact on demand for residential generators and energy storage systems. Trends in the new housing market, highlighted by residential housing starts, can also impact demand for these products. Demand for outdoor power equipment is also impacted by several of these factors, as well as weather patterns. Finally, the existence of renewable energy mandates, investment tax credits and other subsidies, which have become even more prevalent with the recent passing of the Inflation Reduction Act, can also have an impact on the demand for solar and energy storage systems.

Impact of business capital investment and other economic cycles. The global market for our commercial and industrial products is affected by different capital investment cycles, which can vary across the numerous regions around the world in which we participate. These cycles include non-residential building construction, durable goods and infrastructure spending, as well as investments in the exploration and production of oil & gas, as businesses or organizations either add new locations or make investments to upgrade existing locations or equipment. These trends and market conditions can have a material impact on demand for these products. The capital investment cycle may differ for the various commercial and industrial end markets that we serve including light commercial, retail, office, telecommunications, industrial, data centers, healthcare, construction, oil & gas and municipal infrastructure, among others. The market for these products is also affected by general economic and geopolitical conditions in the countries where we serve, as well as credit availability in those regions.

Enterprise Strategy

The mega-trends and strategic growth themes that we have identified help to inform our new enterprise strategy, “Powering A Smarter World,” and our purpose statement, “Leading the evolution to more resilient, efficient, and sustainable energy solutions.” As we continue to execute our strategic plan into the future, we are focused on building out residential and C&I ecosystems of connected energy solutions to help address a growing electricity supply/demand imbalance problem by focusing on three key objectives: (i) improve energy resilience and independence, (ii) optimize energy efficiency and consumption, and (iii) protect and build critical infrastructure. These objectives are further explained as follows:

Improve energy resilience and independence. Increase power reliability through onsite generation and storage solutions that provide resiliency for homes, businesses and communities.

Homes, businesses, and communities are experiencing a deterioration in the reliable supply of electricity due to a number of factors including: climate change impacts driving more severe and volatile weather leading to increased power outages; a capacity constrained legacy power infrastructure that’s still predominantly a one-way system and remains heavily reliant on fossil fuels; the power infrastructure being impaired by underinvestment making it more susceptible to power outages; and regulatory and legislative actions implementing penalties for carbon intensity coupled with incentives for adoption of more intermittent renewable power sources. Our residential and C&I product offering begins with power generation and storage products including home standby generators, energy storage systems, and C&I generators. These onsite generation and storage solutions provide peace of mind and protection against rising power quality issues by delivering energy resilience and independence for end users and their communities. Our PWRgenerator, that is expected to start shipping in 2023, is a DC generator that is purpose built to charge our PWRcell energy storage system. With this capability, an end user could conceivably be completely independent from the grid by using sustainable solar energy to power their home, with the PWRgenerator used to recharge the PWRcell should the battery be depleted at certain points of the day. Importantly, many of these onsite solutions come standard as “Smart Grid Ready” and are capable of participating in available grid services programs, which provide additional return on investment opportunities for end users while at the same time helping to support grid reliability, resiliency and sustainability.

Optimize energy efficiency and consumption. Enable sustainable and more efficient power generation and consumption through monitoring, management and lower-carbon solutions.

The “electrification of everything” is expected to drive increasing demand for electricity over the next several years, including the electrification of transportation, via both electric vehicle adoption and expanding charging infrastructure, the electrification of the home, including HVAC systems and other appliances, and the electrification of commercial and industrial systems. These global electrification trends will require utilities and energy retailers to meaningfully increase the supply and reliability of electricity, while at the same time working to achieve carbon-reduction goals, which is expected to further contribute to a supply/demand imbalance and additional power quality issues. As part of our expanding ecosystems of energy technology solutions, we continue to build out our residential monitoring and management capabilities, which improve energy efficiency and optimize consumption by end users. This includes ecobee’s smart home energy management devices, Apricity’s water heater controllers, Tank Utility’s propane tank monitoring solutions, and PWRmanager, our second-generation load control device. In the future, we expect to simplify and integrate our residential product offering into a single ecosystem, leveraging our software development capabilities and the substantial resources brought by the ecobee acquisition. This singular system-level platform is intended to serve as the user interface for consumers to monitor and manage all their DERs, thereby empowering the user to optimize energy efficiency and consumption. Within our global C&I products, we are developing bi-directional natural gas generators and system-level micro-grid controls. In addition, Blue Pillar’s Industrial IoT network software solutions enable distributed energy generation monitoring and control, helping businesses to better optimize their energy efficiency and consumption. These enhanced connectivity capabilities provide the foundation for the future build out of a centralized system-level platform for our C&I customers to monitor and manage all of their DERs.

Protect and build critical infrastructure. Offering innovative solutions that enable and protect next-generation power, communications, transportation and other critical infrastructure.

The critical power infrastructure around the world is becoming more sensitive to the growing electricity supply/demand imbalance. Generac’s suite of solutions can be connected and synchronized within the Concerto distributed energy resource management system, providing utilities and grid operators the flexibility to access and control these DERs in real-time to better manage the escalating complexities of their electrical grids. When utilized in these applications, our residential and C&I ecosystems of DERs essentially provide power capacity to utilities and grid operators, enabling the adoption of renewable energy sources by helping solve the intermittency challenges presented by renewable power generation. We believe the next generation of critical power infrastructure will be more decarbonized, digitized and decentralized, and we view the implementation, aggregation and management of distributed energy resources as an important aspect in creating the future “Grid 2.0”. Additionally, the rollout of 5G telecom networks globally and the growing consideration of these wireless networks as critical infrastructure makes our backup power solutions for telecommunications applications essential elements of a wireless network that cannot afford to experience power failure. Finally, our broad offering of global mobile solutions, including mobile power generators, mobile energy storage systems and hybrid generators, play a key role in the completion of infrastructure construction projects, such as roads, highways, bridges, and airports.

See “Item 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations – Business Drivers and Operational Factors” for additional drivers that influence demand for our products and other factors affecting the markets that we serve.

Distribution Channels and Customers

We distribute our products through a variety of different distribution channels to increase awareness of our product categories and brands, and to ensure our products reach a broad, global customer base. This omni-channel distribution network includes independent residential dealers, industrial distributors and dealers, national and regional retailers, e-commerce partners, electrical/HVAC/solar wholesalers, solar installers, catalogs, equipment rental companies, and equipment distributors. We also sell direct to certain national and regional account customers, which include utilities, telecommunications providers and original equipment manufacturers, as well as to individual consumers or businesses who are the end users of our products.

We believe our global distribution network is a competitive advantage that has strengthened over the years as a result of adding, expanding and developing the various distribution channels through which we sell our products. We offer a broad set of tools, programs, factory support, and sales leads to help our distribution partners be successful. Our network is well balanced with no single customer providing more than 4% of our sales in 2022.

We have the industry’s largest network of factory direct independent generator dealers in North America. Our residential dealer network is made up of electrical and HVAC contractors across the US and Canada. These dealers sell, install and service our residential and light commercial generators to end users. Over the years, we have made significant investments to grow this dealer network, and we will continue to make those investments in the future given the importance of this channel. We continue to focus on a variety of initiatives to market and sell our home standby products and better align our dealer network with Generac more effectively. These initiatives have helped to improve customer lead quality and develop our dealers, thereby increasing close rates and lowering our cost per lead. In 2021, we implemented the next generation of our “Power Play” guided sales process for residential dealers, making enhancements in several areas targeted to improve the customer experience and overall close rates. Additionally, our remote monitoring platform allows our residential generator dealers to monitor their installed base of customers through a feature that we call “Fleet”, enabling them to offer a more proactive experience to service a customer’s generator.

Since 2020, we have been leveraging these dealer development practices to assist in establishing our base of solar contractors that sell, install and service our PWRcell energy storage systems. Leveraging our decades of expertise in partnering with our residential generator dealers, we believe we can expand our solar installer network and increase mindshare for Generac's products, helping us to win in the clean energy market. In addition, we have been developing distribution relationships with national solar providers to offer our equipment in their portfolio of products and services.

Our industrial network consists of a combination of primary distributors that cover a particular region, as well as a network of support dealers serving the global market. Over the past five years, we have been expanding our dealer network globally through acquisitions and organic means, in order to expand our international sales opportunities. Additionally, since 2020, we have acquired our industrial distributors in northern and southern California and New England to give us direct coverage of the west coast and northeast regions of the United States and accelerate our efforts in these parts of the country. The industrial distributors and dealers provide industrial and commercial end users with ongoing sales, installation, service and product support. Our industrial distributors and dealers help maintain the local relationships with commercial electrical contractors, specifying engineers and national account regional buying offices. We also sell to certain Engineering, Procurement and Construction (EPC) companies and other companies that specialize in managing more complex power generation projects, including microgrid projects and Energy-as-a-Service applications.

Our retail distribution channel includes thousands of locations across the globe and includes a variety of regional and national home improvement chains, retailers, clubs, buying groups, hardware stores and farm supply stores. These physical retail locations are supplemented by a growing presence of e-commerce retailers, along with a number of catalog retailers. The retail channel primarily sells our residential standby, portable and light-commercial generators, as well as our outdoor power equipment and ecobee's smart home energy management devices. The placement of our products at retail locations drives significant awareness for our brands and the automatic home standby generator product category.

Our wholesaler network distributes our residential and light-commercial generators, energy storage systems, and smart home energy management devices. The channel consists of selling branches of both national and local distribution houses for electrical, HVAC and solar products on a wholesale basis, which in turn typically sell to electricians and solar installers who are not in our dealer network.

On a selective basis, we have established private label and licensing arrangements with third party partners to provide residential, light-commercial and industrial generators under different brand names. These partners include leading home equipment, electrical equipment and construction machinery companies, each of which provides access to incremental channels of distribution for our products.

The distribution for our C&I mobile products includes international, national, regional and specialty equipment rental companies, equipment distributors and construction companies, which primarily serve non-residential building construction, road construction, energy markets and special events.

We also sell direct to certain customers that are the end users of our products covering a number of end market verticals both domestically within the US and around the world. This includes telecommunication, retail, banking, energy, utilities, healthcare, convenience stores, grocery stores, restaurants, and other commercial applications. Additionally, certain of our residential products are sold direct to individual consumers, who are the end users of the product. In the grid services space, Generac Grid Services sells software, equipment, and power capacity direct to utilities and grid operators.

Research and Development

Our focus on a broad range of energy technology products and solutions drives technological innovation, advanced engineering capabilities, and specialized manufacturing competencies. Research and development (R&D) has been a core competency for Generac since our inception, and today includes a staff of approximately 1,000 engineers working on numerous projects at various facilities around the world, including our technology centers located in Waukesha, Wisconsin, Bedford, Massachusetts, Suzhou, China, and Mexico City, Mexico. These activities are focused on developing new technologies and product enhancements, as well as maintaining product competitiveness by reducing manufacturing costs, improving safety characteristics, reliability and performance while ensuring compliance with regulatory standards. We have significant experience using natural gas engines and have developed specific expertise with fuel systems and emissions technology. In the residential and light commercial markets, we have developed proprietary engines, cooling packages, controls, fuel systems and emissions systems.

We have made several acquisitions in recent years that significantly enhanced our R&D capabilities. This includes substantial technical resources in energy storage, monitoring and power conversion for residential applications, as well as in the C&I mobile energy storage space. These resources add proficiency in power electronics and battery management software, and we have also added considerable expertise in designing and prototyping energy efficiency products. We have significantly increased our software development capabilities across a variety of applications, including system-level controls, remote monitoring, and distributed energy resource management systems. By combining advanced software development with the expansion of our electrical engineering resources, we expect to accelerate our energy technology efforts.

We also have engineering and product management resources focused on evaluating and developing alternative technologies that are emerging and could become commercially viable over the long term such as fuel cells, a technology that we have also begun to explore commercially with certain equity investments and distribution agreements in 2022. As we continue to evaluate new technologies that are more decarbonized, digitized, and decentralized, we believe that our expertise in energy technology solutions provides us with the capability to develop new products and services that will allow continued diversification and differentiation in our end markets.

Intellectual Property

We are committed to research and development, and we rely on a combination of patents and trademarks to establish and protect our proprietary rights. Our patents protect certain features and technologies we have developed for use in our products including fuel systems, air flow, electronics and controls, noise reduction, air-cooled engines, energy management, energy monitoring, energy storage, and load management. We believe the existence of these patents and trademarks, along with our ongoing processes to register additional patents and trademarks, protect our intellectual property rights and enhance our brands and competitive position. We also use proprietary manufacturing processes that require customized equipment. With our continuous focus on research and development, we expect to develop new intellectual property on an ongoing basis.

Manufacturing

We operate numerous manufacturing plants, distribution facilities and inventory warehouses located throughout the world. We store finished goods at third-party logistics providers in the United States that accommodate material storage and rapid response requirements of our customers. See “Item 2 – Properties” for additional details regarding the locations and activities of our principal operations.

In recent years, we have added and continue to add manufacturing capacity through investments in automation, improved utilization, and the expansion of our manufacturing footprint through organic means as well as through acquisitions. Key examples of organic expansion include the significant additions to our manufacturing footprint in recent years with new facilities in Trenton, South Carolina for home standby generators, Hidalgo, Mexico for the production of C&I generators, and Hamilton, Ohio for the production of electrified chore products. As demand for our products has increased significantly over the last few years, our ability to increase capacity has been and will be critical to executing our strategic growth priorities. We believe our vertical integration and scale in home standby generators provides a material benefit in our ability to maintain industry-leading output with state-of-the-art manufacturing processes.

Suppliers of Raw Materials, Components and Equipment

Our primary raw material inputs are steel, copper and aluminum, all of which are purchased from third parties and, in many cases, as part of machined or manufactured components. In certain instances, we purchase complete equipment or systems from third-party suppliers, including from contract manufacturers. Given our increasing focus on energy technology solutions, advanced electronic components and micro-processors have become a larger consideration within our supply chain. Within the clean energy market, batteries are a significant supply chain input for our energy storage systems. Over multiple decades, we have developed an extensive network of reliable suppliers in the United States and around the world. We continuously evaluate the quality and cost structure of our purchased components and equipment and assess the capabilities of our supply chain. Components and equipment are sourced accordingly based on this evaluation. For certain products we do not have internal manufacturing capabilities and rely upon a small number of contract manufacturers to build these products or supply these components, including but not limited to certain clean energy products or components.

Since the beginning of 2020, we have experienced a number of supply chain challenges resulting from the COVID-19 pandemic that impacted our operations to varying degrees. While inbound and outbound logistics delays and employee absences eased during 2022, there continues to be a heightened level of uncertainty surrounding the global supply chain.

See “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations” for additional information regarding the impact of COVID-19 and other macroeconomic factors.

See “Item 1A. Risk Factors” for additional factors that can influence our supply of raw materials, components and equipment.

Competition

The market for power generation equipment, energy storage systems, grid services solutions and other engine powered products is competitive. We face competition from a variety of large diversified industrial companies as well as smaller generator manufacturers, along with mobile equipment, engine powered tools, solar inverter, battery storage and grid services providers, both domestic and internationally.

Specifically in the generator market, most of the traditional participants compete on a more focused basis, targeting specific applications within their larger diversified product mix. We are the only significant market participant with a primary focus on power equipment with a key emphasis on standby, portable and mobile generators with broad capabilities across the residential, light-commercial and industrial markets. We believe that our engineering capabilities and core focus on generators provide us with manufacturing flexibility and enables us to maintain a competitive advantage for product innovation. We also believe our broad product offering, diverse omni-channel distribution model and strong factory support provide additional advantages as well.

The Company in recent years has been evolving its business model toward more of a focus on energy technology solutions and services, which has introduced a new set of competitors.

A summary of the primary competitors across our main product classes is as follows:

Residential products – Kohler, Briggs & Stratton, Cummins, Honda, Champion, Techtronics International, Husqvarna, Ariens, LG Chem, Tesla, Enphase, Solar Edge, Google, Honeywell, and Emerson along with a number of smaller domestic and foreign competitors; certain of which also have broad operations in other manufacturing businesses.

C&I products – Caterpillar, Cummins, Kohler, IGSA, AKSA, MultiQuip, Wacker, Doosan, Atlas Copco, Himoinsa, FG Wilson, Woodward, and Co-map, as well as other domestic and foreign competitors; certain of which focus on the market for diesel generators as they are also diesel engine manufacturers. Also, we compete against other regional packagers that serve local markets throughout the world.

Other products – Relative to service parts and extended warranty revenue, all of the above-named companies are primary competitors. Relative to grid services optimization software, Autogrid and Energy Hub, along with other grid service solution providers, are primary competitors.

In a continuously evolving market, we believe our scale and broad capabilities make us well positioned to remain competitive. We compete primarily based on brand reputation, quality, reliability, pricing, innovative features, breadth of product offering, product availability and factory support.

Government Incentives and Regulation, including Environmental Matters

Generac's growing presence in energy technology solutions has increased our exposure to renewable energy mandates, investment tax credits and other demand-creation subsidies from certain existing and potential government incentives, such as incentives included in the Inflation Reduction Act that was passed in 2022. These incentives cover a wide range of products and solutions, including MLPE solutions, solar plus storage systems, grid services, and grid-edge devices, and the availability, size, and outlook for such incentives can impact the markets for these products and solutions.

As a manufacturing company, our operations are subject to a variety of federal, state, local and foreign laws and regulations covering environmental, health and safety matters. Applicable laws and regulations include those governing, among other things, emissions to air, discharges to water, noise and employee safety, as well as the generation, handling, storage, transportation, treatment, and disposal of waste and other materials. In addition, our products are subject to various laws and regulations relating to, among other things, emissions and fuel requirements, as well as labeling, storage, transport, and marketing.

Our products sold in the United States are regulated by the U.S. Environmental Protection Agency (EPA), California Air Resources Board (CARB) and various other state and local air quality management districts. These governing bodies continue to pass regulations that require us to meet more stringent emission standards, and all of our engines and engine-driven products are regulated within the United States and its territories. In addition, certain products in the United States are subject to safety standards as established by various other standards and rulemaking bodies, or state and local agencies, including the U.S. Consumer Product Safety Commission (CPSC).

Similarly, other countries have varying degrees of regulation for our products, depending upon product application and fuel types.

See "Item 1A. Risk Factors" for additional legal and regulatory factors that can affect the products we sell and the results of our operations.

Environment, Social, and Governance Program

Building on our inaugural Environmental, Social, and Governance (ESG) report in 2021, we published our second ESG report in April of 2022 to update our progress in executing the various ESG goals and initiatives that align with our "Powering a Smarter World" enterprise strategy and our purpose statement: Lead the evolution to more resilient, efficient, and sustainable energy solutions. Importantly, we've also continued our commitment to building out an effective ESG Program to help us identify material ESG topics that deserve attention and resources, define metrics to measure our performance with respect to those topics, and work towards setting goals to improve that performance. This includes making progress in further building out our extended ESG organization by adding a number of resources to our ESG Steering Committee and ESG Task Force, which is comprised of subject matter experts from across the Company and receives board-level oversight from our Nominating and Corporate Governance Committee. The information provided within our ESG Report published in April of 2022, or any future ESG Report in 2023, is not part of this report and is therefore not incorporated herein by reference. A copy of the ESG Report is available from our Investor Relations webpage at Generac.com. We plan to publish an updated ESG Report in April of 2023 that coincides with the filing of our annual Proxy Statement.

Human Capital

"Our People" is one of the foundational elements to our "Powering a Smarter World" enterprise strategy and is a corporate value as well. We foster a culture of diversity and engagement to strengthen our company while supporting individual achievement, equity, inclusivity and good corporate citizenship globally. We believe our success is directly tied to our employees' professional growth and personal well-being, combined with strong families and communities.

Some examples of key human capital programs and initiatives that we are focused on include:

Health, wellness and safety – Employee health and safety is the Company's top priority. Generac's Healthy & Thriving Total Rewards are based on the four pillars of balance, security, well-being and community. These programs are designed to meet the varied and evolving needs of our diverse workforce. We maintain an employee wellness program, incentivize healthy-living activities, and we develop and administer company-wide policies to help ensure the safety of each employee and compliance with government agency and other standards.

Diversity, equity and inclusion (DEI) – At Generac, people with diverse backgrounds and points of view work together to support our customers around the globe. As an inclusive workplace, our employees embrace diversity in all forms, celebrate differences, and treat others with equality and respect. Generac is also focused on building understanding and awareness of DEI through education and open communication. We sponsor employee-led Business Employee Resource Groups (BERGs) to facilitate networking and strong connections with peers and leadership and to increase the listening and learning opportunities across our workforce. We have expanded our DEI Learning Library and we partner with community job agencies representing disabled clients and workforce release programs to provide job opportunities to those who face barriers to employment.

Talent development & employee engagement – Our success is directly tied to our employees and what we can accomplish together. We prioritize creating opportunities to help employees build careers and support their growth as part of a meaningful and valuable employee experience. We hold internal career development events as well as partner with local educational resources to offer on the job learning, collaborative work experiences and formal learning programs on lean methodology and project management skills to support progressions and advancement of our workforce. Further, we maintain an ongoing global employee engagement initiative with targeted action plans by region, function, and business group. Action plans and their progress are measured by global employee engagement surveys.

As of December 31, 2022, we had 9,500 employees (9,160 full time and 340 part-time and temporary employees). Of those, approximately 4,500 employees were directly or indirectly involved in manufacturing at our manufacturing facilities.

Domestically, we have had an "open shop" bargaining agreement for the past 50 years. The current agreement, which expires October 17, 2026, covers our Eagle, Wisconsin facility. Additionally, our plants in Mexico, Italy and Spain are operated under various local or national union groups. Our other facilities are not unionized.

Available Information

The Company's principal executive offices are located at S45 W29290 Highway 59, Waukesha, Wisconsin, 53189 and the Company's telephone number is (262) 544-4811. The Company's website is www.generac.com. The Company's annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports are available free of charge through the "Investor Relations" portion of the Company's web site, as soon as reasonably practicable after they are filed with the Securities and Exchange Commission (SEC). The information provided on these websites is not part of this report and is therefore not incorporated herein by reference.

Information About Our Executive Officers

The following table sets forth information regarding our executive officers:

Name	Age	Position
Aaron P. Jagdfeld	51	President, Chief Executive Officer and Chairman
York A. Ragen	51	Chief Financial Officer
Erik Wilde	48	Executive Vice President, Industrial, Americas
Patrick Forsythe	55	Chief Technical Officer
Raj Kanuru	52	Executive Vice President, General Counsel and Secretary
Norman Taffe	56	President, Energy Technology
Kyle Raabe	48	President, Consumer Power

Aaron P. Jagdfeld has served as our Chief Executive Officer since September 2008, as a director since November 2006 and was named Chairman in February 2016. Prior to becoming Chief Executive Officer, Mr. Jagdfeld worked for Generac for 15 years. He began his career in the finance department in 1994 and became our Chief Financial Officer in 2002. In 2007, he was appointed President and was responsible for sales, marketing, engineering and product development. Prior to joining Generac, Mr. Jagdfeld worked in the audit practice of the Milwaukee, Wisconsin office of Deloitte and Touche. Mr. Jagdfeld holds a Bachelor of Business Administration in Accounting from the University of Wisconsin-Whitewater.

York A. Ragen has served as our Chief Financial Officer since September 2008. Prior to becoming Chief Financial Officer, Mr. Ragen held Director of Finance and Vice President of Finance positions at Generac. Prior to joining Generac in 2005, Mr. Ragen was Vice President, Corporate Controller at APW Ltd., a spin-off from Applied Power Inc., now known as Enerpac Tool Group. Mr. Ragen began his career at Arthur Andersen in the Milwaukee, Wisconsin office audit practice. Mr. Ragen holds a Bachelor of Business Administration in Accounting from the University of Wisconsin-Whitewater.

Erik Wilde began serving as our Executive Vice President, Industrial, Americas in July 2016. Mr. Wilde was Vice President and General Manager of the Mining Division for Komatsu America Corp., a manufacturer of construction, mining, and compact construction equipment, from 2013 until he joined Generac. Prior to that role, he held leadership positions as Vice President of the ICT Business Division and Product Marketing at Komatsu America Corp. beginning in 2005. Mr. Wilde holds a Bachelor of Business Administration in Management from Boise State University and an M.B.A. from the Keller Graduate School of Management.

Patrick Forsythe has served as our Chief Technical Officer since January 2021. He previously served as our Executive Vice President of Global Engineering beginning in July 2015. Prior to re-joining Generac, Mr. Forsythe was Vice President, Global Engineering & Technology of Hayward Industries from 2008 to 2015, Vice President, Global Engineering at Ingersoll Rand Company (and the acquired Doosan Infracore International) from 2004 to 2008, and Director of Engineering at Ingersoll Rand Company from 2002 to 2004. Prior to 2002, Mr. Forsythe worked in various engineering management capacities with Generac from 1995 to 2002. Mr. Forsythe holds a Higher National Diploma (HND) in Mechanical Engineering from the University of Ulster (United Kingdom), a B.S. in Mechanical Engineering, and an M.S. in Manufacturing Management & Technology from The Open University (United Kingdom).

Raj Kanuru is our Executive Vice President, General Counsel & Secretary and is the Company's principal legal and compliance officer, roles that he has held since joining Generac in 2013. Prior to joining Generac, Mr. Kanuru served as in-house counsel at Caterpillar Inc. for almost 14 years within various leadership roles, including in Caterpillar's Securities, Regulatory and Tax group, in Caterpillar Financial, and in Caterpillar's Energy & Transportation group. From 2009 to 2013, Mr. Kanuru served as Vice President, General Counsel and Secretary of Progress Rail Services Inc., and its subsidiaries (a Caterpillar company). He began his legal career as a senior associate in the tax consulting practice of Arthur Andersen LLP. Mr. Kanuru holds a Bachelor of Science in Finance degree from Birmingham-Southern College and received his Juris Doctor degree from the University of Alabama.

Norman Taffe began serving as President – Energy Technology in August 2022. Prior to joining Generac, Mr. Taffe was Executive Vice President North America Residential of SunPower Corporation from 2018 to 2021. Prior to this, Mr. Taffe was Executive Vice President - Products and Vice President of Power Plant Products and Solutions from 2013 to 2018. Mr. Taffe also worked in various engineering and marketing management capacities at Cypress Semiconductor from 1989 to 2012, including Executive Vice President – Consumer & Computation Devices from 2005 to 2012. Mr. Taffe holds a Bachelor of Science in Electrical Engineering from the University of Michigan and an Executive MBA from Harvard Business School.

Kyle Raabe has served as our President, Consumer Power since November 2019. Prior to rejoining Generac, Mr. Raabe was Senior Vice President of North American Sales, Demand Planning and Sales Operations from 2018 through 2019 and Vice President of Sales for the Commercial Security and Safety groups from 2015 through 2018 at The Master Lock Corporation, a manufacturer of locks, combination padlocks and other security products. Prior to working at The Master Lock Corporation, Mr. Raabe led multiple groups at Generac Power Systems from 2007 through 2015 as Director of Wholesale and Dealer Distribution, Vice President Wholesale Distribution Sales and Vice President, Industrial Distribution Sales. Before joining Generac, Kyle served at Veolia North America, Environmental Services leading Midwest Regional Service Operations. Mr. Raabe holds a BA, Biological Science from Lawrence University.

Item 1A. Risk Factors

You should carefully consider the following risks. These risks could materially affect our business, results of operations or financial condition, cause the trading price of our common stock to decline materially or cause our actual results to differ materially from those expected or those expressed in any forward-looking statements made by us. These risks are not exclusive, and additional risks to which we are subject include, but are not limited to, the factors mentioned under “Forward-Looking Statements” and the risks of our businesses described elsewhere in this Annual Report.

Risk factors related to our business and industry

Decreases in the availability and quality, or increases in the cost, of raw materials, key components and labor we use to make our products could materially reduce our earnings.

The principal raw materials that we use to produce our products are steel, copper and aluminum as well as batteries and advanced electronic components. We also source a significant number of component parts from third parties that we utilize to manufacture our products. The prices of those raw materials and components are susceptible to significant fluctuations due to trends in supply and demand, commodity prices, currencies, transportation costs, government regulations and tariffs, price controls, economic conditions and other unforeseen circumstances beyond our control. In fact, we have recently seen such trends significantly impact our business resulting in higher costs and shortages in materials, components and labor, and such impacts may continue for the foreseeable future. We typically do not have long-term supply contracts in place to ensure the raw materials and components we use are available in necessary amounts or at fixed prices. In the short term, we have been unable to fully mitigate raw material or component price increases through product design improvements, price increases to our customers, manufacturing productivity improvements, or hedging transactions, and if our mitigation efforts continue to not be fully effective in the short or long term, our profitability could be adversely affected. We implemented multiple rounds of price increases in 2021 and 2022 to combat rising input costs, and the realization of these pricing actions in 2022 have partially offset the margin impact from these rising input costs. Also, our ability to continue to obtain quality materials and components is subject to the continued reliability and viability of our suppliers, including in some cases, suppliers who are the sole source of certain important components. It has been challenging to consistently obtain adequate, cost efficient or timely deliveries of certain required raw materials and components, or sufficient labor resources while we ramp up production to meet higher levels of demand, and if this trend continues, we may be unable to manufacture sufficient quantities of products on a timely basis. This could cause us to lose additional sales, incur additional costs, delay new product introductions or suffer harm to our reputation.

We depend upon a small number of outside contract manufacturers and component suppliers for certain products, and our business and operations could be disrupted if we encounter problems with these parties.

For certain products we do not have internal manufacturing capabilities and rely upon a small number of contract manufacturers to build these products or supply these components, including but not limited to certain clean energy products or components. The timing of purchases in future periods could differ materially from our estimates due to fluctuations in demand requirements related to varying sales levels as well as changes in economic conditions. Further, the revenues that our contract manufacturers generate from our orders may represent a relatively small percentage of their overall revenues. As a result, fulfilling our orders may not be considered a priority in the event of constrained ability to fulfill all of their customer obligations in a timely manner. If any of these contract manufacturers or component suppliers were unable or unwilling to manufacture or produce our products in required volumes and at high quality levels or renew existing terms under supply agreements, we would have to identify, qualify and select acceptable alternative contract manufacturers, which may not be available to us on favorable terms, if at all. Our reliance on such contract manufacturers makes us vulnerable to possible capacity constraints and reduced control over component availability, delivery schedules, quality issues, manufacturing yields and costs. If any of these suppliers reduce or eliminate the supply of the components to us in the future, our revenues, business, financial condition and results of operations would be adversely impacted.

Our business could be negatively impacted if we fail to adequately protect our intellectual property rights or if third parties claim that we are in violation of their intellectual property rights.

We consider our intellectual property rights to be important assets, and seek to protect them through a combination of patent, trademark, copyright and trade secret laws, as well as licensing and confidentiality agreements. These protections may not be adequate to prevent third parties from using our intellectual property without our authorization, breaching any confidentiality agreements with us, copying or reverse engineering our products, or developing and marketing products that are substantially equivalent to or superior to our own. The unauthorized use of our intellectual property by others could reduce our competitive advantage and harm our business. Not only are intellectual property-related proceedings burdensome and costly, but they could span years to resolve and we might not ultimately prevail. We cannot guarantee that any patents, issued or pending, will provide us with any competitive advantage or will not be challenged by third parties. Moreover, the expiration of our patents may lead to increased competition with respect to certain products. If we fail to protect our intellectual property and other proprietary rights, or if such intellectual property and proprietary rights are infringed, misappropriated or otherwise violated, our business, results of operations or financial condition could be materially harmed.

In addition, we cannot be certain that we do not or will not infringe third parties' intellectual property rights. We currently are, and have previously been, subject to such third party infringement claims, and may continue to be in the future. Any such claim, even if it is believed to be without merit, may be expensive and time-consuming to defend, subject us to damages, cause us to cease making, using or selling certain products that incorporate the disputed intellectual property, require us to redesign our products, divert management time and attention, and/or require us to enter into costly royalty or licensing arrangements. In addition, we may not prevail in such proceedings. An adverse outcome of any such proceeding may reduce our competitive advantage or otherwise harm our financial condition and our business.

We may incur costs and liabilities as a result of product liability and other claims.

We face a risk of exposure to current and future product liability claims alleging to arise from the use of our products and that may purportedly result in injury or other damage. Although we currently maintain product liability insurance coverage, we may not be able to obtain such insurance on acceptable terms in the future, if at all, or obtain insurance that will provide adequate coverage against potential claims. Product liability claims can be expensive to defend and can divert the attention of management and other personnel for long periods of time, regardless of the ultimate outcome. A significant unsuccessful product liability defense could have a material adverse effect on our financial condition and results of operations. In addition, we believe our business depends on the strong brand reputation we have developed. If our reputation is damaged, we may face difficulty in maintaining our market share and pricing with respect to some of our products, which could reduce our sales and profitability. We have experienced, and may continue to experience, product liability claims or other product related claims, including higher warranty costs or product recalls, which may impact our reputation and resulting sales and profitability. For example, we have and may continue to experience product liability, product quality or reliability claims, or warranty claims with respect to certain clean energy products, including being subject to certain consumer product class action lawsuits in relation to such products. In the third quarter of 2022, we recognized a charge of \$37.3 million related to clean energy product warranty costs. In the event such product or warranty related claims were to be significantly higher in the future, or we incur losses or other damages associated with current or future product liability lawsuits or product related claims, this may continue to adversely affect our reputation or brand quality in relation to such products, subject us to significantly increased costs, and otherwise materially harm our results of operation, financial condition and our business.

For further information, see footnote “18. Commitments and Contingencies”.

Demand for the majority of our products is significantly affected by unpredictable power outage activity that can lead to substantial variations in, and uncertainties regarding, our financial results from period to period.

Sales of our products are subject to consumer buying patterns, and demand for the majority of our products is affected by power outage events caused by thunderstorms, hurricanes, ice storms, blackouts, public safety power shutoffs, and other power grid reliability issues. The impact of these outage events on our sales can vary depending on the location, frequency and severity of the outages. Sustained periods without major power disruptions can lead, and in the past have led, to reduced consumer awareness of the benefits of standby and portable generator products and can result and have previously resulted in reduced sales growth rates and excess inventory. There are smaller, more localized power outages that occur frequently that drive a baseline level of demand for back-up power solutions. The lack of major power outage events and fluctuations to the baseline levels of power outage activity are part of managing our business, and these fluctuations could have, and previously have had, an adverse effect on our net sales and profits. Despite their unpredictable nature, we believe power disruptions create awareness and accelerate adoption of our home standby products.

Demand for our products is significantly affected by durable goods spending by consumers and businesses, and other macroeconomic conditions.

Our business is affected by general economic conditions, and uncertainty or adverse changes, such as the prolonged downturn in U.S. residential investment and the impact of more stringent credit standards and rising interest rates or inflation. These have previously led and could lead again to a decline in demand for our products and pressure to reduce our prices. Our sales of light-commercial and industrial generators are affected by conditions in the non-residential construction sector and by the capital investment trends for small and large businesses and municipalities. If these businesses and municipalities cannot access credit markets or do not utilize discretionary funds to purchase our products as a result of the economy or other factors, our business could suffer and our ability to realize benefits from our strategy of increasing sales in the light-commercial and industrial sectors could be adversely affected. In addition, consumer confidence and home remodeling expenditures have a significant impact on sales of our residential products, and prolonged periods of weakness in consumer durable goods spending has previously had, and could again have a material impact on our business. We currently do not have any material contracts with our customers which call for committed volume, and we cannot guarantee that our current customers will continue to purchase our products at the same level, if at all. If general economic conditions or consumer confidence were to worsen, or if the non-residential construction sector or rate of capital investments were to decline, our net sales and profits would likely be adversely affected. Changes in government monetary or fiscal policies may negatively impact our results, including increases in interest rates or sustained inflationary pressure which could negatively affect overall growth and impact sales of our products. Additionally, timing of capital spending by our national account customers can vary from quarter-to-quarter based on capital availability and internal capital spending budgets. Also, the availability of renewable energy mandates and investment tax credits and other subsidies can have an impact on the demand for energy storage systems. Our global operations are exposed to political and economic risks, commercial instability and events beyond our control in the countries in which we operate. Such risks or events may disrupt our supply chain and not enable us to produce products to meet customer demand.

The industries in which we compete are highly competitive, and our failure to compete successfully could adversely affect our results of operations and financial condition.

We operate in markets that are highly competitive. Some of our competitors have established brands and are larger in size or are divisions of large, diversified companies which have substantially greater financial resources than we do. Some of our competitors have and may continue to be willing to reduce prices and accept lower margins in order to compete with us. In addition, we could face new competition from large international or domestic companies with established brands that enter our end markets. Demand for our products may also be affected by our ability to respond to changes in design and functionality, to respond to downward pricing pressure, and to provide shorter lead times for our products than our competitors. If we are unable to respond successfully to these competitive pressures, we could lose market share, which could have an adverse impact on our results. For further information, see “Item 1—Business—Competition”.

Our industry is subject to technological change, and our failure to continue developing new and improved products and to bring these products rapidly to market could have an adverse impact on our business.

New products, or refinements and improvements to our existing products, may have technical failures, delayed introductions, higher than expected production costs or may not be well accepted by our customers. If we are not able to anticipate, identify, develop and market high-quality products in line with technological advancements that respond to changes in customer preferences, demand for our products could decline and our operating results could be adversely affected.

We rely on independent dealers and distribution partners, and the loss of these dealers and distribution partners, or of any of our sales arrangements with significant private label, national, retail or equipment rental customers, would adversely affect our business.

We depend on the services of independent distributors and dealers to sell and install our products and provide service and aftermarket support to our end customers. Their capacity constraints and/or inability to install and service our products could limit our ability to maintain and grow our sales. For example, since the second half of 2022 we experienced, and will continue to experience through the first half of 2023 or until inventory levels normalize, higher field inventories and lower orders from our channel partners for home standby generators given installation capacity constraints in our distribution network. We also rely on our distribution channels to drive awareness for our product categories and our brands. In addition, we sell our products to end users through private label arrangements with leading home equipment, electrical equipment and construction machinery companies; arrangements with top retailers and equipment rental companies; and our direct national accounts with telecommunications and other industrial customers. Our distribution agreements and any contracts we have with large national, retail and other customers are typically not exclusive, and many of the distributors with whom we do business also offer competitors' products and services.

Impairment of our relationships with our distributors, dealers or large customers, loss of a substantial number of these distributors or dealers or of one or more large customers, or an increase in our distributors' or dealers' sales of our competitors' products to our customers or of our large customers' purchases of our competitors' products could materially reduce our sales and profits. For example, we have had, and may continue to have, disputes with one or more customers, distributors or dealers to whom we sell our products, including clean energy products, and this may reduce or limit the sales growth for such products. In the third quarter of 2022, we had a key clean energy product customer that filed for Chapter 7 bankruptcy, which adversely impacted our clean energy sales in the last six months of the year. Additionally, our ability to successfully realize our growth strategy is dependent in part on our ability to identify, attract and retain new distributors at all layers of our distribution platform, including increasing the number of energy storage distributors, and we cannot be certain that we will be successful in these efforts. For further information, see "Item 1—Business—Distribution Channels and Customers".

We are unable to determine the specific impact of changes in selling prices or changes in volumes or mix of our products on our net sales.

Because of the wide range of products that we sell, the level of customization for many of our products, the frequent rollout of new products, the different accounting systems utilized, and the fact that we do not apply pricing changes uniformly across our entire portfolio of products, we are unable to determine with specificity the effect of volume or mix changes or changes in selling prices on our net sales.

Policy changes affecting international trade could adversely impact the demand for our products and our competitive position.

Changes in government policies on foreign trade and investment can affect the demand for our products, impact the competitive position of our products or prevent us from being able to sell products in certain countries. Our business benefits from free trade agreements, and efforts to withdraw from, or substantially modify such agreements, in addition to the implementation of more restrictive trade policies, such as more detailed inspections, higher tariffs, import or export licensing requirements, exchange controls or new barriers to entry, could have a material adverse effect on our results of operations, financial condition or cash flows. For example, we are experiencing increased tariffs on certain of our products and product components. However, these tariffs have not ultimately had a material adverse effect on our results due to the implementation of various mitigation efforts in conjunction with our supply chain and end market partners. In addition, certain of our products have and may continue to be subject to the imposition of higher duties as a result of anti-dumping and countervailing duties applied against them. To the extent such governmental actions, duties or tariffs are applied to such products, it could adversely affect our results of operations, financial condition and business.

Risk factors related to our operations

The loss of any key members of our senior management team or key employees could disrupt our operations and harm our business.

Our success depends, in part, on the efforts of certain key individuals, including the members of our senior management team, who have significant experience in the energy products and solutions industry. If, for any reason, our senior executives do not continue to be active in management, or if key employees leave our company, our business, financial condition or results of operations could be adversely affected. Failure to continue to attract or retain these individuals at reasonable compensation levels could have a material adverse effect on our business, liquidity and results of operations. If we need to replace any of these individuals in the near future, the loss of the services could disrupt our operations and have a material adverse effect on our business if we do not have effective succession plans in place.

Disruptions caused by labor disputes or organized labor activities could harm our business.

We may from time to time experience union organizing activities in our non-union facilities. Disputes with the current labor union or new union organizing activities could lead to work slowdowns or stoppages and make it difficult or impossible for us to meet scheduled delivery times for product shipments to our customers, which could result in loss of business. In addition, union activity could result in higher labor costs, which could harm our financial condition, results of operations and competitive position. A work stoppage or limitations on production at our facilities for any reason could have an adverse effect on our business, results of operations and financial condition. In addition, many of our suppliers have unionized work forces. Strikes or work stoppages experienced by our customers or suppliers could have an adverse effect on our business, results of operations and financial condition.

We may experience material disruptions to our manufacturing operations.

While we seek to operate our facilities in compliance with applicable rules and regulations and take measures to minimize the risks of disruption at our facilities, a material disruption at one of our manufacturing facilities could prevent us from meeting customer demand, reduce our sales and/or negatively impact our financial results. Any of our manufacturing facilities, or any of our equipment within an otherwise operational facility, could cease operations unexpectedly due to a number of events, including:

- equipment or information technology infrastructure failure;
- disruptions in the transportation infrastructure including roads, bridges, railroad tracks and container ports;
- fires, floods, tornadoes, earthquakes, disease, pandemics, acts of violence, or other catastrophes; and
- other operational problems.

In addition, a significant portion of our manufacturing and production facilities are in Wisconsin within a 100-mile radius of each other. We could experience prolonged periods of reduced production due to unforeseen events occurring in or around our manufacturing facilities in Wisconsin. In the event of a business interruption at our facilities, in particular our Wisconsin facilities, we may be unable to shift manufacturing capabilities to alternate locations, accept materials from suppliers or meet customer shipment needs, among other severe consequences. Such an event could have a material and adverse impact on our financial condition and results of our operations.

We are vulnerable to supply disruptions from single-sourced suppliers.

We single-source certain types of parts in our product designs. Delays in our suppliers' deliveries have impaired, and may continue to impair, our ability to deliver products to our customers. A wide variety of factors could cause such delays including, but not limited to, lack of capacity, economic downturns, availability of credit, logistical challenges, labor or material shortages, trade restrictions, weather events, political instability, wars, terrorism, civil unrest, disease or natural disasters.

We may not realize all of the anticipated benefits of our acquisitions or those benefits may take longer to realize than expected. We may also encounter significant unexpected difficulties in integrating acquired businesses.

Our ability to realize the anticipated benefits of our acquisitions will depend, to a large extent, on our ability to integrate the acquired businesses with our business. The integration of independent businesses is a complex, costly and time-consuming process. Further, integrating and managing businesses with international operations may pose challenges not previously experienced by our management. As a result, we may be required to devote significant management attention and resources to integrating the business practices and operations of any acquired businesses with ours. The integration process may disrupt our business and, if implemented ineffectively, could preclude realization of the full benefits expected by us. Our failure to meet the challenges involved in integrating an acquired business into our existing operations or otherwise to realize the anticipated benefits of the transaction could cause an interruption of, or a loss of momentum in, our activities and could adversely affect our results of operations.

In addition, the overall integration of our acquired businesses may result in material unanticipated problems, expenses, liabilities, competitive responses, loss of customer relationships, and diversion of management's attention, and may cause our stock price to decline. The difficulties of combining the operations of acquired businesses with ours include, among others:

- managing a larger company;
- maintaining employee morale and retaining key management and other employees;
- complying with newly applicable domestic and foreign regulations as we enter new product and geographic markets;
- integrating two business cultures, which may prove to be incompatible;
- the possibility of faulty assumptions underlying expectations regarding the integration process;
- retaining existing customers and attracting new customers;
- consolidating corporate and administrative infrastructures and eliminating duplicative operations;
- the diversion of management's attention from ongoing business concerns and performance shortfalls as a result of management's attention to the acquisition;
- unanticipated issues in integrating information technology, communications and other systems;
- complying with changes in applicable or new laws and regulations;
- managing tax costs or inefficiencies associated with integrating the operations or supply chain of the combined company;
- unforeseen liabilities, expenses or delays associated with the acquisition;
- difficulty comparing financial reports due to differing financial and/or internal reporting systems; and
- making any necessary modifications to internal financial control standards to comply with the Sarbanes-Oxley Act of 2002 and the rules and regulations promulgated thereunder.

Many of these factors will be outside of our control and any one of them could result in increased costs, decreases in the amount of expected revenues and diversion of management's time and energy, which could materially impact our business, financial condition and results of operations. In addition, even if the operations of our acquired businesses are integrated successfully with our operations, we may not realize the full benefits of the transaction, including the synergies, cost savings or sales or growth opportunities that we expect. These benefits may not be achieved within the anticipated time frame, or at all, and additional unanticipated costs may be incurred in the integration or management of our businesses. All these factors could cause dilution to our earnings per share, decrease or delay the expected accretive effect of the acquisition, and cause a decrease in the price of our common stock. As a result, we cannot be assured that the combination of our acquisitions with our business will result in the realization of the full benefits anticipated from the transaction.

A significant portion of our purchased components are sourced in foreign countries, exposing us to additional risks that may not exist in the United States.

We source a significant portion of our purchased components overseas, primarily in Asia and Europe. Our international sourcing subjects us to a number of potential risks in addition to the risks associated with third-party sourcing generally. Such risks include:

- inflation or changes in political and economic conditions;
- logistical challenges, including extended container port congestion, and higher logistics costs;
- unstable regulatory environments;
- changes in import and export duties;
- domestic and foreign customs and tariffs;
- currency rate fluctuations;
- trade restrictions;
- labor or civil unrest;
- disputes in our relationships with certain contract manufacturers or suppliers;
- communications challenges; and
- other restraints and burdensome taxes.

These factors have had in the past and are currently having an adverse effect on our ability to efficiently and cost effectively source our purchased components overseas. In addition, we are experiencing higher logistics costs due to the current challenging supply chain environment. Additionally, if the U.S. dollar were to depreciate significantly against the currencies in which we purchase raw materials from foreign suppliers, our cost of goods sold could increase materially, which would adversely affect our results of operations.

Risk factors related to legal and regulatory matters

As a U.S. corporation that conducts business in a variety of foreign countries, we are subject to the Foreign Corrupt Practices Act and a variety of anti-corruption laws worldwide. A determination that we violated any of these laws may affect our business and operations adversely.

The U.S. Foreign Corrupt Practices Act (FCPA) generally prohibits U.S. companies and their intermediaries from making improper payments to foreign officials for the purpose of obtaining or keeping business. The United Kingdom Bribery Act (UKBA) prohibits domestic and foreign bribery of the private sector as well as public officials. Any determination that we have violated any anti-corruption laws could have a material adverse effect on our financial position, operating results and cash flows.

Costs associated with lawsuits, investigations or adverse rulings in enforcement or other legal proceedings may have an adverse effect on our results of operations.

We are subject to a variety of legal proceedings and legal compliance risks. We currently face risk of exposure to various types of claims, lawsuits and government investigations, and may continue to face such risks in the future. We are currently and, may in the future be, involved in various claims and lawsuits related to product design, safety, manufacture and performance liability, contracts, employment issues, environmental matters, intellectual property rights, tax, securities, regulatory compliance, and other legal proceedings that arise in and outside of the ordinary course of our business. The industries in which we operate are also periodically reviewed or investigated by regulators, and we are subject to and may continue to be subject to such investigations and claims, including by the CPSC and EPA, which could lead to enforcement actions, fines and penalties or the assertion of private litigation claims. For example, on November 30, 2022, the CPSC notified the Company of its intention to recommend the imposition of a penalty for failing to timely submit a report under section 19(a)(4) of the Consumer Product Safety Act (“CPSA”), 15 U.S.C. § 2068(a)(4), in relation to certain portable generators that were subject to a recall announcement on July 29, 2021. In addition, on October 28, 2022, Generac Power received a grand jury subpoena from the U.S. Attorney for the Eastern District of Michigan, as a result of which the Company became aware of an enforcement investigation by the U.S. Department of Justice (“DOJ”). The subpoena requests similar documents and information provided by the Company to the U.S. EPA and the CARB in response to civil document requests related to the Company’s compliance with emissions regulations for approximately 1,850 portable generators produced by the Company in 2019 and 2020 and sold in 2020. The Company is cooperating with both the DOJ and the EPA and CARB inquiries. It is not possible to predict with certainty the outcome of such claims, or any other current or future claims, investigations and lawsuits, and we could in the future incur judgments, fines or penalties or enter into settlements of lawsuits and claims that could have an adverse effect on our reputation, business, results of operations or financial condition in any particular period.

The nature of our operations means that legal and compliance risks will continue to exist and additional legal proceedings and other contingencies, the outcome of which cannot be predicted with certainty, may arise from time to time. In addition, subsequent developments in legal proceedings or investigations may affect our assessment and estimates of loss contingencies recorded as a reserve and require us to make payments in excess of our reserves, which could have an adverse effect on our reputation, business and results of operations or financial condition.

For further information, see footnote “18. Commitments and Contingencies”.

Our operations are subject to various environmental, health and safety laws and regulations, and non-compliance with or liabilities under such laws and regulations could result in substantial costs, fines, sanctions and claims.

Our operations are subject to a variety of foreign, federal, state and local environmental, health and safety laws and regulations including those governing, among other things, emissions to air; discharges to water; noise; and the generation, handling, storage, transportation, treatment and disposal of waste and other materials. In addition, under federal and state environmental laws, we could be required to investigate, remediate and/or monitor the effects of the release or disposal of materials both at sites associated with past and present operations and at third-party sites where wastes generated by our operations were disposed. This liability may be imposed retroactively and whether or not we caused, or had any knowledge of, the existence of these materials and may result in our paying more than our fair share of the related costs. Violations of or liabilities under such laws and regulations could result in substantial costs, fines and civil or criminal proceedings or personal injury and workers' compensation claims.

Our products are subject to substantial government regulation.

Our products are subject to extensive statutory and regulatory requirements governing, among other things, emissions, noise, labeling, transport, product content, product safety, and data privacy, including standards imposed by the EPA, CARB, CPSC and other regulatory agencies around the world. Also, as we increase our connectivity with our products and customers, we may be required to comply with additional data privacy and cybersecurity regulations. For example, personal privacy and data security have become significant issues in the United States, Europe, and in many other jurisdictions in which we operate. The regulatory framework for privacy and security issues worldwide is rapidly evolving and is likely to remain uncertain for the foreseeable future. In the United States, these include rules and regulations promulgated or pending under the authority of federal agencies, state attorneys general, legislatures, and consumer protection agencies. Internationally, many jurisdictions in which we operate have established their own data security and privacy legal framework with which we, relevant suppliers, and customers must comply. Although we have implemented certain policies, procedures, and, in other cases, contractual arrangements designed to facilitate compliance with applicable privacy and data security laws and standards, any inability or perceived inability to adequately address privacy and security concerns, even if unfounded, or comply with applicable privacy and data security laws, regulations, and policies, could result in additional fines, costs, and liabilities to us, damage our reputation, inhibit sales, and adversely affect our business.

These laws are constantly evolving and many are becoming increasingly stringent. As a further example, recent CARB regulations that will prohibit future sales in California of certain small off-road engines may negatively affect the long-term sales of certain products we sell today in that state. In addition, some cities or municipalities have imposed, or are considering, limiting natural gas connections to new buildings or imposing additional permitting restrictions which could adversely affect the sales of certain products we sell in such jurisdictions. Changes in applicable laws or regulations, or in the enforcement thereof, could require us to redesign or recall our products and could adversely affect our business or financial condition in the future. Developing and marketing products to meet such new requirements could result in substantial additional costs that may be difficult to recover in some markets. In some cases, we may be required to modify our products or develop new products to comply with new regulations, particularly those relating to air emissions and carbon monoxide. Typically, additional costs associated with significant compliance modifications are passed on to the market.

We have also recently been, and continue to be, subject to product recall actions and related applicable regulatory compliance inquiries by regulatory authorities. The failure to comply with existing and future regulatory standards or requirements could adversely affect our position in the markets we serve, our reputation, business, results of operations or financial condition in any particular period.

Risk factors related to cybersecurity

Failures or security breaches of our networks or information technology systems could have an adverse effect on our business.

We rely heavily on information technology (IT) both in our products and services for customers and in our IT systems used to run our business. Further, we collect and store sensitive information in cloud-based data centers and on our networks. Government agencies and security experts have warned about growing risks of hackers, cyber-criminals, malicious insiders and other actors targeting confidential information and all types of IT systems. These actors may engage in fraudulent activities, theft of confidential or proprietary information and sabotage or ransomware.

Our IT systems, our connected products, and our confidential information may be vulnerable to damage or intrusion from a variety of attacks including computer viruses, worms or other malicious software programs. The risk of such attacks may increase as we integrate newly acquired companies or develop new connected products and related software. These attacks pose a risk to the security of our products, private data, systems and networks and those of our customers, suppliers and third-party service providers, as well as to the confidentiality of our information and the integrity and availability of our data. While we attempt to mitigate these risks through board oversight, hiring additional internal cyber-security professionals to manage these risks, enhancing controls, due diligence, employee training and communication, third party intrusion testing, system hardening, email and web filters, regular patching, multi-factor authentication, surveillance, encryption, and other measures, we remain vulnerable to information security threats.

We monitor certain cyber security threats and vulnerabilities in our systems, and we have experienced viruses and attacks targeting our IT systems and networks. Such prior events, to date, have not had a material impact on our financial condition, results of operations or liquidity. Despite the precautions we take, we have had, and could have again, an intrusion or infection of our systems or connected products. While such intrusions or infections to date have not resulted in the significant disruption of our business, or a loss of proprietary or confidential information, we cannot guarantee the same for future intrusions or infections. Similarly, an attack on our IT systems or connected products could result in theft or disclosure of trade secrets or other intellectual property, a breach of confidential customer or employee information, or product failure or misuse. Any such events could have an adverse impact on sales, harm our reputation and cause us to incur legal liability and increased costs to address such events and related security concerns. As the threats evolve and become more potent, we may incur additional costs to secure the products that we sell, as well as our data and infrastructure of networks and devices.

Risk factors related to COVID-19

The duration and scope of the impacts of the COVID-19 pandemic are uncertain and may continue to adversely affect our operations, supply chain, distribution, and demand for certain of our products and services.

The global outbreak of COVID-19 and related variants has created and may continue to create significant uncertainty within the global markets that we serve to the extent the COVID-19 outbreak may continue to spread, including the impact of identified or potential new variants. We have operations, customers and suppliers in countries significantly impacted by COVID-19. Governmental authorities around the world have taken or may take again in the future a variety of measures to slow the spread of COVID-19, including travel bans or restrictions, increased border controls or closures, quarantines, shelter-in-place orders and business shutdowns and such authorities may impose additional restrictions in the future. We have also taken actions to protect our employees and to mitigate the spread of COVID-19 within our business. There can be no assurance that the measures implemented by governmental authorities or our own actions will be effective or achieve their desired results in a timely fashion.

The impact of COVID-19 has resulted in and may in the future result in disruptions to our manufacturing operations and supply chain, which could negatively impact our ability to meet customer demand. Our forward-looking statements assume that our production facilities, supply chain and distribution partners continue to operate during the pandemic. To date, we have been able to operate the majority of our facilities. If we were to encounter a significant work stoppage, disruption, or outbreak due to COVID-19 at one or more of our locations or suppliers, we may not be able to satisfy customer demand for a period of time.

Furthermore, the impact of COVID-19 on the economy, demand for our products and impacts to our operations, including the measures taken by governmental authorities to address it, may precipitate or exacerbate other risks and/or uncertainties, including specifically many of the risk factors set forth in this Annual Report, including inflationary costs, disruptions due to labor shortages, supply chain disruptions, and risks related to the fair market value of intangible assets that could lead to an impairment, which may have a significant impact on the Company's operating results and financial condition, although we are unable to predict the extent or nature of these impacts at this time.

Risk factors related to our capital structure

We have indebtedness which could adversely affect our cash flow and our ability to make payments on our indebtedness.

As of December 31, 2022 we had total indebtedness of \$1,430.8 million. Our level of indebtedness increases the possibility that we may be unable to generate cash sufficient to pay, when due, the principal of, interest on or other amounts due in respect of our indebtedness. While we maintain interest rate swaps covering a portion of our outstanding debt, our interest expense could increase if interest rates increase because debt under our credit facilities bears interest at a variable rate based on Secured Overnight Financing Rate (SOFR) or other base rate. In connection with our credit agreement amendment in June 2022, SOFR became the new benchmark interest rate for the new Tranche A Term Loan Facility and the Revolving Facility, and all LIBOR provisions applicable to the existing Tranche B Term Loan Facility were replaced with SOFR provisions. If we do not have sufficient earnings to service our debt, we may be required to refinance all or part of our existing debt, sell assets, borrow more money or sell securities, none of which we can guarantee we will be able to do. Our Term Loan B matures on December 13, 2026, and our Term Loan A as well as our Revolving Facility mature on June 29, 2027.

The terms of our credit facilities restrict our current and future operations, particularly our ability to respond to changes in our business or to take certain actions.

Our credit facilities contain, and any future indebtedness of ours or our subsidiaries would likely contain, a number of restrictive covenants that impose operating and financial restrictions on us and our subsidiaries, including limitations on our ability to engage in acts that may be in our best long-term interests. These restrictions set limitations on, among other things, our ability to:

- incur liens;
- incur or assume additional debt or guarantees or issue preferred stock;
- pay dividends, or make redemptions and repurchases, with respect to capital stock;
- prepay, or make redemptions and repurchases of, subordinated debt;
- make loans and investments;
- make capital expenditures;
- engage in mergers, acquisitions, asset sales, sale/leaseback transactions and transactions with affiliates;
- change the business conducted by us or our subsidiaries; and
- amend the terms of subordinated debt.

The operating and financial restrictions in our credit facilities and any future financing agreements may adversely affect our ability to finance future operations or capital needs or to engage in other business activities. A breach of any of the restrictive covenants in our credit facilities would result in a default. If any such default occurs, the lenders under our credit facilities may elect to declare all outstanding borrowings, together with accrued interest and other fees, to be immediately due and payable, or enforce their security interest, any of which would result in an event of default. The lenders will also have the right in these circumstances to terminate any commitments they have to provide further borrowings. Our existing credit facilities do not contain any financial maintenance covenants.

We may need additional capital to finance our growth strategy or to refinance our existing credit facilities, and we may not be able to obtain it on acceptable terms, or at all, which may limit our ability to grow.

We may require additional financing to expand our business. Financing may not be available to us or may be available to us only on terms that are not favorable. The terms of our senior secured credit facilities limit our ability to incur additional debt. In addition, economic conditions, including a downturn in the credit markets, could impact our ability to finance our growth on acceptable terms or at all. If we are unable to raise additional funds or obtain capital on acceptable terms, we may have to delay, modify or abandon some or all of our growth strategies. In the future, if we are unable to refinance our credit facilities on acceptable terms, our liquidity could be adversely affected.

Our total assets include goodwill and other indefinite-lived intangibles. If we determine these have become impaired, our net income could be materially adversely affected.

Goodwill represents the excess of cost over the fair market value of net assets acquired in business combinations. Indefinite-lived intangibles are comprised of certain tradenames. At December 31, 2022, goodwill and other indefinite-lived intangibles totaled \$1,529.2 million. We review goodwill and other intangibles at least annually for impairment and any excess in carrying value over the estimated fair value is charged to the statement of comprehensive income. Future impairment may result from, among other things, deterioration in the performance of an acquired business or product line, adverse market conditions, a significant increase in interest rate, changes in the competitive landscape, adverse changes in applicable laws or regulations, including changes that restrict the activities of an acquired business or product line, and a variety of other circumstances including any of the risk factors noted above. A reduction in net income resulting from the write-down or impairment of goodwill or indefinite-lived intangibles could have a material adverse effect on our financial statements. Refer to the Critical Accounting Policies and Estimates in Item 7 of this Annual Report on Form 10-K for further information regarding the Company's process for evaluating its goodwill for impairment.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

We own or lease manufacturing, distribution, R&D, and office facilities globally totaling over five million square feet. We also utilize third party inventory warehouses that accommodate material storage and rapid response requirements of our customers. The following table provides information about our principal owned or leased facilities exceeding 20,000 square feet:

Location	Owned/ Leased	Activities	Segment
Waukesha, WI	Owned	Corporate headquarters, R&D	Domestic
Pewaukee, WI	Owned	Sales, office	Domestic
Eagle, WI	Owned	Manufacturing, office, training	Domestic
Whitewater, WI	Owned	Manufacturing, office, distribution	Domestic
Oshkosh, WI	Owned	Manufacturing, office, warehouse, R&D	Domestic
Berlin, WI	Owned	Manufacturing, office, warehouse, R&D	Domestic
Jefferson, WI	Owned	Manufacturing, office, distribution, R&D	Domestic
Janesville, WI	Leased	Distribution	Domestic
Richfield, WI	Leased	Warehouse	Domestic
Trenton, SC	Owned	Manufacturing, office, warehouse, distribution	Domestic
Stockton, CA	Leased	Sales, office, warehouse, training	Domestic
Corona, CA	Leased	Sales, office, storage	Domestic
Hamilton, OH	Leased	Manufacturing, office, warehouse, R&D	Domestic
Maquoketa, IA	Owned	Storage, rental property	Domestic
South Burlington, VT	Leased	Office, sales, R&D	Domestic
South Portland, ME	Leased	Sales, office, R&D	Domestic
Marlborough, MA	Leased	Sales, office, warehouse	Domestic
Toronto, Canada	Leased	Office, sales, R&D	Domestic
Mexico City, Mexico	Owned	Storage	International
Hidalgo, Mexico	Owned	Manufacturing, sales, distribution, warehouse, office, R&D	International
Casole d'Elsa, Italy	Leased	Manufacturing, office, warehouse, R&D	International
Balsicas, Spain	Leased	Manufacturing, office, warehouse, R&D	International
Foshan, China	Owned	Manufacturing, office, warehouse, R&D	International
Saint-Nizier-sous-Charlieu, France	Leased	Sales, office, warehouse	International
Cravinhos, Brazil	Leased	Manufacturing, office, warehouse	International
Stoke-on-Trent, United Kingdom	Leased	Sales, office, warehouse	International
Sydney, Australia	Leased	Sales, office, warehouse	International
Fellbach, Germany	Leased	Sales, office, warehouse	International
Suzhou, China	Leased	Office, R&D	International
Rugby, United Kingdom	Leased	Manufacturing, office, warehouse, R&D	International
Celle, Germany	Leased	Manufacturing, office, warehouse, R&D	International
Charzyno, Poland	Owned	Manufacturing	International
West Bengal, India	Leased	Manufacturing, warehouse	International
Villanova d'Ardenghi, Italy	Owned	Manufacturing, warehouse	International
Hunmanby, United Kingdom	Owned	Manufacturing, warehouse, sales, distribution, office, R&D	International

In addition to the countries represented above, the Company has other operations or sales offices in the United Arab Emirates, Romania, Bahrain, and Colombia.

As of December 31, 2022, substantially all of our domestically-owned and a portion of our internationally-owned properties are subject to collateral provisions under our senior secured credit facilities.

Item 3. Legal Proceedings

[See Note 18, "Commitments and Contingencies," to the consolidated financial statements in Item 8 of this Annual Report on Form 10-K for further information on the Company's legal proceedings.](#)

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**

Shares of our common stock are traded on the New York Stock Exchange (NYSE) under the symbol "GNRC."

Purchases of Equity Securities By the Issuer and Affiliated Purchasers

The following table summarizes the stock repurchase activity for the three months ended December 31, 2022, which consisted of stock repurchases made as authorized under previously announced stock repurchase programs, as well as the withholding of shares upon the vesting of restricted stock awards to pay related withholding taxes on behalf of the recipient:

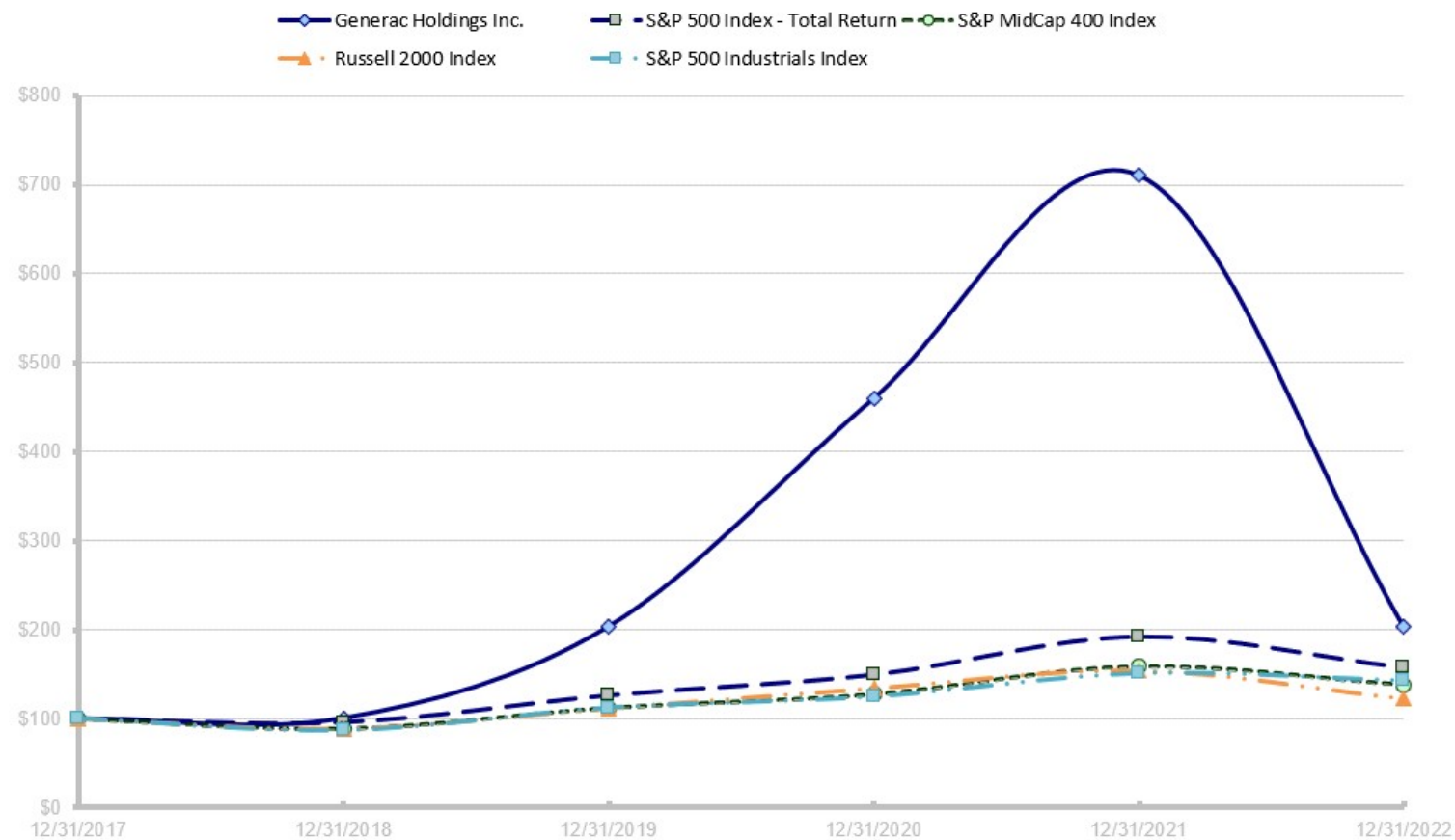
	<u>Total Number of Shares Purchased</u>	<u>Average Price Paid per Share</u>	<u>Total Number Of Shares Purchased As Part Of Publicly Announced Plans Or Programs</u>	<u>Approximate Dollar Value Of Shares That May Yet Be Purchased Under The Plans Or Programs</u>
10/01/22 - 10/31/22	1,394	\$ 158.98	-	\$ 500,000,000
11/01/22 - 11/30/22	1,070,647	104.75	1,070,183	\$ 387,897,261
12/01/22 - 12/31/22	1,116,456	98.49	1,115,191	\$ 278,059,869
Total	<u>2,188,497</u>	\$ 101.59	<u>2,185,374</u>	

For equity compensation plan information, refer to Note 17, "Share Plans," to the consolidated financial statements in Item 8 of this Annual Report on Form 10-K. For information on the Company's stock repurchase plans, refer to Note 13, "Stock Repurchase Programs," to the consolidated financial statements.

Stock Performance Graph

The line graph below compares the cumulative total stockholder return on our common stock with the cumulative total return of the Standard & Poor's ("S&P 500") Index, the S&P MidCap 400 Index, the Russell 2000 Index, and the S&P 500 Industrial Index, for the five-year period ended December 31, 2022. The graph and table assume that \$100 was invested on December 31, 2017 in each of our common stock, the S&P 500 Index, the S&P MidCap 400 Index, the Russell 2000 Index, and the S&P 500 Industrial Index, and that all dividends were reinvested. Cumulative total stockholder returns for our common stock, the S&P 500 Index, the S&P MidCap 400 Index, the Russell 2000 Index, and the S&P 500 Industrial Index, are based on our fiscal year. We commenced reporting the S&P 500 Industrial Index as our industry index and will not be reporting the Russell 2000 Index in future filings.

COMPARISON OF CUMULATIVE TOTAL RETURN



ASSUMES \$100 INVESTED ON DEC. 31, 2017
ASSUMES DIVIDEND REINVESTED
FISCAL YEAR ENDING DEC. 31, 2022

Company / Market / Peer Group	12/31/2017	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Generac Holdings Inc.	\$100.00	\$100.35	\$203.08	\$459.04	\$710.28	\$203.14
S&P 500 Index - Total Returns	100.00	95.62	125.72	148.85	191.58	156.88
S&P MidCap 400 Index	100.00	88.92	112.21	127.54	159.12	138.34
Russell 2000 Index	100.00	88.99	111.70	134.00	153.85	122.41
S&P 500 Industrials Index	100.00	86.71	112.17	124.59	150.89	142.63

Holders

As of February 17, 2023, there were 1,048 registered holders of record of Generac's common stock. A substantially greater number of holders of Generac common stock are "street name" or beneficial holders, whose shares are held of record by banks, brokers and other financial institutions.

Dividends

We do not have plans to pay dividends on our common stock in the foreseeable future. However, in the future, subject to factors such as general economic and business conditions, our financial condition and results of operations, our capital requirements, our future liquidity and capitalization, and other such factors that our Board of Directors may deem relevant, we may change this policy and choose to pay dividends. Our ability to pay dividends on our common stock is currently limited by the terms of our senior secured credit facilities and may be further restricted by any future indebtedness we incur. Dividends from, and cash generated by our subsidiaries will be our principal sources of cash to repay indebtedness, fund operations, repurchase shares of common stock and pay dividends. Accordingly, our ability to pay dividends to our stockholders is dependent on the earnings and distributions of funds from our subsidiaries.

Securities Authorized for Issuance Under Equity Compensation Plans

For information on securities authorized for issuance under our equity compensation plans, refer to "Item 12 - Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters," which is incorporated herein by reference.

Recent Sales of Unregistered Securities

None.

Use of Proceeds from Registered Securities

Not applicable.

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

The following discussion and analysis of our financial condition and results of operations should be read together with “Item 1 – Business,” the consolidated financial statements and the related notes thereto in Item 8 of this Annual Report on Form 10-K. This discussion contains forward-looking statements, based on current expectations and related to future events and our future financial performance, that involve risks and uncertainties. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of many factors, including those set forth under “Item 1A. - Risk Factors.”

Overview

Generac is a leading energy technology solutions company that provides backup and prime power generation systems for residential and commercial & industrial (C&I) applications, solar + battery storage solutions, smart home energy management devices and energy services, advanced power grid software platforms, and engine- & battery-powered tools and equipment. As an energy technology solutions company that is “Powering a Smarter World”, our corporate purpose is to lead the evolution to more resilient, efficient, and sustainable energy solutions around the world.

Further information regarding our business is provided in “Part I, Item 1. Business” of this Annual Report.

Business Drivers and Operational Factors

“Part I, Item 1. Business” of this Annual Report contains information regarding business drivers, including key mega-trends and strategic growth themes under the subheading “Mega-Trends, Strategic Growth Themes, and Additional Business Drivers.”

Factors Affecting Results of Operations

We are subject to various factors that can affect our results of operations, which we attempt to mitigate through factors we can control, including continued product development, expanded distribution, pricing, cost control and hedging. Certain operational and other factors that affect our business include the following:

Effect of commodity, currency, component price fluctuations, and resource availability. Industry-wide price fluctuations of key commodities, such as steel, copper and aluminum, and other components we use in our products, as well as changes in labor costs required to produce our products, can have a material impact on our results of operations. Acquisitions in recent years have increased our use of advanced electronic components and battery cells, as well as further expanded our commercial and operational presence outside of the United States. Our international acquisitions, and our existing global supply chain, expose us to fluctuations in foreign currency exchange rates and regulatory tariffs that can also have a material impact on our results of operations. Additionally, significant volatility in raw material prices and other costs, ongoing logistics challenges, and various supply chain constraints, are leading to fluctuations in input costs and delays for certain of our products that are adversely impacting our margins.

We have historically attempted to mitigate the impact of inflationary pressures through improved product design and sourcing, manufacturing efficiencies, price increases, and select hedging transactions. We have implemented multiple price increases to help mitigate the impact of rising costs, and we continued to realize the benefit of these pricing actions in 2022. Our results are also influenced by changes in fuel prices in the form of higher freight rates, which in some cases are accepted by our customers and in other cases are absorbed by us.

Seasonality. Although there is demand for our products throughout the year, in each of the past five years, approximately 19% to 25% of our net sales occurred in the first quarter, 22% to 28% in the second quarter, 24% to 28% in the third quarter and 23% to 31% in the fourth quarter, with different seasonality depending primarily on the occurrence, timing and severity of major power outage activity in each year. Major outage activity is unpredictable by nature and, as a result, our sales levels and profitability may fluctuate from period to period. The seasonality experienced during a major power outage, and for the subsequent quarters following the event, will vary relative to other periods where no major outage events occurred. For Residential products, we are currently experiencing higher field inventories of home standby generators given installation capacity constraints in our distribution network that has resulted in lower orders from our channel partners in the second half of 2022, and this headwind is expected to persist into the first half of 2023, resulting in expected lower seasonality weighting in the first half of 2023 relative to historical norms.

Russia-Ukraine Conflict. In February 2022, Russia commenced military action against Ukraine. In response, the U.S. and certain other countries imposed significant sanctions and export controls against Russia, Belarus and certain individuals and entities connected to Russian or Belarusian political, business, and financial organizations. In March 2022, we announced our suspension of operations and sales in Russia. Our sales to customers in Russia and Ukraine represented less than 1% of our total revenue for the year ended December 31, 2021, and therefore the impact on our financial results is not expected to be material. However, the situation remains uncertain and it is difficult to predict the impact that the conflict and actions taken in response to it will have on our business. In particular, the situation could increase our costs, disrupt our supply chain, significantly hinder our ability to find materials or key single-sourced components we need to make certain products, or otherwise adversely affect our business and results of operations.

Impact of the COVID-19 pandemic. The COVID-19 pandemic has influenced various trends we have experienced and may experience in future periods involving supply chain and operations constraints. We manufacture and provide essential products and services to a variety of critical infrastructure customers around the globe. Substantially all of our operations and production activities have been operational during the pandemic. If we were to encounter a significant work stoppage, disruption, or COVID-19 outbreak at one or more of our locations or suppliers, we may not be able to satisfy customer demand for a period of time. To date, we have experienced various interruptions to our supply chain as a result of the COVID-19 pandemic. We have experienced inbound and outbound logistics delays and increased costs; however, we continue to monitor scheduled material receipts to mitigate these delays. This could change if freight carriers are delayed or not able to operate.

The future impact of COVID-19 on our business is dependent on future developments, including the duration of the pandemic, our ability to continue to operate during the pandemic, actions taken by domestic and foreign governments to contain the spread of the virus, and the related length of its impact on the global economy and our customers. Refer to the COVID-19 related risk factor disclosed in “Item 1A. Risk Factors” of this Annual Report on Form 10-K.

Factors influencing interest expense. Interest expense can be impacted by a variety of factors, including market fluctuations in SOFR, interest rate election periods, interest rate swap agreements, repayments or borrowings of indebtedness, and amendments to our credit agreements. In connection with our credit agreement amendment in June 2022, SOFR became the new benchmark interest rate for the new Tranche A Term Loan Facility and the Revolving Facility, and all LIBOR provisions applicable to the existing Tranche B Term Loan Facility were replaced with SOFR provisions. Interest expense increased during 2022 compared to 2021, primarily due to increased borrowings, higher interest rates, and interest accretion on contingent acquisition consideration. Refer to Note 12, “Credit Agreements,” to the consolidated financial statements in Item 8 of this Annual Report on Form 10-K for further information.

Factors influencing provision for income taxes and cash income taxes paid. As of December 31, 2021, the tax-deductible goodwill and intangible assets from our acquisition by CCMP Capital Advisors, LLC in 2006 were fully amortized. The expiration of this tax shield resulted in a higher cash income tax obligation in 2022 and will continue to result in a higher income tax obligation on a go-forward basis.

On August 16, 2022, the U.S. government enacted the Inflation Reduction Act (the Act). The Act in part provides funding and tax incentives for certain clean energy products and projects. While the Act did not impact 2022 second half results, we will continue to review the Act and any regulations or guidance issued by the U.S. Treasury Department or by a state which may provide a tax benefit or expense. We will update our future tax provisions based on new regulations or guidance accordingly.

Components of Net Sales and Expenses

Net Sales

Our net sales primarily consist of product sales to our customers. This includes sales of our power generation equipment, energy storage systems, and other power products to the residential, commercial and industrial markets, as well as service parts to our dealer network. Net sales also include shipping and handling charges billed to customers, with the related freight costs included in cost of goods sold. Additionally, we offer other services, including extended warranties, installation, maintenance, data center and telecom design and build, remote monitoring, and grid services to utilities in certain circumstances. These services accounted for less than 3% of our net sales for the year ended December 31, 2022. Refer to Note 2, “Summary of Accounting Policies - Revenue Recognition,” to the consolidated financial statements in Item 8 of this Annual Report on Form 10-K for further information on our revenue streams and related revenue recognition accounting policies.

We are not dependent on any one channel or customer for our net sales, with no single customer representing more than 4% of our sales, and our top ten customers representing less than 20% of our net sales in aggregate for the year ended December 31, 2022.

Costs of Goods Sold

The principal elements of costs of goods sold are component parts, raw materials, inbound and outbound freight, factory overhead and labor. Component parts and raw materials comprised approximately 72% of costs of goods sold for the year ended December 31, 2022. The principal component parts are engines, alternators, batteries, electronic controls, and steel enclosures. We design and manufacture air-cooled engines for certain of our generators up to 26kW, along with certain liquid-cooled, natural gas engines. We source engines for certain of our smaller products and all of our diesel products. For certain natural gas engines, we source the base engine block, and then add a significant amount of value engineering, sub-systems and other content to the point that we are recognized as the original equipment manufacturer (OEM) of those engines. We design and manufacture many of the alternators for our generators. We also manufacture other generator components where we believe we have a design and cost advantage. We source component parts from an extensive global network of reliable, high-quality suppliers. In some cases, these relationships are proprietary. For certain energy technology products, we source these products complete from certain contract manufacturers.

The principal sourced raw materials used in the manufacturing process are steel, copper and aluminum. We are susceptible to fluctuations in the cost of these commodities, impacting our costs of goods sold. We seek to mitigate the impact of commodity prices on our business through a continued focus on global sourcing, product design improvements, manufacturing efficiencies, price increases and select hedging transactions. We are also impacted by foreign currency fluctuations given our global supply chain. There is typically a lag between raw material price fluctuations and their effect on our costs of goods sold.

In 2021 and 2022, we experienced higher input costs resulting from supply chain challenges and the overall inflationary environment, including increased commodity prices, logistics costs, and labor. We have implemented multiple price increases to help mitigate the impact of these rising commodity costs, and the realization of these price increases have partially offset the higher input costs.

The balance of cost of goods sold include our manufacturing and warehousing facilities, factory overhead, labor and shipping costs. Factory overhead includes utilities, insurance, support personnel, depreciation, general supplies, and maintenance. Although we attempt to maintain a flexible manufacturing cost structure, our margins can be impacted if we cannot timely adjust labor and manufacturing costs to match fluctuations in net sales.

Operating Expenses

Our operating expenses consist of costs incurred to support our sales, marketing, distribution, service parts, warranty, engineering, information systems, human resources, accounting, finance, risk management, legal and tax functions, among others. These expenses include personnel costs such as salaries, bonuses, employee benefit costs, payroll taxes, and share-based compensation cost, and are classified into three categories: selling and service, research and development, and general and administrative. Additionally, the amortization expense related to our finite-lived intangible assets is included within operating expenses.

Selling and service. Our selling and service expenses consist primarily of personnel expense, marketing expense, standard assurance warranty expense, bad debt provisions, and other sales expenses. Our personnel expense recorded in selling and services expenses includes the expense of our sales force and other personnel involved in the marketing, sales and service of our products. Standard warranty expense is estimated based on historical trends or based on specific warranty matters as they become known and reasonably estimable. Our marketing expenses include media advertising, promotional expenses, co-op advertising costs, direct mail costs, printed material costs, product display costs, market research expenses, and trade show expenses. Marketing expenses are generally related to the launch of new product offerings, opportunities to create market awareness for our products, and general brand awareness marketing efforts.

Research and development. Our research and development expenses include mechanical engineering, electronics engineering, and software development costs and they support numerous projects covering all of our product lines. They also support our connectivity, grid services, remote monitoring, and energy management initiatives. We operate engineering facilities with extensive capabilities at many locations globally and employ approximately 1,000 personnel with focus on new product development, existing product improvement and cost containment. We are committed to research and development and rely on a combination of patents and trademarks to establish and protect our proprietary rights. Our research and development costs are expensed as incurred.

General and administrative. Our general and administrative expenses include personnel costs for general and administrative employees; accounting, legal and professional services fees; information technology costs; insurance; travel and entertainment expense; adjustments to contingent acquisition consideration; and other corporate expenses.

Acquisition related costs. Acquisition related costs are external costs incurred in connection with a business combination including legal fees, professional and advisory services, stamp tax, and indemnity and warranty insurance premiums.

Amortization of intangibles. Our amortization of intangibles expense includes the straight-line amortization of finite-lived tradenames, customer lists, patents and technology, and other intangibles assets.

Other (Expense) Income

Other (expense) income includes the interest expense on our outstanding borrowings, amortization of debt financing costs and original issue discount, and interest accretion on contingent acquisition consideration. Other (expense) income also includes other financial items such as losses on extinguishment of debt, investment income earned on our cash and cash equivalents, and gains/losses on the sale of certain investments.

Results of Operations

A detailed discussion of the year-over-year changes from the Company's fiscal 2020 to fiscal 2021 can be found in the Management's Discussion and Analysis section of the Company's fiscal 2021 Annual Report on Form 10-K filed February 22, 2022.

Year ended December 31, 2022 compared to year ended December 31, 2021

The following table sets forth our consolidated statement of operations data for the periods indicated:

(U.S. Dollars in thousands)	Year Ended December 31,		\$ Change	% Change
	2022	2021		
Net sales	\$ 4,564,737	\$ 3,737,184	827,553	22.1%
Cost of goods sold	3,042,733	2,377,102	665,631	28.0%
Gross profit	1,522,004	1,360,082	161,922	11.9%
Operating expenses:				
Selling and service	496,260	319,020	177,240	55.6%
Research and development	159,774	104,303	55,471	53.2%
General and administrative	194,861	144,272	50,589	35.1%
Acquisition related costs	1,459	21,465	(20,006)	-93.2%
Amortization of intangible assets	103,320	49,886	53,434	107.1%
Total operating expenses	955,674	638,946	316,728	49.6%
Income from operations	566,330	721,136	(154,806)	-21.5%
Total other expense, net	(57,864)	(29,610)	(28,254)	95.4%
Income before provision for income taxes	508,466	691,526	(183,060)	-26.5%
Provision for income taxes	99,596	134,957	(35,361)	-26.2%
Net income	408,870	556,569	(147,699)	-26.5%
Net income attributable to noncontrolling interests	9,368	6,075	3,293	54.2%
Net income attributable to Generac Holdings Inc.	\$ 399,502	\$ 550,494	(150,992)	-27.4%

The following sets forth our reportable segment information for the periods indicated:

(U.S. Dollars in thousands)	Net Sales by Reportable Segment			
	Year Ended December 31,		\$ Change	% Change
	2022	2021		
Domestic	\$ 3,867,866	\$ 3,164,050	\$ 703,816	22.2%
International	696,871	573,134	123,737	21.6%
Total net sales	\$ 4,564,737	\$ 3,737,184	\$ 827,553	22.1%

	Total Sales by Reportable Segment					
	Year Ended December 31, 2022			Year Ended December 31, 2021		
	External Net Sales	Intersegment Sales	Total Sales	External Net Sales	Intersegment Sales	Total Sales
Domestic	\$ 3,867,866	\$ 60,731	\$ 3,928,597	\$ 3,164,050	\$ 39,339	\$ 3,203,389
International	696,871	93,699	790,570	573,134	26,123	599,257
Intercompany elimination	-	(154,430)	(154,430)	-	(65,462)	(65,462)
Total net sales	\$ 4,564,737	\$ -	\$ 4,564,737	\$ 3,737,184	\$ -	\$ 3,737,184

	Adjusted EBITDA by Reportable Segment			
	Year Ended December 31,		\$ Change	% Change
	2022	2021		
Domestic	\$ 716,302	\$ 795,417	\$ (79,115)	-9.9%
International	109,065	66,008	43,057	65.2%
Total Adjusted EBITDA	\$ 825,367	\$ 861,425	\$ (36,058)	-4.2%

The following table sets forth our net sales by product class for the periods indicated:

(U.S. Dollars in thousands)	Net Sales by Product Class			
	Year Ended December 31,		\$ Change	% Change
	2022	2021		
Residential products	\$ 2,911,871	\$ 2,456,765	\$ 455,106	18.5%
Commercial & industrial products	1,260,737	998,998	261,739	26.2%
Other	392,129	281,421	110,708	39.3%
Total net sales	\$ 4,564,737	\$ 3,737,184	\$ 827,553	22.1%

Net sales. The increase in Domestic segment sales for the year ended December 31, 2022 was primarily driven by growth in residential product sales, highlighted by a robust increase in home standby generator shipments in the first three quarters of the year. Home standby generator sales decreased in the fourth quarter compared to the prior year due to higher field inventories and lower home standby generator orders from our channel partners given installation capacity constraints in our distribution network. In addition, sales of clean energy products declined compared to the prior year in the second half of 2022 due to the loss of a key customer that filed for bankruptcy. C&I product sales also grew at a robust rate during the year with strength across all channels, including national rental equipment, telecom, and industrial distribution customers.

The increase in International segment sales for the year ended December 31, 2022 was driven by strong growth across all major regions as compared to the prior year, most notably in Europe and Latin America. This was partially offset by unfavorable foreign exchange impacts of approximately \$43 million.

In addition, total contribution from non-annualized acquisitions for the year ended December 31, 2022 was \$271.6 million, including \$213.7 million for the domestic segment and \$57.9 million for the international segment.

Gross profit. Gross profit margin for the year ended December 31, 2022 was 33.3% compared to 36.4% for the year ended December 31, 2021. The gross profit margin decrease was primarily driven by higher input costs resulting from supply chain challenges and the overall inflationary environment. These higher costs were partially offset by favorable price realization of previously implemented pricing actions.

Operating expenses. Operating expenses increased \$316.7 million, or 49.6%, as compared to the prior year. The increase includes pre-tax charges comprised of \$17.9 million of provision for a credit loss related to a clean energy product customer that filed for bankruptcy, and \$37.3 million of provision for clean energy product warranty-related matters, and a provision of \$10.0 million for a specific pending and unresolved matter with the CPSC concerning the imposition of potential penalty fines for allegedly failing to timely submit a report under the CPSA in relation to certain portable generators that were subject to a voluntary recall previously announced on July 29, 2021. In addition, amortization of intangibles increased \$53.4 million over the prior year. The remaining increase was primarily driven by the impact of recurring operating expenses from recent acquisitions, increased employee costs, and additional variable expenses from increased sales volumes. These increases were partially offset by lower acquisition-related transaction costs compared to the prior year.

Other expense. The increase in other expense was driven by higher interest costs due to increased borrowings and interest rates compared to the prior year, higher interest accretion on contingent acquisition consideration in the current year, and a \$3.7 million loss on extinguishment of debt incurred in the second quarter of 2022.

Provision for income taxes. The effective income tax rates for the years ended December 31, 2022 and 2021 were 19.6% and 19.5%, respectively. The slight increase in the effective tax rate was primarily due to a lower net stock compensation deduction reported in the current year compared to the prior year. This was largely offset by prior year non-deductible transaction fees and a discrete tax item created by a legislative increase in the tax rate in a foreign jurisdiction which revalued certain deferred tax liabilities reported in the prior year.

Net income attributable to Generac Holdings Inc. Net income attributable to Generac Holdings Inc. was \$399.5 million as compared to \$550.5 million in the prior year period. The decrease was primarily driven by lower gross profit margin, increased expenses, and other items noted above.

Adjusted EBITDA. Adjusted EBITDA is defined and reconciled to net income in, “Non-GAAP Measures - Adjusted EBITDA” included below in Item 7 of this Annual Report on Form 10-K. Adjusted EBITDA margins for the Domestic segment for the year ended December 31, 2022 were 18.2% of domestic segment total sales as compared to 24.8% of domestic segment total sales for the year ended December 31, 2021. The Adjusted EBITDA margin decrease was driven by higher input costs, partially offset by pricing benefits. In addition, continued operating expense investments for future growth and the impact of acquisitions had an unfavorable impact on margins during the current year. Adjusted EBITDA margins for the International segment, before deducting for non-controlling interests, for the year ended December 31, 2022 were 13.8% of international segment total sales as compared to 11.0% of international segment total sales for the year ended December 31, 2021. The Adjusted EBITDA margin increase was driven by the positive impact of recent acquisitions and improved operating leverage on increased sales volumes.

Adjusted net income. Adjusted Net Income is defined and reconciled to net income in, “Non-GAAP Measures - Adjusted Net Income” included below in Item 7 of this Annual Report on Form 10-K. Adjusted Net Income of \$538.8 million for the year ended December 31, 2022 decreased 12.9% from \$618.9 million for the year ended December 31, 2021. This decrease was driven by decreased net income due to the factors outlined above, partially offset by the impact of various add-backs in the 2022 period.

Liquidity and Financial Position

Our primary cash requirements include payment for our raw materials and components, salaries & benefits, facility and lease costs, operating expenses, interest and principal payments on our debt and capital expenditures. We finance our operations primarily through cash flow generated from operations and, if necessary, borrowings under our revolving credit facility.

Our credit agreements originally provided for a \$1.2 billion term loan B credit facility (Tranche B Term Loan Facility) and currently include a \$300.0 million uncommitted incremental term loan facility. Additionally, our credit agreements also previously provided for a \$500.0 million ABL facility (ABL Facility) that was paid off and terminated in June 2022.

In June 2022, we amended and restated our existing credit agreements (Amended Credit Agreement) resulting in a term loan facility in an aggregate principal amount of \$750 million (Tranche A Term Loan Facility and, together with the Tranche B Term Loan Facility, the “Term Loans”), established a new revolving facility in an aggregate principal amount of \$1.25 billion (Revolving Facility), terminated the ABL Facility, and replaced all LIBOR provisions to the existing Tranche B Term Loan Facility with SOFR provisions. Proceeds received from the Tranche A Term Loan Facility were used to repay the total existing outstanding balance on our former ABL Facility and make a \$250 million voluntary prepayment on our Tranche B Term Loan Facility, with the remaining funds to be used for future general corporate purposes. As a result of the prepayments, we wrote off \$3.5 million of original issue discount and capitalized debt issuance costs during the second quarter of 2022 as a loss on extinguishment of debt in the consolidated statements of comprehensive income. The Revolving Facility was unfunded at closing.

The Tranche B Term Loan Facility matures on December 13, 2026, while the Tranche A Term Loan Facility and Revolving Facility mature on June 29, 2027. The Tranche A Term Loan Facility principal is repayable in quarterly installments beginning in September 2023. Principal payments are due on these facilities as follows:

2023	\$	9,375
2024		28,125
2025		46,875
2026		595,625
2027		690,000
Total	\$	1,370,000

As of December 31, 2022, there was \$530 million outstanding under the Tranche B Term Loan Facility, \$750 million outstanding under the Tranche A Term Loan Facility, and \$90.0 million of borrowings on our Revolving Facility, leaving \$1,158.7 million of availability, net of outstanding letters of credit. Our Tranche B Term Loan Facility bears interest at rates based on either a base rate plus an applicable margin of 0.75% or adjusted SOFR rate plus an applicable margin of 1.75%, subject to a SOFR floor of 0.0%. Our Tranche A Term Loan Facility and the Revolving Facility initially bear interest at a rate based on adjusted SOFR plus an applicable margin of 1.5% through December 31, 2022, subject to a SOFR floor of 0.0%. Beginning on January 1, 2023, the Tranche A Term Loan Facility and Revolving Facility bear interest at a rate based on adjusted SOFR plus an applicable margin between 1.25% and 1.75%, based on the Company's total leverage ratio and subject to a SOFR floor of 0.0%. At December 31, 2022 The interest rates for the Tranche A Term Loan Facility and Tranche B Term Loan Facility were 5.72% and 5.97%, respectively.

The Tranche B Term Loan Facility does not require an Excess Cash Flow payment (as defined in the Amended Credit Agreement) if our secured leverage ratio is maintained below 3.75 to 1.00 times. As of December 31, 2022, our secured leverage ratio was 1.55 to 1.00 times.

As of December 31, 2022, we had \$1,291.4 million of available liquidity comprised of \$132.7 million of cash and cash equivalents and \$1,158.7 million available under our Revolving Facility, net of outstanding letters of credit. We believe we have a strong liquidity position that allows us to execute our strategic plan and provides the flexibility to continue to invest in future growth opportunities.

In September 2020, the Company's Board of Directors approved a stock repurchase program, which commenced on October 27, 2020, and allowed for the repurchase of up to \$250 million of the Company's common stock over a 24-month period. That program was exhausted in the third quarter of 2022. In July 2022, the Company's Board of Directors approved another stock repurchase program, which commenced on August 5, 2022, and allows for the repurchase of up to \$500 million of the Company's common stock over a 24-month period. The Company may repurchase its common stock from time to time, in amounts and at prices the Company deems appropriate, subject to market conditions and other considerations. The repurchases may be executed using open market purchases, privately negotiated agreements or other transactions. The actual timing, number and value of shares repurchased under the program will be determined by management at its discretion and will depend on a number of factors, including the market price of the Company's common stock, general market and economic conditions, applicable legal requirements, and compliance with the terms of the Company's outstanding credit agreements. The repurchases may be funded with cash on hand, available borrowings, or proceeds from potential debt or other capital markets sources. The stock repurchase program may be suspended or discontinued at any time without prior notice. During the year ended December 31, 2022, the Company repurchased 2,722,007 shares of its common stock for \$345,840. Since the inception of all stock repurchase programs (starting in August 2015), the Company has repurchased 11,748,713 shares of its common stock for \$777.4 million (at an average cost per share of \$66.17).

See Note 12, “Credit Agreements,” and Note 13, “Stock Repurchase Program,” to the consolidated financial statements included in Item 8 of this Annual Report on Form 10-K for more information on our credit agreements and stock repurchase programs.

We have an arrangement with a finance company to provide floor plan financing for selected dealers. This arrangement provides liquidity for our dealers by financing dealer purchases of products with credit availability from the finance company. We receive payment from the finance company after shipment of product to the dealer, and our dealers are given a longer period of time to pay the finance company. If our dealers do not pay the finance company, we may be required to repurchase the applicable inventory held by the dealer. We do not indemnify the finance company for any credit losses they may incur. Total dealer purchases financed under this arrangement accounted for approximately 15% of net sales for the years ended December 31, 2022 and 2021. The amount financed by dealers which remained outstanding was \$212.2 million and \$115.9 million as of December 31, 2022 and 2021, respectively.

Long-term Liquidity

We believe that our cash and cash equivalents, cash flow from operations, and availability under our Revolving Facility and other short-term lines of credit will provide us with sufficient capital to continue to grow our business in the future. We may use a portion of our cash flow to pay principal on our outstanding debt, as well as repurchase shares of our common stock, impacting the amount available for working capital, capital expenditures, acquisitions, and other general corporate purposes. As we continue to expand our business, we may require additional capital to fund working capital, capital expenditures or acquisitions.

Cash Flow

Year ended December 31, 2022 compared to year ended December 31, 2021

The following table summarizes our cash flows by source (use) for the periods presented:

(U.S. Dollars in thousands)	Year Ended December 31,		\$ Change	% Change
	2022	2021		
Net cash provided by operating activities	\$ 58,516	\$ 411,156	\$ (352,640)	-85.8%
Net cash used in investing activities	(134,232)	(817,287)	683,055	-83.6%
Net cash provided by (used in) financing activities	64,043	(102,970)	167,013	-162.2%

The decrease in net cash provided by operating activities primarily reflects increased working capital investment as well as lower operating earnings in the current year period. The higher working capital investment was primarily driven by higher inventory levels at the end of the current year.

Net cash used in investing activities for the year ended December 31, 2022 primarily consisted of cash payments of \$86.2 million for the purchase of property and equipment, \$25.1 million related to the acquisition of businesses, \$15.0 million investment in WATT Fuel Cell Corporation, and \$14.9 million for contributions to an equity method investment, which were partially offset by cash proceeds from the sale of an investment of \$1.3 million. Net cash used in investing activities for the year ended December 31, 2021 primarily

consisted of cash payments of \$713.5 million related to the acquisition of businesses and \$110.0 million for the purchase of property and equipment, which were partially offset by cash proceeds of \$5.0 million from the sale of an investment.

Net cash provided by financing activities for the year ended December 31, 2022 primarily includes proceeds of \$1,026.3 million from long-term borrowings, \$248.2 million from short-term borrowings, and \$13.8 million from the exercise of stock options. These cash proceeds were partially offset by \$810.3 million of debt repayments (\$268.1 million of short-term borrowings and \$542.2 million of long-term borrowings and finance lease obligations), \$345.8 million of stock repurchases, \$40.9 million of taxes paid related to equity awards, \$16.1 million of contingent consideration for acquired businesses, and \$10.3 million for payment of debt issuance costs.

Net cash used in financing activities for the year ended December 31, 2021 primarily consisted of \$347.7 million of debt repayments (\$239.1 million of short-term borrowings and \$108.6 million of long-term borrowings), \$126.0 million of stock repurchases, \$58.9 million of taxes paid related to equity awards, \$27.2 million as a purchase of additional ownership interest of PR Industrial S.r.l. and its subsidiaries (Pramac), and \$3.8 million of contingent consideration for acquired businesses. These payments were partially offset by \$272.8 million cash proceeds from short-term borrowings, \$150.1 million cash proceeds from long-term borrowings and \$38.8 million of proceeds from the exercise of stock options.

Senior Secured Credit Facilities

Refer to Note 12, “Credit Agreements,” to the consolidated financial statements in Item 8 and the “Liquidity and Financial Position” section included in Item 7 of this Annual Report on Form 10-K for information on our senior secured credit facilities.

Covenant Compliance

The Term Loans contain restrictions on the Company’s ability to pay distributions and dividends. Payments can be made to the Company or other parent companies for certain expenses such as operating expenses in the ordinary course, fees and expenses related to any debt or equity offering and to pay franchise or similar taxes. Dividends can be used to repurchase equity interests, subject to limitations in certain circumstances. The Term Loans restrict the aggregate amount of dividends and distributions that can be paid and, in certain circumstances, requires pro forma compliance with certain fixed charge coverage ratios or gross leverage ratios, as applicable, in order to pay certain dividends and distributions. The Term Loans also contain other affirmative and negative covenants that, among other things, limit the incurrence of additional indebtedness, liens on property, sale and leaseback transactions, investments, loans and advances, mergers or consolidations, asset sales, acquisitions, transactions with affiliates, prepayments of certain other indebtedness and modifications of our organizational documents. The Tranche A Term Loan Facility and the Revolving Facility added certain financial covenants that require the Company to maintain a total leverage ratio below 3.75 to 1.00 as well as an interest coverage ratio above 3.00 to 1.00. As of December 31, 2022, the Company’s total leverage ratio was 1.74 to 1.00 times, and the Company’s interest coverage ratio was 14.81 to 1.00. The Company was in compliance with all other covenants of the Amended Credit Agreement as of December 31, 2022. The Tranche B Term Loan Facility does not contain any financial maintenance covenants.

The Term Loans contain customary events of default, including, among others, nonpayment of principal, interest or other amounts, failure to perform covenants, inaccuracy of representations or warranties in any material respect, cross-defaults with other material indebtedness, certain undischarged judgments, the occurrence of certain ERISA, bankruptcy or insolvency events, or the occurrence of a change in control (as defined in the Term Loan). A bankruptcy or insolvency event of default will cause the obligations under the Term Loans to automatically become immediately due and payable.

The Revolving Facility also contains covenants and events of default substantially similar to those in the Term Loans, as described above.

Contractual Obligations

The following table summarizes our expected payments for significant contractual obligations as of December 31, 2022, using the interest rates in effect as of that date:

(U.S. Dollars in thousands)	Total	2023	2024	2025	2026	2027	After 2027
Long-term debt, including current portion (1)	\$ 1,370,966	\$ 10,083	\$ 28,178	\$ 46,931	\$ 595,711	\$ 690,032	\$ 31
Finance lease obligations, including current portion	27,420	2,650	2,455	1,996	1,604	1,504	17,211
Interest on long-term debt and finance lease obligations	362,415	88,429	84,951	82,476	77,501	21,892	7,166
Operating leases	118,360	34,208	30,834	20,386	9,855	8,334	14,743
Short-term borrowings (2)	48,990	48,990	-	-	-	-	-
Total contractual cash obligations	<u>\$ 1,928,151</u>	<u>\$ 184,360</u>	<u>\$ 146,418</u>	<u>\$ 151,789</u>	<u>\$ 684,671</u>	<u>\$ 721,762</u>	<u>\$ 39,151</u>

(1) The Tranche B Term Loan matures on December 13, 2026. The Tranche A Term Loan and the Revolving Facility mature on June 29, 2027. As of December 31, 2022, there was \$90 million outstanding under the Revolving Facility classified as long-term debt.

(2) Short-term borrowings consist of borrowings by our foreign subsidiaries on local lines of credit.

Capital Expenditures

Our operations require capital expenditures for facilities and related improvements, technology, research & development, tooling, equipment, capacity expansion, IT systems & infrastructure and upgrades. Capital expenditures were \$86.2 million, \$110.0 million, and \$62.1 million in the years ended December 31, 2022, 2021 and 2020, respectively, and were funded primarily through cash from operations.

Critical Accounting Policies and Estimates

In preparing the financial statements, management is required to make estimates and assumptions that have an impact on the asset, liability, revenue and expense amounts reported. These estimates can also affect our supplemental information disclosures, including information about contingencies, risk and financial condition. We believe, given current facts and circumstances, that our estimates and assumptions are reasonable, adhere to U.S. GAAP, and are consistently applied. Inherent in the nature of an estimate or assumption is the fact that actual results may differ from estimates and estimates may vary as new facts and circumstances arise. We make routine estimates and judgments in determining net realizable value of accounts receivable, inventories, property and equipment, prepaid expenses, product warranties and other reserves. Management believes our most critical accounting estimates and assumptions are in the following areas: business combinations and purchase accounting; goodwill and other indefinite-lived intangible asset impairment assessment; and income taxes.

Business Combinations and Purchase Accounting

We account for business combinations using the acquisition method of accounting, and accordingly, the assets and liabilities of an acquired business are recorded at their respective fair values. The excess of the purchase price over the estimated fair value of assets and liabilities is recorded as goodwill. Assigning fair market values to the assets acquired and liabilities assumed at the date of an acquisition requires knowledge of current market values, the values of assets in use, and often requires the application of judgment regarding estimates and assumptions. While the ultimate responsibility resides with management, for material acquisitions we retain the services of certified valuation specialists to assist with assigning estimated values to certain acquired assets and assumed liabilities, including intangible assets, tangible long-lived assets, and contingent consideration. Acquired intangible assets, excluding goodwill, are valued using certain discounted cash flow methodologies based on future cash flows specific to the type of intangible asset purchased. This methodology incorporates various estimates and assumptions, the most significant being projected revenue growth rates, profit margins, forecasted cash flows, discount rates and terminal growth rates. If the contingent consideration is deemed significant or absent an agreed upon payout amount, the initial measurement of contingent consideration and the corresponding liability is evaluated using the Monte Carlo Method. For this valuation method, management develops projections during the contingent consideration period utilizing various potential pay-out scenarios. Probabilities are applied to each potential scenario and the resulting values are discounted using a rate that considers weighted average cost of capital as well as a specific risk premium associated with the riskiness of the contingent consideration itself, the related projections, and the overall business. Refer to Note 1, "Description of Business," and Note 3, "Acquisitions," to the consolidated financial statements in Item 8 of this Annual Report on Form 10-K for further information on the Company's business acquisitions.

Goodwill and Other Indefinite-Lived Intangible Assets

Refer to Note 2, "Summary of Accounting Policies – Goodwill and Other Indefinite-Lived Intangible Assets," to the consolidated financial statements in Item 8 of this Annual Report on Form 10-K for further information on the Company's policy regarding the accounting for goodwill and other indefinite-lived intangible assets. The Company performed the required annual impairment tests for goodwill and other indefinite-lived intangible assets for the fiscal years 2022, 2021 and 2020, and found no impairment.

When preparing a discounted cash flow analysis for purposes of our annual impairment test, we make a number of key estimates and assumptions. We estimate the future cash flows of the business based on historical and forecasted revenues and operating costs. In addition, we apply a discount rate to the estimated future cash flows for the purpose of the valuation. This discount rate is based on the estimated weighted average cost of capital for the business and may change from year to year. Weighted average cost of capital includes certain assumptions such as market capital structures, market betas, risk-free rate of return and estimated costs of borrowing.

In our 2022 impairment test calculation performed as of October 31, 2022, the Latin America reporting unit had an estimated fair value that exceeded its carrying value by approximately 18%.

The carrying value of the Latin America goodwill was \$46.5 million. Key financial assumptions utilized to determine the fair value of the reporting unit include revenue growth levels that reflect the impact of increasing telecom production for the U.S. market, improving profit margins, a 3% terminal growth rate and a 14.4% discount rate. The reporting unit's fair value would approximate its carrying value with a 175 basis point increase in the discount rate or a 130 basis point reduction in the average earnings margin and 100 basis point reduction in the terminal growth rate.

For all reporting units, a considerable amount of management judgment and assumptions are required in performing the goodwill and indefinite-lived intangible asset impairment tests. While we believe our judgments and assumptions are reasonable, different assumptions could change the estimated fair values. A number of factors, many of which we have no ability to control, could cause actual results to differ from the estimates and assumptions we employed. These factors include:

- a rising interest rate environment;
- a negative impact from the COVID-19 pandemic;
- a prolonged global or regional economic downturn;
- a significant decrease in the demand for our products;
- the inability to develop new and enhanced products and services in a timely manner;
- a significant adverse change in legal factors or in the business climate;
- an adverse action or assessment by a regulator;
- successful efforts by our competitors to gain market share in our markets;
- disruptions to the Company's business;
- inability to effectively integrate acquired businesses;
- unexpected or unplanned changes in the use of assets or entity structure; and
- business divestitures.

If management's estimates of future operating results change or if there are changes to other assumptions due to these factors, the estimate of the fair values may change significantly. Such change could result in impairment charges in future periods, which could have a significant impact on our operating results and financial condition.

Income Taxes

We account for income taxes in accordance with Accounting Standards Codification (ASC) 740, *Income Taxes*. Our estimate of income taxes payable, deferred income taxes and the effective tax rate is based on an analysis of many factors including interpretations of federal, state and international income tax laws; the difference between tax and financial reporting bases of assets and liabilities; estimates of amounts currently due or owed in various jurisdictions; and current accounting standards. We review and update our estimates on a quarterly basis as facts and circumstances change and actual results are known.

In assessing the net realizable value of the deferred tax assets on our balance sheet, we consider whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the years in which those temporary differences become deductible. We consider the taxable income in prior carryback years, scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment.

Refer to Note 15, "Income Taxes," to the consolidated financial statements in Item 8 of this Annual Report on Form 10-K for further information on the Company's income taxes and income tax positions.

New Accounting Standards

For information with respect to new accounting pronouncements and the impact of these pronouncements on our consolidated financial statements, refer to Note 2, "Summary of Accounting Policies - New Accounting Pronouncements," to the consolidated financial statements in Item 8 of this Annual Report on Form 10-K.

Non-GAAP Measures

Adjusted EBITDA

To supplement our consolidated financial statements presented in accordance with U.S. GAAP, we provide the computation of Adjusted EBITDA attributable to the Company, which is defined as net income before noncontrolling interests adjusted for the following items: interest expense, depreciation expense, amortization of intangible assets, income tax expense, certain non-cash gains and losses including certain purchase accounting adjustments and contingent consideration adjustments, share-based compensation expense, losses on extinguishment of debt, certain transaction costs and credit facility fees, business optimization expenses, certain specific provisions, and adjusted EBITDA attributable to noncontrolling interests, as set forth in the reconciliation table below.

We view Adjusted EBITDA as a key measure of our performance. We present Adjusted EBITDA not only due to its importance for purposes of our credit agreements, but also because it assists us in comparing our performance across reporting periods on a consistent basis as it excludes items that we do not believe are indicative of our core operating performance. Our management uses Adjusted EBITDA:

- for planning purposes, including the preparation of our annual operating budget and developing and refining our internal projections for future periods;
- to allocate resources to enhance the financial performance of our business;
- as a benchmark for the determination of the bonus component of compensation for our senior executives under our management incentive plan, as described further in our Proxy Statement;
- to evaluate the effectiveness of our business strategies and as a supplemental tool in evaluating our performance against our budget for each period; and
- in communications with our Board of Directors and investors concerning our financial performance.

We believe Adjusted EBITDA is used by securities analysts, investors and other interested parties in the evaluation of the Company. Management believes the disclosure of Adjusted EBITDA offers an additional financial metric that, when coupled with results prepared in accordance with U.S. generally accepted accounting principles (U.S. GAAP) and the reconciliation to U.S. GAAP results, provides a more complete understanding of our results of operations and the factors and trends affecting our business. We believe Adjusted EBITDA is useful to investors for the following reasons:

- Adjusted EBITDA and similar non-GAAP measures are widely used by investors to measure a company's operating performance without regard to items that can vary substantially from company to company depending upon financing and accounting methods, book values of assets, tax jurisdictions, capital structures and the methods by which assets were acquired;
- investors can use Adjusted EBITDA as a supplemental measure to evaluate the overall operating performance of our Company, including our ability to service our debt and other cash needs; and
- by comparing our Adjusted EBITDA in different historical periods, our investors can evaluate our operating performance excluding the impact of items described below.

The adjustments included in the reconciliation table listed below are presented to illustrate the operating performance of our business in a manner consistent with the presentation used by our management and Board of Directors. These adjustments eliminate the impact of a number of items that:

- we do not consider indicative of our ongoing operating performance, such as non-cash write-downs and other charges, non-cash gains, write-offs relating to the retirement of debt, severance costs and other restructuring-related business optimization expenses;
- we believe to be akin to, or associated with, interest expense, such as administrative agent fees, revolving credit facility commitment fees and letter of credit fees; or
- are non-cash in nature, such as share-based compensation expense.

We explain in more detail in footnotes (a) through (f) below why we believe these adjustments are useful in calculating Adjusted EBITDA as a measure of our operating performance.

Adjusted EBITDA does not represent, and should not be a substitute for, net income or cash flows from operations as determined in accordance with U.S. GAAP. 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 U.S. GAAP. Some of the limitations are:

- Adjusted EBITDA does not reflect our cash expenditures, or future requirements for capital expenditures or contractual commitments;
- Adjusted EBITDA does not reflect changes in, or cash requirements for, our working capital needs;
- Adjusted EBITDA does not reflect the significant interest expense, or the cash requirements necessary to service interest or principal payments on our debt;
- although depreciation and amortization are non-cash charges, the assets being depreciated and amortized will often have to be replaced in the future, and Adjusted EBITDA does not reflect any cash requirements for such replacements;
- several of the adjustments that we use in calculating Adjusted EBITDA, such as non-cash write-downs and other charges, while not involving cash expense, do have a negative impact on the value of our assets as reflected in our consolidated balance sheet prepared in accordance with U.S. GAAP; and
- other companies may calculate Adjusted EBITDA differently than we do, limiting its usefulness as a comparative measure.

Furthermore, as noted above, one of our uses of Adjusted EBITDA is as a benchmark for determining elements of compensation for our senior executives. At the same time, some or all of these senior executives have responsibility for monitoring our financial results, generally including the adjustments in calculating Adjusted EBITDA (subject ultimately to review by our Board of Directors in the context of the Board's review of our financial statements). While many of the adjustments (for example, transaction costs and credit facility fees), involve mathematical application of items reflected in our financial statements, others involve a degree of judgment and discretion. While we believe all of these adjustments are appropriate, and while the calculations are subject to review by our Board of Directors in the context of the Board's review of our financial statements, and certification by our Chief Financial Officer in a compliance certificate provided to the lenders under our Term Loan and Revolving Facility, this discretion may be viewed as an additional limitation on the use of Adjusted EBITDA as an analytical tool.

Because of these limitations, Adjusted EBITDA should not be considered as a measure of discretionary cash available to us to invest in the growth of our business. We compensate for these limitations by relying primarily on our U.S. GAAP results and using Adjusted EBITDA only supplementally.

The following table presents a reconciliation of net income to Adjusted EBITDA attributable to Generac Holdings Inc.:

(U.S. Dollars in thousands)	Year Ended December 31,		
	2022	2021	2020
Net income attributable to Generac Holdings Inc.	\$ 399,502	\$ 550,494	\$ 350,576
Net income attributable to noncontrolling interests	9,368	6,075	(3,358)
Net income	408,870	556,569	347,218
Interest expense	54,826	32,953	32,991
Depreciation and amortization	156,141	92,041	68,773
Provision for income taxes	99,596	134,957	98,973
Non-cash write-down and other adjustments (a)	(2,091)	(3,070)	(327)
Non-cash share-based compensation expense (b)	29,481	23,954	20,882
Loss on extinguishment of debt (c)	3,743	831	-
Transaction costs and credit facility fees (d)	5,026	22,357	2,151
Business optimization and other charges (e)	4,371	33	12,158
Provision for regulatory and clean energy product charges (f)	65,265	-	-
Other	139	800	954
Adjusted EBITDA	825,367	861,425	583,773
Adjusted EBITDA attributable to noncontrolling interests	15,087	9,351	2,358
Adjusted EBITDA attributable to Generac Holdings Inc.	\$ 810,280	\$ 852,074	\$ 581,415

(a) Represents the following non-cash charges, gains, and other adjustments: gains/losses on disposals of assets and sales of certain investments, unrealized mark-to-market adjustments on commodity contracts, certain foreign currency related adjustments, and certain purchase accounting and contingent consideration related adjustments. We believe that adjusting net income for these items is useful for the following reasons:

- The gains/losses on disposals of assets and sales of certain investments resulting from the sale of assets that are no longer useful in our business and therefore represent gains or losses that are not from our core operations;
- The adjustments for unrealized mark-to-market gains and losses on commodity contracts represent non-cash items to reflect changes in the fair value of forward contracts that have not been settled or terminated. We believe it is useful to adjust net income for these items because the charges do not represent a cash outlay in the period in which the charge is incurred, although Adjusted EBITDA must always be used together with our U.S. GAAP statements of comprehensive income and cash flows to capture the full effect of these contracts on our operating performance;
- The purchase accounting adjustments represent non-cash items to reflect fair value at the date of acquisition, and therefore do not reflect our ongoing operations. Fair value adjustments to contingent consideration obligations related to business acquisitions are added back as they are akin to purchase price.

(b) Represents share-based compensation expense to account for stock options, restricted stock and other stock awards over their respective vesting period.

(c) Represents the non-cash write-off of original issue discount and deferred financing costs due to voluntary prepayments of debt. Refer to Note 12, "Credit Agreements," to the consolidated financial statements in Item 8 of this Annual Report on Form 10-K for further information on the losses on extinguishment of debt.

(d) Represents transaction costs incurred directly in connection with any investment, as defined in our credit agreement, equity issuance or debt issuance or refinancing, together with certain fees relating to our senior secured credit facilities, such as administrative agent fees and credit facility commitment fees under our Amended Credit Agreement, which we believe to be akin to, or associated with, interest expense and whose inclusion in Adjusted EBITDA is therefore similar to the inclusion of interest expense in that calculation.

(e) For the year ended December 31, 2022, predominantly represents severance charges related to certain headcount reductions, as well as other restructuring charges related to the suspension of operations at certain of our facilities. For the year ended December 31, 2020, represents severance, non-cash asset write-downs and other charges to address the impact of the COVID-19 pandemic and decline in oil prices on demand for C&I products.

(f) For the year ended December 31, 2022, represents a specific credit loss provision of \$17.9 million for a clean energy product customer that filed for bankruptcy, as well as a warranty provision of \$37.3 million to address certain clean energy product warranty-related matters. The amount also includes a provision of \$10.0 million for a pending and unresolved matter with the CPSC concerning the imposition of potential penalty fines for allegedly failing to timely submit a report under the CPSA in relation to certain portable generators that were subject to a voluntary recall previously announced on July 29, 2021.

Adjusted Net Income

To further supplement our consolidated financial statements in accordance with U.S. GAAP, we provide the computation of Adjusted Net Income attributable to the Company, which is defined as net income before noncontrolling interest adjusted for the following items: amortization of intangible assets, amortization of deferred financing costs and original issue discount related to our debt, intangible impairment charges (if any), certain transaction costs and other purchase accounting adjustments, losses on extinguishment of debt, business optimization expenses, certain specific provisions, other non-cash gains and losses or charges, and adjusted net income attributable to noncontrolling interests, as set forth in the reconciliation table below. In addition, for periods prior to 2022, adjusted net income reflects cash income tax expense due to the existence of the tax shield from the amortization of tax-deductible goodwill and intangible assets from our acquisition by CCMP Capital Advisors, LLC in 2006. Due to the expiration of this tax shield in the fourth quarter of 2021, there is no similar reconciling item starting in 2022.

We believe Adjusted Net Income is used by securities analysts, investors and other interested parties in the evaluation of our company's operations. Management believes the disclosure of Adjusted Net Income offers an additional financial metric that, when used in conjunction with U.S. GAAP results and the reconciliation to U.S. GAAP results, provides a more complete understanding of our ongoing results of operations, and the factors and trends affecting our business.

The adjustments included in the reconciliation table listed below are presented to illustrate the operating performance of our business in a manner consistent with the presentation used by investors and securities analysts. Similar to the Adjusted EBITDA reconciliation, these adjustments eliminate the impact of a number of items we do not consider indicative of our ongoing operating performance or cash flows, such as amortization costs, transaction costs and write-offs relating to the retirement of debt. Prior to the expiration of our tax shield in the fourth quarter of 2021, we also made adjustments to present cash taxes paid as a result of our favorable tax attributes.

Similar to Adjusted EBITDA, Adjusted Net Income does not represent, and should not be a substitute for, net income or cash flows from operations as determined in accordance with U.S. GAAP. Adjusted Net Income 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 U.S. GAAP. Some of the limitations are:

- Adjusted Net Income does not reflect changes in, or cash requirements for, our working capital needs;
- although amortization is a non-cash charge, the assets being amortized may have to be replaced in the future, and Adjusted Net Income does not reflect any cash requirements for such replacements; and
- other companies may calculate Adjusted Net Income differently than we do, limiting its usefulness as a comparative measure.

The following table presents a reconciliation of net income to Adjusted Net Income attributable to Generac Holdings Inc.:

(U.S. Dollars in thousands)	Year Ended December 31,		
	2022	2021	2020
Net income attributable to Generac Holdings Inc.	\$ 399,502	\$ 550,494	\$ 350,576
Net income attributable to noncontrolling interests	9,368	6,075	(3,358)
Net income	408,870	556,569	347,218
Provision for income taxes (a)	-	134,957	98,973
Amortization of intangible assets	103,320	49,886	32,280
Amortization of deferred finance costs and original issue discount	3,234	2,589	2,598
Loss on extinguishment of debt	3,743	831	-
Transaction costs and other purchase accounting adjustments (b)	3,588	19,655	(1,328)
(Gain)/loss attributable to business or asset dispositions (c)	(229)	(4,383)	-
Business optimization and other charges (see above)	4,371	33	12,158
Provision for regulatory and clean energy product charges (see above)	65,265	-	-
Tax effect of add backs	(43,638)	-	-
Cash income tax expense (a)	-	(136,231)	(79,723)
Adjusted net income	548,524	623,906	412,176
Adjusted net income attributable to noncontrolling interests	9,675	4,971	(32)
Adjusted net income attributable to Generac Holdings Inc.	\$ 538,849	\$ 618,935	\$ 412,208

(a) For the years ended December 31, 2021 and 2020, the amount is based on a cash income tax rate of 19.7% and 17.9%, respectively, due to the existence of the tax shield from the amortization of tax-deductible goodwill and intangible assets from our acquisition by CCMP Capital Advisors, LLC in 2006. Due to the expiration of this tax shield in the fourth quarter of 2021, there is no similar reconciling item for the 2022 period. For comparative purposes to the current year, using the GAAP income tax expense for the years ended December 31, 2021 and 2020, would result in an adjusted net income per diluted share of \$9.36 and \$5.97, respectively, on a pro forma basis.

(b) Represents transaction costs incurred directly in connection with any investment, as defined in our credit agreement, equity issuance or debt issuance or refinancing, and certain purchase accounting and contingent consideration adjustments.

(c) Represents gains and losses attributable to the disposition of a business or assets occurring in other than ordinary course, as defined in our credit agreement.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

We are exposed to market risk from changes in foreign currency exchange rates, commodity prices and interest rates. To reduce the risk from these changes, we use financial instruments from time to time. We do not hold or issue financial instruments for trading purposes.

Foreign Currency

We are exposed to foreign currency exchange risk as a result of transactions denominated in currencies other than the U.S. Dollar, as well as operating businesses and supply chains in foreign countries. Periodically, we utilize foreign currency forward purchase and sales contracts to manage the volatility associated with certain foreign currency purchases and sales in the normal course of business. Contracts typically have maturities of twelve months or less. Realized gains and losses on transactions denominated in foreign currency are recorded as a component of cost of goods sold in the statements of comprehensive income.

The following is a summary of the thirty-four foreign currency contracts outstanding as of December 31, 2022 (notional amount in thousands):

Currency Denomination	Trade Dates	Effective Dates	Notional Amount	Expiration Date
GBP	11/21/22 - 12/20/22	11/21/22 - 12/20/22	\$ 1,625	1/18/23 - 2/22/23
AUD	11/15/22 - 12/20/22	11/15/22 - 12/20/22	\$ 11,975	1/18/23 - 2/22/23

Commodity Prices

We are a purchaser of commodities and components manufactured from commodities including steel, aluminum, copper and others. As a result, we are exposed to fluctuating market prices for those commodities. While such materials are typically available from numerous suppliers, commodity raw materials are subject to price fluctuations. We generally buy these commodities and components based on market prices that are established with the supplier as part of the purchase process. Depending on the supplier, these market prices may reset on a periodic basis based on negotiated lags and calculations. To the extent that commodity prices increase and we do not have firm pricing from our suppliers, or our suppliers are not able to honor such prices, we may experience a decline in our gross margins to the extent we are not able to increase selling prices of our products or obtain manufacturing efficiencies or supply chain savings to offset increases in commodity costs.

In 2021 and 2022, we experienced an increase in commodity and component costs resulting from supply chain challenges and the overall inflationary environment. We implemented multiple price increases to help mitigate the impact of these rising commodity costs, and the realization of these price increases in 2022 helped to partially offset the higher commodity costs.

Periodically, we engage in certain commodity risk management activities to mitigate the impact of potential price fluctuations on our financial results. These derivatives typically have maturities of less than eighteen months. As of December 31, 2022, we had no commodity contracts outstanding.

Interest Rates

As of December 31, 2022, all of the outstanding debt under our Term Loans and Revolving Facility was subject to floating interest rate risk. As of December 31, 2022, we had the following interest rate swap contracts outstanding (notional amount in thousands of US dollars):

Hedged Item	Contract Date	Effective Date	Notional Amount	Fixed SOFR Rate	Expiration Date
Interest Rate	June 19, 2017	July 1, 2022	125,000	2.4120%	May 31, 2023
Interest Rate	June 30, 2017	July 1, 2022	125,000	2.4790%	May 31, 2023
Interest Rate	August 9, 2017	July 1, 2022	125,000	2.2948%	May 31, 2023
Interest Rate	August 30, 2017	July 1, 2022	125,000	2.23440%	May 31, 2023
Interest Rate	March 4, 2020	May 31, 2023	200,000	1.1360%	December 14, 2026
Interest Rate	March 5, 2020	May 31, 2023	100,000	1.0700%	December 14, 2026
Interest Rate	March 6, 2020	May 31, 2023	200,000	0.9560%	December 14, 2026

In June 2022, in conjunction with the amendments to the Company's credit agreements discussed further in Note 12, "Credit Agreements," to our consolidated financial statements in Item 8 of this Annual Report on Form 10-K, the Company amended its interest rate swaps to match that of the underlying debt and reconfirmed hedge effectiveness. The Company formally documented all relationships between interest rate hedging instruments and the related hedged items, as well as its risk-management objectives and strategies for undertaking various hedge transactions. These interest rate swap agreements qualify as cash flow hedges and therefore, the effective portions of their gains or losses are reported as a component of accumulated other comprehensive loss (AOCL) in the consolidated balance sheets. At December 31, 2022, the fair value of these interest rate swaps was an asset of \$49.3 million. Even after giving effect to these swaps, we are exposed to risks due to changes in interest rates with respect to the portion of our Term Loans and Revolving Facility that is not covered by the swaps. A hypothetical change in the SOFR interest rate of 100 basis points would have changed annual cash interest expense by approximately \$5.4 million (or, without the swaps in place, \$10.4 million) in 2022.

For additional information on the Company's foreign currency and commodity forward contracts and interest rate swaps, including amounts charged to the statements of comprehensive income during 2022, 2021, and 2020, refer to Note 5, "Derivative Instruments and Hedging Activities," and Note 6, "Accumulated Other Comprehensive Loss," to our consolidated financial statements in Item 8 of this Annual Report on Form 10-K.

Item 8. Financial Statements and Supplementary Data**Report of Independent Registered Public Accounting Firm**

To the stockholders and the Board of Directors of Generac Holdings Inc.
Waukesha, WI

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Generac Holdings Inc. and subsidiaries (the "Company") as of December 31, 2022 and 2021, the related consolidated statements of comprehensive income, stockholders' equity, and cash flows, for each of the three years in the period ended December 31, 2022, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2022, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 22, 2023, expressed an unqualified opinion on the Company's internal control over financial reporting.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the 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 audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the 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 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 financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current-period audit of the 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 financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the 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.

Goodwill - Refer to Notes 2 and 9 to the consolidated financial statements.

Critical Audit Matter Description

The Company's evaluation of goodwill for impairment involves the comparison of the fair value of each reporting unit to its carrying value. The Company's estimate for each reporting unit is based on the present value of estimated future cash flows attributable to the respective reporting unit. This requires management to make significant estimates and assumptions including estimates of future revenue growth rates, earnings margins, and discount rates. Changes in the assumptions could have a significant impact on the fair value, which could result in an impairment charge. The Company performed their annual impairment assessment of its reporting units as of October 31, 2022. In the October 31, 2022 impairment test calculation, the Latin America reporting unit had an estimated fair value that exceeded the carrying value by approximately 18%. Because the estimated fair value exceeded the carrying value, no impairment was recorded. The carrying value of goodwill for the Company's Latin America reporting unit as of the October 31, 2022 impairment assessment was \$46.5 million.

Key financial assumptions utilized to determine the fair value of the Latin America reporting unit include revenue growth rates, earnings margins, and the discount rate.

The principal consideration for our determination that the evaluation of goodwill is a critical audit matter is that there is a high degree of auditor effort, judgment and subjectivity involved in designing and performing procedures to evaluate the reasonableness of management's key assumptions utilized to determine the fair value of the Latin America reporting unit.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the forecasts of future revenue growth rates, profit margins, the terminal growth rate and the selection of the discount rate for the Latin America reporting unit included the following, among others:

- Evaluated the design and effectiveness of the controls over management’s goodwill impairment evaluation, including those over the determination of the fair value of the reporting unit, such as controls related to management’s forecast and the selection of the discount rate.
- Obtained the Company’s discounted cash flow model and evaluated the valuation analysis for mathematical accuracy.
- Utilized fair value specialists to evaluate whether the valuation techniques applied by management were appropriate.
- Assessed management’s historical ability to accurately forecast the reporting unit results of operations.
- Assessed management’s intent and/or ability to take specific actions included in the discounted cash flow model.
- Evaluated the reasonableness of management’s forecasts by comparing the forecasts to (1) historical results, (2) internal communications to the Board of Directors, and (3) forecasted information included in industry reports.
- Utilized fair value specialists to evaluate the reasonableness of the discount rate selected, including developing a range of independent estimates and comparing it to the discount rate utilized by the Company.

/s/ Deloitte & Touche LLP

Milwaukee, Wisconsin
February 22, 2023

We have served as the Company’s auditor since 2016.

Report of Independent Registered Public Accounting Firm

To the stockholders and the Board of Directors of Generac Holdings Inc.
Waukesha, Wisconsin

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Generac Holdings Inc. and subsidiaries (the “Company”) as of December 31, 2022, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2022, of the Company and our report dated February 22, 2023, expressed an unqualified opinion on those financial statements.

Basis for Opinion

The Company’s management is responsible 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 internal control over financial reporting based on our audit. We are a public accounting firm registered with the 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

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.

/s/ Deloitte & Touche LLP

Milwaukee, Wisconsin
February 22, 2023

Generac Holdings Inc.
Consolidated Balance Sheets
(U.S. Dollars in Thousands, Except Share and Per Share Data)

	December 31,	
	2022	2021
Assets		
Current assets:		
Cash and cash equivalents	\$ 132,723	\$ 147,339
Accounts receivable, less allowance for credit losses of \$27,664 and \$12,025 at December 31, 2022 and 2021, respectively	522,458	546,466
Inventories	1,405,384	1,089,705
Prepaid expenses and other assets	121,783	64,954
Total current assets	2,182,348	1,848,464
Property and equipment, net	467,604	440,852
Customer lists, net	206,987	238,722
Patents and technology, net	454,757	492,473
Other intangible assets, net	41,719	66,436
Tradenames, net	227,251	243,531
Goodwill	1,400,880	1,409,674
Deferred income taxes	12,746	15,740
Operating lease and other assets	175,170	121,888
Total assets	<u>\$ 5,169,462</u>	<u>\$ 4,877,780</u>
Liabilities and stockholders' equity		
Current liabilities:		
Short-term borrowings	\$ 48,990	\$ 72,035
Accounts payable	446,050	674,208
Accrued wages and employee benefits	45,741	72,060
Accrued product warranty	89,141	59,052
Other accrued liabilities	349,389	272,622
Current portion of long-term borrowings and finance lease obligations	12,733	5,930
Total current liabilities	992,044	1,155,907
Long-term borrowings and finance lease obligations	1,369,085	902,091
Deferred income taxes	125,691	205,964
Operating lease and other long-term liabilities	312,916	341,681
Total liabilities	2,799,736	2,605,643
Redeemable noncontrolling interest	110,471	58,050
Stockholders' equity:		
Common stock, par value \$0.01, 500,000,000 shares authorized, 72,701,257 and 72,386,017 shares issued at December 31, 2022 and 2021, respectively	728	725
Additional paid-in capital	1,016,138	952,939
Treasury stock, at cost, 11,284,350 and 8,667,031 shares at December 31, 2022 and 2021, respectively	(808,491)	(448,976)
Excess purchase price over predecessor basis	(202,116)	(202,116)
Retained earnings	2,316,224	1,965,957
Accumulated other comprehensive loss	(65,102)	(54,755)
Stockholders' equity attributable to Generac Holdings Inc.	2,257,381	2,213,774
Noncontrolling interests	1,874	313
Total stockholders' equity	2,259,255	2,214,087
Total liabilities and stockholders' equity	<u>\$ 5,169,462</u>	<u>\$ 4,877,780</u>

See notes to consolidated financial statements.

Generac Holdings Inc.
Consolidated Statements of Comprehensive Income
(U.S. Dollars in Thousands, Except Share and Per Share Data)

	Year Ended December 31,		
	2022	2021	2020
Net sales	\$ 4,564,737	\$ 3,737,184	\$ 2,485,200
Costs of goods sold	3,042,733	2,377,102	1,527,546
Gross profit	1,522,004	1,360,082	957,654
Operating expenses:			
Selling and service	496,260	319,020	246,373
Research and development	159,774	104,303	80,251
General and administrative	194,861	144,272	118,233
Acquisition related costs	1,459	21,465	1,411
Amortization of intangibles	103,320	49,886	32,280
Total operating expenses	955,674	638,946	478,548
Income from operations	566,330	721,136	479,106
Other (expense) income:			
Interest expense	(54,826)	(32,953)	(32,991)
Investment income	1,129	1,415	2,182
Loss on extinguishment of debt	(3,743)	(831)	—
Other, net	(424)	2,759	(2,106)
Total other expense, net	(57,864)	(29,610)	(32,915)
Income before provision for income taxes	508,466	691,526	446,191
Provision for income taxes	99,596	134,957	98,973
Net income	408,870	556,569	347,218
Net income attributable to noncontrolling interests	9,368	6,075	(3,358)
Net income attributable to Generac Holdings Inc.	\$ 399,502	\$ 550,494	\$ 350,576
Other comprehensive income (loss):			
Foreign currency translation adjustment	\$ (48,841)	\$ (41,030)	\$ 4,948
Net unrealized gain (loss) on derivatives	38,494	20,529	(14,285)
Other comprehensive income (loss)	(10,347)	(20,501)	(9,337)
Total comprehensive income	398,523	536,068	337,881
Comprehensive income (loss) attributable to noncontrolling interests	11,179	5,496	(364)
Comprehensive income attributable to Generac Holdings Inc.	\$ 387,344	\$ 530,572	\$ 338,245
Net income attributable to Generac Holdings Inc. per common share - basic:	\$ 5.55	\$ 8.51	\$ 5.61
Weighted average common shares outstanding - basic:	63,117,007	62,686,001	62,280,889
Net income attributable to Generac Holdings Inc. per common share - diluted:	\$ 5.42	\$ 8.30	\$ 5.48
Weighted average common shares outstanding - diluted:	64,681,357	64,253,408	63,737,734

See notes to consolidated financial statements.

Generac Holdings Inc.
Consolidated Statements of Stockholders' Equity
(U.S. Dollars in Thousands, Except Share Data)

Generac Holdings Inc.											
	Common Stock		Additional	Treasury Stock		Excess		Accumulated	Total	Noncontrolling	Total
	Shares	Amount	Paid-In	Shares	Amount	Purchase	Retained	Other	Stockholders'	Interest	
			Capital			Price	Earnings	Comprehensive	Equity		
						Over		Income (Loss)			
						Basis					
Balance at December 31, 2019	71,667,726	\$ 717	\$ 498,866	(9,103,013)	\$ (324,551)	\$ (202,116)	\$ 1,084,383	\$ (24,917)	\$ 1,032,382	\$ 469	\$ 1,032,851
Accounting standard adoption impact	—	—	—	—	—	—	(1,147)	—	(1,147)	—	(1,147)
Unrealized loss on interest rate swaps, net of tax of (\$4,826)	—	—	—	—	—	—	—	(14,285)	(14,285)	—	(14,285)
Foreign currency translation adjustment	—	—	—	—	—	—	—	4,948	4,948	(29)	4,919
Common stock issued under equity incentive plans, net of shares withheld for employee taxes and strike price	356,603	4	5,793	—	—	—	—	—	5,797	—	5,797
Net share settlement of restricted stock awards	—	—	—	(70,718)	(7,613)	—	—	—	(7,613)	—	(7,613)
Share-based compensation	—	—	20,882	—	—	—	—	—	20,882	—	20,882
Redemption value adjustment	—	—	—	—	—	—	(1,247)	—	(1,247)	—	(1,247)
Net income	—	—	—	—	—	—	350,576	—	350,576	(529)	350,047
Balance at December 31, 2020	72,024,329	\$ 721	\$ 525,541	(9,173,731)	\$ (332,164)	\$ (202,116)	\$ 1,432,565	\$ (34,254)	\$ 1,390,293	\$ (89)	\$ 1,390,204
Change in noncontrolling interest share	—	—	—	—	—	—	—	—	—	(96)	(96)
Unrealized gain on interest rate swaps, net of tax of \$6,933	—	—	—	—	—	—	—	20,529	20,529	—	20,529
Foreign currency translation adjustment	—	—	—	—	—	—	—	(41,030)	(41,030)	(3)	(41,033)
Common stock issued under equity incentive plans, net of shares withheld for employee taxes and strike price	331,048	3	7,073	—	—	—	—	—	7,076	—	7,076
Common stock issued for business combination	30,640	1	12,000	—	—	—	—	—	12,001	—	12,001
Treasury stock issued for business combination	—	—	384,371	937,283	36,403	—	—	—	420,774	—	420,774
Net share settlement of restricted stock awards	—	—	—	(80,583)	(27,223)	—	—	—	(27,223)	—	(27,223)
Stock repurchases	—	—	—	(350,000)	(125,992)	—	—	—	(125,992)	—	(125,992)
Share-based compensation	—	—	23,954	—	—	—	—	—	23,954	—	23,954
Redemption value adjustment	—	—	—	—	—	—	(17,102)	—	(17,102)	—	(17,102)
Net income	—	—	—	—	—	—	550,494	—	550,494	501	550,995
Balance at December 31, 2021	72,386,017	\$ 725	\$ 952,939	(8,667,031)	\$ (448,976)	\$ (202,116)	\$ 1,965,957	\$ (54,755)	\$ 2,213,774	\$ 313	\$ 2,214,087
Unrealized gain on interest rate swaps, net of tax of \$12,858	—	—	—	—	—	—	—	38,494	38,494	—	38,494
Foreign currency translation adjustment	—	—	—	—	—	—	—	(48,841)	(48,841)	(264)	(49,105)
Common stock issued under equity incentive plans, net of shares withheld for employee taxes and strike price	315,240	3	(247)	—	—	—	—	—	(244)	—	(244)
Payment of acquisition contingent consideration	—	—	33,965	196,531	13,158	—	—	—	47,123	—	47,123
Net share settlement of restricted stock awards	—	—	—	(91,843)	(26,833)	—	—	—	(26,833)	—	(26,833)
Stock repurchases	—	—	—	(2,722,007)	(345,840)	—	—	—	(345,840)	—	(345,840)
Share-based compensation	—	—	29,481	—	—	—	—	—	29,481	—	29,481
Redemption value adjustment	—	—	—	—	—	—	(49,235)	—	(49,235)	—	(49,235)
Net income	—	—	—	—	—	—	399,502	—	399,502	1,825	401,327
Balance at December 31, 2022	72,701,257	\$ 728	\$ 1,016,138	(11,284,350)	\$ (808,491)	\$ (202,116)	\$ 2,316,224	\$ (65,102)	\$ 2,257,381	\$ 1,874	\$ 2,259,255

See notes to consolidated financial statements.

Generac Holdings Inc.
Consolidated Statements of Cash Flows
(U.S. Dollars in Thousands)

	Year Ended December 31,		
	2022	2021	2020
Operating activities			
Net income	\$ 408,870	\$ 556,569	\$ 347,218
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation	52,821	42,155	36,493
Amortization of intangible assets	103,320	49,886	32,280
Amortization of original issue discount and deferred financing costs	3,234	2,589	2,598
Loss on extinguishment of debt	3,743	831	—
Deferred income taxes	(95,465)	(2,096)	21,195
Share-based compensation expense	29,481	23,954	20,882
Gain on disposal of assets	(592)	(4,393)	—
Other noncash charges	18,339	206	7,145
Net changes in operating assets and liabilities, net of acquisitions:			
Accounts receivable	6,547	(131,861)	(55,976)
Inventories	(319,274)	(470,991)	(77,983)
Other assets	4,766	(819)	12,859
Accounts payable	(223,031)	297,323	66,040
Accrued wages and employee benefits	(27,369)	5,814	20,157
Other accrued liabilities	110,036	73,798	60,593
Excess tax benefits from equity awards	(16,910)	(31,809)	(6,968)
Net cash provided by operating activities	58,516	411,156	486,533
Investing activities			
Proceeds from sale of property and equipment	2,077	259	179
Proceeds from sale of investment	1,308	4,968	—
Proceeds from beneficial interest in securitization transactions	3,566	4,609	2,651
Contribution to equity method investment	(14,930)	(3,660)	—
Expenditures for property and equipment	(86,188)	(109,992)	(62,128)
Purchase of long-term investment	(15,000)	—	—
Acquisition of businesses, net of cash acquired	(25,065)	(713,471)	(64,797)
Net cash used in investing activities	(134,232)	(817,287)	(124,095)
Financing activities			
Proceeds from short-term borrowings	248,209	272,818	257,593
Proceeds from long-term borrowings	1,026,284	150,088	277
Repayments of short-term borrowings	(268,133)	(239,113)	(277,719)
Repayments of long-term borrowings and finance lease obligations	(542,191)	(108,556)	(4,758)
Stock repurchases	(345,840)	(125,992)	—
Payment of contingent acquisition consideration	(16,135)	(3,750)	(4,000)
Payment of debt issuance costs	(10,330)	(1,185)	—
Purchase of additional ownership interest	(375)	(27,164)	—
Cash dividends paid to noncontrolling interest of subsidiary	(309)	—	—
Taxes paid related to equity awards	(40,923)	(58,903)	(14,910)
Proceeds from the exercise of stock options	13,786	38,787	13,089
Net cash provided by (used in) financing activities	64,043	(102,970)	(30,428)
Effect of exchange rate changes on cash and cash equivalents	(2,943)	1,312	235
Net (decrease) increase in cash and cash equivalents	(14,616)	(507,789)	332,245
Cash and cash equivalents at beginning of period	147,339	655,128	322,883
Cash and cash equivalents at end of period	\$ 132,723	\$ 147,339	\$ 655,128
Supplemental disclosure of cash flow information			
Cash paid during the period			
Interest	\$ 48,912	\$ 27,842	\$ 28,765
Income taxes	150,893	156,728	61,861

See notes to consolidated financial statements.

Generac Holdings Inc.
Notes to Consolidated Financial Statements
Years Ended December 31, 2022, 2021 and 2020
(U.S. Dollars in Thousands, Except Share and Per Share Data)

1. Description of Business

Founded in 1959, Generac Holdings Inc. (the Company) is a leading global designer and manufacturer of a wide range of energy technology solutions. The Company provides power generation equipment, energy storage systems, energy management devices & solutions, and other power products serving the residential, light commercial, and industrial markets. Generac's power products and solutions are available globally through a broad network of independent dealers, distributors, retailers, e-commerce partners, wholesalers, and equipment rental companies, as well as sold direct to certain end user customers.

Over the years, the Company has executed a number of acquisitions that support its strategic plan (refer to Item 1 in this Annual Report on Form 10-K for discussion of our "Powering a Smarter World" strategic plan). A summary of acquisitions affecting the reporting periods presented include:

- In July 2020, the Company acquired West Coast Energy Systems LLC (Energy Systems), its industrial distributor in northern California. This addition enhances the Company's ability to serve the west coast markets for both commercial & industrial (C&I) and residential products.
- In September 2020, the Company acquired Mean Green Products, LLC (Mean Green), founded in 2009 and located in Ross, Ohio. Mean Green is a designer and manufacturer of commercial grade, battery-powered turf care products that provide quiet, zero emissions and reduced maintenance options as compared to traditional commercial mowers.
- In October 2020, the Company acquired Enbala Power Networks Inc. (Enbala), founded in 2003 and headquartered in Denver, Colorado. Enbala is one of the leading providers of distributed energy optimization and control software that helps support the operational stability of the world's power grids.
- In June 2021, the Company acquired Deep Sea Electronics Limited (Deep Sea), founded in 1975 and headquartered in Hunmanby, United Kingdom. Deep Sea is an industry leading designer and manufacturer of a diverse suite of flexible control solutions focused on the global power generation and transfer switch markets.
- In July 2021, the Company acquired Chilicon Power, LLC (Chilicon), a designer and provider of grid-interactive microinverter and monitoring solutions for the solar market. Based in Los Angeles, California, Chilicon's power inversion and monitoring system technologies maximize photovoltaic (solar power) system production, lower installer operational cost, and promote end-user satisfaction.
- In September 2021, the Company acquired Apricity Code Corporation (Apricity Code), an advanced engineering and product design company located in Bend, Oregon.
- In September 2021, the Company acquired Off Grid Energy Ltd (Off Grid Energy), a designer and manufacturer of industrial-grade mobile energy storage systems. Headquartered in Rugby, United Kingdom, Off Grid Energy offers a diverse range of energy storage solutions that provide cleaner and more flexible energy for industrial and mobile applications.
- In October 2021, the Company acquired Tank Utility, Inc. (Tank Utility). Headquartered in Boston, Massachusetts, Tank Utility is a provider of internet of things (IoT) propane tank monitoring that enables the optimization of propane fuel logistics.
- In December 2021, the Company acquired ecobee Inc. (ecobee), founded in 2007 and headquartered in Toronto, Canada. ecobee is a leader in sustainable home technology solutions including smart thermostats that deliver significant energy savings, security and peace of mind.
- In June 2022, the Company acquired Electronic Environments Co. LLC and related subsidiaries (collectively EEC). Headquartered in Marlborough, Massachusetts, EEC is an industrial generator distributor as well as a provider of data center and telecom facility design, build, maintenance, and repair services.
- In October 2022, the Company acquired BPAC, Inc. (Blue Pillar), an industrial IoT platform developer that designs, deploys, and manages industrial IoT network software solutions to enable distributed energy generation monitoring and control.

2. Summary of Accounting Policies

Principles of Consolidation

The consolidated financial statements include the accounts of the Company and its subsidiaries that are consolidated in conformity with U.S. GAAP. All intercompany amounts and transactions have been eliminated in consolidation.

Cash and Cash Equivalents

The Company considers all highly liquid investments purchased with an original maturity of three months or less to be cash equivalents.

Concentration of Credit Risk

The Company maintains the majority of its domestic cash in a few commercial banks in multiple operating and investment accounts. Balances on deposit are insured by the Federal Deposit Insurance Corporation (FDIC) up to specified limits. Balances in excess of FDIC limits are uninsured.

One customer accounted for approximately 11% and 8% of accounts receivable at December 31, 2022 and 2021, respectively. No one customer accounted for greater than 4%, 6%, and 6%, of net sales during the years ended December 31, 2022, 2021, and 2020, respectively.

Accounts Receivable and Allowance for Credit Losses

The Company's trade and other receivables primarily arise from the sale of its products and services to independent residential dealers, industrial distributors and dealers, national and regional retailers, electrical/HVAC/solar wholesalers, e-commerce partners, equipment rental companies, equipment distributors, solar installers, utilities, EPC companies, and certain end users with payment terms generally ranging from 30 to 90 days. The Company evaluates the credit risk of a customer when extending credit based on a combination of various financial and qualitative factors that may affect the customers' ability to pay. These factors include the customer's financial condition, past payment experience, credit bureau information, and regional considerations.

Receivables are recorded at their face value amount less an allowance for credit losses. The Company maintains an allowance for credit losses, which represents an estimate of expected losses over the remaining contractual life of its receivables considering current market conditions and estimates for supportable forecasts when appropriate. The Company measures expected credit losses on its trade receivables on an entity-by-entity basis. The estimate of expected credit losses considers a historical loss experience rate that is adjusted for delinquency trends, collection experience, and/or economic risk where appropriate based on current market conditions. Additionally, management develops a specific allowance for trade receivables known to have a high risk of expected future credit loss.

The Company has historically experienced immaterial write-offs given the nature of the customers that receive credit. In addition, the Company holds various credit insurance plans that cover the risk of loss up to specified amounts on certain trade receivables. As of December 31, 2022, the Company had gross receivables of \$550,122 and an allowance for credit losses of \$27,664.

The following is a tabular reconciliation of the Company's allowance for credit losses:

	Year Ended December 31, 2022
Balance at beginning of period	\$ 12,025
Established for acquisitions	498
Provision for credit losses (1)	17,966
Charge-offs	(2,554)
Currency translation	(271)
Balance at end of period	\$ 27,664

(1) Includes a specific credit loss provision of \$17,926 recorded during the third quarter of 2022 for a clean energy product customer that filed for bankruptcy.

Inventories

Inventories are stated at the lower of cost or market, with cost determined using the first-in, first-out method.

Property and Equipment

Property and equipment are recorded at cost and are being depreciated using the straight-line method over the estimated useful lives of the assets, which are summarized below (in years). Costs of leasehold improvements are amortized over the lesser of the term of the lease (including renewal option periods) or the estimated useful lives of the improvements. Finance lease right of use assets are included in property and equipment. Refer to Note 10, "Leases," to the consolidated financial statements for the Company's lease disclosure.

Land improvements	8 – 20
Buildings and improvements	10 – 40
Machinery and equipment	3 – 15
Dies and tools	3 – 10
Vehicles	3 – 6
Office equipment and systems	3 – 15
Leasehold improvements	2 – 20

Total depreciation expense was \$52,821, \$42,155, and \$36,493 for the years ended December 31, 2022, 2021 and 2020, respectively.

Goodwill and Other Indefinite-Lived Intangible Assets

Goodwill represents the excess of the purchase price over fair value of identifiable net assets acquired from business acquisitions. Goodwill is not amortized, but is reviewed for impairment on an annual basis and between annual tests if indicators of impairment are present. The Company evaluates goodwill for impairment annually as of October 31 or more frequently when an event occurs or circumstances change that indicates the carrying value may not be recoverable. The Company has the option to assess goodwill for impairment by performing either a qualitative assessment or quantitative test. The qualitative assessment determines whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount. If the Company determines that it is not more likely than not that the fair value of a reporting unit is less than its carrying amount, then the quantitative test is not required to be performed. If the Company determines that it is more likely than not that the fair value of a reporting unit is less than its carrying amount, the Company is required to perform the quantitative test. In the quantitative test, the calculated fair value of the reporting unit is compared to its book value including goodwill. If the fair value of the reporting unit is in excess of its book value, the related goodwill is not impaired. If the fair value of the reporting unit is less than its book value, an impairment loss is recognized in an amount equal to that excess, limited to the total amount of goodwill allocated to that reporting unit.

Other indefinite-lived intangible assets consist of certain tradenames. The Company tests the carrying value of these tradenames annually as of October 31, or more frequently when an event occurs or circumstances change that indicates the carrying value may not be recoverable, by comparing the assets' fair value to its carrying value. Fair value is measured using a relief-from-royalty approach, which assumes the fair value of the tradename is the discounted cash flows of the amount that would be paid had the Company not owned the tradename and instead licensed the tradename from another company.

The Company performed the required annual impairment tests for goodwill and other indefinite-lived intangible assets for the fiscal years 2022, 2021 and 2020, and found no impairment.

Impairment of Long-Lived Assets

The Company periodically evaluates the carrying value of long-lived assets (excluding goodwill and indefinite-lived tradenames). Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. If the sum of the expected future undiscounted cash flows is less than the carrying amount of an asset, a loss is recognized for the difference between the fair value and carrying value of the asset.

Debt Issuance Costs

Debt discounts and direct costs incurred in connection with the issuance or amendment of long-term debt are deferred and recorded as a reduction of outstanding debt and amortized to interest expense using the effective interest method over the terms of the related credit agreements. \$3,234, \$2,589, and \$2,598, of deferred financing costs and original issue discount were amortized to interest expense during fiscal years 2022, 2021 and 2020, respectively. Excluding the impact of any future long-term debt issuances or prepayments, estimated amortization to interest expense for the next five years is as follows: 2023 - \$3,885; 2024 - \$3,923; 2025 - \$3,919; 2026 - \$3,819; 2027 - \$1,028.

Income Taxes

The Company is a C Corporation and therefore accounts for income taxes pursuant to the liability method. Accordingly, the current or deferred tax consequences of a transaction are measured by applying the provision of enacted tax laws to determine the amount of taxes payable currently or in future years. Deferred income taxes are provided for temporary differences between the income tax bases of assets and liabilities and their carrying amounts for financial reporting purposes. In assessing the realizability of deferred tax assets, the Company considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the years in which those temporary differences become deductible. The Company considers taxable income in prior carryback years, the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies, as appropriate, in making this assessment.

Revenue Recognition

The Company's revenues primarily consist of product sales to its customers. The Company considers the purchase orders, which in some cases are governed by master sales agreements, to be the contracts with the customers. For each contract, the Company considers the commitment to transfer products, each of which is distinct, to be the identified performance obligations. Revenue is measured as the amount of consideration the Company expects to be entitled in exchange for the transfer of product, which is generally the price stated in the contract specific for each item sold, adjusted for the value of expected returns, discounts, rebates, or other promotional incentives or allowances offered to our customers. Expected returns for damaged or defective product are estimated using the expected value method based on historical product return experience. Discounts and rebates offered to customers are typically defined in the master sales agreements with customers and, therefore, are recorded using the most likely amount method based on the terms of the contract. Promotional incentives are defined programs offered for short, specific periods of time and are estimated using the expected value method based on historical experience. The Company does not expect the transaction price for revenue recognized will be subject to a significant revenue reversal. As the Company's product sale contracts and standard payment terms have a duration of less than one year, it uses the practical expedient applicable to such contracts and does not consider the time value of money. Sales, use, value add, and other similar taxes assessed by governmental authorities and collected concurrent with revenue-producing activities are excluded from revenue. The Company has elected to recognize the cost for freight activities when control of the product has transferred to the customer as an expense within cost of goods sold in the consolidated statements of comprehensive income. Product revenues are recognized at the point in time when control of the product is transferred to the customer, which typically occurs upon shipment or delivery to the customer. To determine when control has transferred, the Company considers if there is a present right to payment and if legal title, physical possession, and the significant risks and rewards of ownership of the asset has transferred to the customer. As a substantial portion of the Company's product revenues are recognized at a point in time, the amount of unsatisfied performance obligations at each period end is not material. The Company's contracts have an original expected duration of one year or less. As a result, the Company has elected to use the practical expedient to not disclose its remaining performance obligations.

At the request of certain customers, the Company will warehouse inventory billed to the customer but not delivered. Unless all revenue recognition criteria have been met, the Company does not recognize revenue on these transactions until the customer takes possession of the product.

While the Company's standard payment terms are less than one year, the specific payment terms and conditions in its customer contracts vary. In some cases, customers prepay for their goods; in other cases, after appropriate credit evaluation, an open credit line is granted and payment is due in arrears. Contracts with payment in arrears are recognized in the consolidated balance sheets as accounts receivable upon revenue recognition, while contracts where customers pay in advance are recognized as customer deposits and recorded in other accrued liabilities in the consolidated balance sheets until revenue is recognized. The balance of customer deposits (contract liabilities) was \$33,551 and \$27,388 at December 31, 2022 and December 31, 2021, respectively. During the year ended December 31, 2022, the Company recognized revenue of \$27,388 related to amounts included in the December 31, 2021 customer deposit balance. The Company typically recognizes revenue within one year of the receipt of the customer deposit.

The Company offers standard warranty coverage on substantially all products that it sells and accounts for this standard warranty coverage as an assurance warranty. As such, no transaction price is allocated to the standard warranty, and the Company records a liability for product warranty obligations at the time of sale to a customer based on historical warranty experience. Refer to Note 11, “Product Warranty Obligations,” to the consolidated financial statements for further information regarding the Company’s standard warranties.

The Company also sells extended warranty coverage for certain products, which it accounts for as service warranties. In most cases, the extended warranty is sold as a separate contract. As such, extended warranty sales are considered a separate performance obligation, and the extended warranty transaction is separate and distinct from the product. The extended warranty transaction price is initially recorded as deferred revenue in the consolidated balance sheets and amortized on a straight-line basis to net sales in the consolidated statements of comprehensive income over the life of the contracts following the standard warranty period. For extended warranty contracts that the Company sells under a third-party marketing agreement, it is required to pay fees to the third-party service provider and classifies these fees as costs to obtain a contract. The contract costs are deferred and recorded as other assets in the consolidated balance sheets. The deferred contract costs are amortized to net sales in the consolidated statements of comprehensive income consistent with how the related deferred revenue is recognized. Refer to Note 11, “Product Warranty Obligations,” to the consolidated financial statements for further information regarding the Company’s extended warranties.

In addition to extended warranties, the Company offers other services, including remote monitoring, installation, maintenance, data center and telecom design and build, and grid services to utilities in certain circumstances. Total service revenues accounted for less than 3% of revenue during the year ended December 31, 2022.

Refer to Note 7, “Segment Reporting,” to the consolidated financial statements for the Company’s disaggregated revenue disclosure. The information discussed above is applicable to each of the Company’s product classes.

Advertising and Co-Op Advertising

Expenditures for advertising, included in selling and service expenses in the consolidated statements of comprehensive income, are expensed as incurred. Expenditures for advertising production costs are expensed when the related advertisement is first run. Expenditures for Co-Op advertising are expensed when claimed by the customer. Total expenditures for advertising were \$100,589, \$66,660, and \$53,678 for the years ended December 31, 2022, 2021 and 2020, respectively.

Research and Development

The Company expenses research and development costs as incurred. Total expenditures incurred for research and development were \$159,774, \$104,303, and \$80,251 for the years ended December 31, 2022, 2021 and 2020, respectively.

Foreign Currency Translation and Transactions

Balance sheet amounts for non-U.S. Dollar functional currency subsidiaries are translated into U.S. Dollars at the rates of exchange in effect at the end of the fiscal year. Income and expenses incurred in a foreign currency are translated at the average rates of exchange in effect during the year. The related balance sheet translation adjustments are made directly to accumulated other comprehensive loss, a component of stockholders’ equity, in the consolidated balance sheets. Gains and losses from foreign currency transactions are recognized as incurred in the consolidated statements of comprehensive income.

Fair Value of Financial Instruments

ASC 820-10, *Fair Value Measurement*, defines fair value, establishes a consistent framework for measuring fair value, and expands disclosure for each major asset and liability category measured at fair value on either a recurring basis or nonrecurring basis. ASC 820-10 clarifies that fair value is an exit price, representing the amount that would be received in the sale of an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. As a basis for considering such assumptions, the pronouncement establishes a three-tier fair value hierarchy, which prioritizes the inputs used in measuring fair value as follows: (Level 1) observable inputs such as quoted prices in active markets; (Level 2) inputs, other than the quoted prices in active markets, that are observable either directly or indirectly; and (Level 3) unobservable inputs in which there is little or no market data, which require the reporting entity to develop its own assumptions.

The Company believes the carrying amount of its financial instruments (cash and cash equivalents, accounts receivable, accounts payable, accrued liabilities, short-term borrowings, and revolving facility borrowings), excluding Term Loan borrowings, approximates the fair value of these instruments based on their short-term nature. The fair value of the Term Loan B borrowing, which has a net carrying value of \$523,305, was approximately \$516,750 (Level 2) at December 31, 2022, as calculated based on independent valuations whose inputs and significant value drivers are observable. The fair value of Term Loan A approximates the carrying value.

For the fair value of the assets and liabilities measured on a recurring basis, refer to the fair value table in Note 5, “Derivative Instruments and Hedging Activities,” to the consolidated financial statements. The fair value of all derivative contracts is classified as Level 2. The valuation techniques used to measure the fair value of derivative contracts, all of which have counterparties with high credit ratings, were based on quoted market prices or model driven valuations using significant inputs derived from or corroborated by observable market data. The fair value of derivative contracts considers the Company’s credit risk in accordance with ASC 820-10.

Contingent Consideration

Certain of the Company's business combinations involve potential payment of future consideration that is contingent upon the achievement of certain milestones. As part of purchase accounting, a liability is recorded for the estimated fair value of the contingent consideration on the acquisition date. The fair value of the contingent consideration is remeasured at each reporting period, and the change in fair value is recognized within general and administrative expenses in the Company's consolidated statements of comprehensive income. The fair value measurement of contingent consideration is typically categorized as a Level 3 liability, as the measurement amount is based primarily on significant inputs that are not observable in the market. The fair value measurement of ecobee's contingent consideration is categorized as a Level 1 liability, as a definitive payout agreement has been reached.

The fair value of contingent consideration as of December 31, 2022 and December 31, 2021 was \$81,533 and \$146,759, respectively. At December 31, 2022, the Company recorded \$49,500 in other accrued liabilities and \$32,033 in other long-term liabilities in the consolidated balance sheets. At December 31, 2021, the Company recorded \$68,665 in other accrued liabilities and \$78,094 in other long-term liabilities in the consolidated balance sheets.

The following table provides a reconciliation of the activity for contingent consideration:

Beginning balance, January 1, 2022	\$	146,759
Changes in fair value		(231)
Payment of contingent consideration (1)		(63,800)
Present value interest accretion		1,974
Currency translation		(3,169)
Ending balance, December 31, 2022	\$	<u>81,533</u>

(1) Includes payments of \$16,135 in cash for the Off Grid acquisition, \$47,123 in shares of common stock for the ecobee acquisition, and \$542 in cash for the ecobee acquisition. The payment of common stock is accounted for as a non-cash item in the consolidated statement of cash flows.

Use of Estimates

The preparation of the consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the 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.

Derivative Instruments and Hedging Activities

The Company records all derivatives in accordance with ASC 815, *Derivatives and Hedging*, which requires derivative instruments to be reported in the consolidated balance sheets at fair value and establishes criteria for designation and effectiveness of hedging relationships. The Company is exposed to market risk such as changes in commodity prices, foreign currencies and interest rates. The Company does not hold or issue derivative financial instruments for trading purposes.

Share-Based Compensation

Share-based compensation expense, including stock options and restricted stock awards, is generally recognized on a straight-line basis over the vesting period based on the fair value of awards which are expected to vest. The fair value of all share-based awards is estimated on the date of grant. Refer to Note 17, “Share Plans,” to the consolidated financial statements for further information on the Company’s share-based compensation plans and accounting.

Acquisition related costs

Acquisition related costs are external costs the Company incurs to affect a business combination including legal fees, professional and advisory services, transaction taxes such as stamp tax, and insurance premiums. The Company accounts for acquisition related costs as expense in the period in which the costs are incurred and the services are received. Total acquisition related costs were \$1,459, \$21,465, and \$1,411 for the years ended December 31, 2022, 2021 and 2020, respectively.

New Accounting Pronouncements

Changes to GAAP are established by the Financial Accounting Standards Board (FASB) in the form of accounting standard updates (“ASUs”) to the FASB Accounting Standards Codification (ASC). ASUs not listed below were assessed and determined to be either not applicable or are not expected to have a material impact on the Company’s consolidated financial statements.

Recently Adopted Accounting Standards

On October 1, 2022, the Company elected to early adopt ASU 2022-04, *Liabilities – Supplier Finance Program: Disclosure of Supplier Finance Program Obligations*. This guidance was issued to enhance the transparency of supplier finance programs. The amendments in this update require that a buyer in a supplier finance program disclose sufficient information about the program to allow a user of financial statements to understand the program's nature, activity during the period, changes from period to period, and potential magnitude. The Company has one supplier finance program; however, the program magnitude is not material to the Company.

3. Acquisitions

Fiscal 2022

Acquisitions

On June 30, 2022, the Company acquired EEC. Headquartered in Marlborough, Massachusetts, EEC is an industrial generator distributor as well as a provider of data center and telecom facility design, build, maintenance, and repair services.

On October 3, 2022, the Company acquired Blue Pillar, an industrial IoT platform developer that designs, deploys, and manages industrial IoT network software solutions to enable distributed energy generation monitoring and control.

The combined purchase price for these acquisitions was \$25,654, net of cash acquired and funded solely through cash on hand. The Company recorded its preliminary purchase price allocation for EEC and Blue Pillar during the second quarter and fourth quarter of 2022, respectively, based on its estimates of the fair value of the acquired assets and assumed liabilities. The accompanying consolidated financial statements include the results of these two acquired businesses since the dates of acquisition through December 31, 2022.

Fiscal 2021

Acquisition of Deep Sea

On June 1, 2021, the Company acquired Deep Sea for a purchase price, net of cash acquired, of \$420,700. Headquartered in Hunmanby, United Kingdom, Deep Sea is a designer and manufacturer of a diverse suite of flexible control solutions focused on the global power generation and transfer switch markets. The acquisition purchase price was funded solely through cash on hand.

The Company finalized the Deep Sea purchase price allocation during the second quarter of 2022 based on its estimates of the fair value of the acquired assets and assumed liabilities. The finalization did not result in material adjustments to the Company's preliminary estimates. As a result, the Company recorded \$437,874 of intangible assets, including \$263,604 of goodwill recorded in the International segment, as of the acquisition date. The goodwill ascribed to this acquisition is not deductible for tax purposes. The accompanying consolidated financial statements include the results of Deep Sea from the date of acquisition through December 31, 2022.

Acquisition of Chilicon

On July 2, 2021, the Company acquired Chilicon for a purchase price, net of cash acquired, of \$61,129 inclusive of estimated contingent consideration. Based in Los Angeles, California, Chilicon is a designer and provider of grid-interactive microinverter and monitoring solutions for the solar market. Chilicon's power inversion and monitoring system technologies maximize photovoltaic (solar power) system production, lower installer operational cost, and promote end-user satisfaction. Total consideration consisted of the following:

Cash paid at closing	\$	11,821
Deferred cash payment (1)		6,000
Common stock issued at closing		12,000
Contingent consideration (2)		31,308
Total purchase price	\$	<u>61,129</u>

(1) Payable on the third business day after December 31, 2023.

(2) Payable in common stock issued upon achievement of certain performance targets within 45 calendar days following the conclusion of the contingent consideration period, December 31, 2025.

The Company finalized the Chilicon purchase price allocation during the second quarter of 2022 based on its estimates of the fair value of the acquired assets and assumed liabilities. The finalization did not result in material adjustments to the Company's preliminary estimates. As a result, the Company recorded \$70,174 of intangible assets, including \$36,974 of goodwill recorded in the Domestic segment, as of the acquisition date. The goodwill ascribed to the Chilicon acquisition is not deductible for tax purposes. The accompanying consolidated financial statements include the results of Chilicon from the date of acquisition through December 31, 2022.

Acquisition of Off Grid Energy

On September 1, 2021, the Company acquired Off Grid Energy for a purchase price of \$56,949, net of cash acquired and inclusive of the then estimated contingent consideration of \$29,054 payable in cash based on contingent consideration period performance. The contingent consideration was paid during the third quarter of 2022 in the amount of \$16,135. Headquartered in Rugby, United Kingdom, Off Grid Energy is a designer and manufacturer of industrial-grade mobile energy storage systems. The acquisition purchase price was funded through cash on hand.

The Company finalized the Off Grid Energy purchase price allocation during the third quarter of 2022 based on its estimates of the fair value of the acquired assets and assumed liabilities. The finalization did not result in material adjustments to the Company's preliminary estimates. As a result, the Company recorded \$56,076 of intangible assets, including \$21,531 of goodwill recorded in the International segment, as of the acquisition date. The goodwill ascribed to this acquisition is not deductible for tax purposes. The accompanying consolidated financial statements include the results of Off Grid Energy from the date of acquisition through December 31, 2022.

Acquisition of ecobee

On December 1, 2021, the Company acquired ecobee for a purchase price, net of cash acquired, of \$735,577 inclusive of estimated contingent consideration. Headquartered in Toronto, Canada, ecobee is a leader in sustainable home technology solutions including smart thermostats that deliver significant energy savings, security and peace of mind. The purchase price consisted of the following:

Cash paid at closing	\$	225,403
Common stock issued at closing		420,774
Contingent consideration (1)		89,400
Total purchase price	\$	<u>735,577</u>

(1) To be paid in the form of common stock issued upon achievement of certain performance targets following the end of two contingent consideration periods, one ended June 30, 2022, and one originally ending June 30, 2023.

The contingent consideration for the period ended June 30, 2022, was paid during the fourth quarter of 2022 in the amount of \$47,123 in shares of common stock, or 196,531 shares of common stock, and \$542 was paid with cash on hand. Additionally, during the fourth quarter of 2022, the Company entered into a definitive agreement to accelerate the measurement and payment for the remaining contingent consideration period ending June 30, 2023. The parties agreed to a final payment amount of \$45,000 issued with 466,188 shares of common stock during the first quarter of 2023.

The Company finalized the ecobee purchase price allocation during the fourth quarter of 2022 based on its estimates of the fair value of the acquired assets and assumed liabilities. The finalization did not result in material adjustments to the Company's preliminary estimates. As a result, the Company recorded \$806,131 of intangible assets, including \$248,231 of goodwill recorded in the Domestic segment, as of the acquisition date. A portion of the goodwill ascribed to this acquisition is deductible for tax purposes. The accompanying consolidated financial statements include the results of ecobee from the date of acquisition through December 31, 2022.

Other Acquisitions

On September 1, 2021, the Company acquired Apricity Code, an advanced engineering and product design company located in Bend, Oregon.

On October 1, 2021, the Company acquired Tank Utility, a provider of IoT propane tank monitoring that enables the optimization of propane fuel logistics.

The combined purchase price for these two acquisitions was \$29,945, net of cash acquired, and was funded solely through cash on hand. The Company finalized its purchase price allocation during the third quarter of 2022 based on the Company's estimates of the fair value of the acquired assets and assumed liabilities. The finalization did not result in material adjustments to the Company's preliminary estimates. The accompanying consolidated financial statements include the results of these two acquired businesses since the dates of acquisition through December 31, 2022.

Fiscal 2020

Acquisition of Enbala

On October 7, 2020, the Company acquired Enbala for a purchase price, net of cash acquired, of \$41,982. Enbala is one of the leading providers of distributed energy optimization and control software that helps support the operational stability of the world's power grids. The acquisition purchase price was funded solely through cash on hand.

The Company finalized its purchase price allocation during the third quarter of 2021 based on its estimates of the fair value of the acquired assets and assumed liabilities. The finalization did not result in material adjustments to the Company's preliminary estimates. As a result, the Company recorded \$46,338 of intangible assets, including \$27,038 of goodwill recorded in the Domestic segment, as of the acquisition date. A portion of the goodwill ascribed to this acquisition is deductible for tax purposes. The accompanying consolidated financial statements include the results of Enbala from the date of acquisition through December 31, 2022.

Other Acquisitions

On July 1, 2020, the Company acquired Energy Systems, its industrial distributor in northern California.

On September 1, 2020, the Company acquired Mean Green, a designer and manufacturer of commercial grade, battery-powered turf care products.

The combined purchase price for these acquisitions was \$22,958 and was funded solely through cash on hand. The Company finalized its purchase price allocation for these two acquisitions during the third quarter of 2021 based on its estimates of the fair value of the acquired assets and assumed liabilities. The finalization did not result in material adjustments to the Company's preliminary estimates. The accompanying consolidated financial statements include the results of the acquired businesses since the dates of acquisition through December 31, 2022.

Summary Purchase Price Allocations

The fair values assigned to certain assets acquired and liabilities assumed for all acquisitions completed during the reporting period, as of the acquisition dates, are as follows:

	2022	2021 Acquisitions				2020
	Acquisitions	Deep Sea	ecobee	All Other	Total	Acquisitions
Accounts receivable	\$ 12,656	\$ 9,574	\$ 23,337	\$ 13,852	\$ 46,763	\$ 5,094
Inventories	3,138	9,970	7,258	7,034	24,262	3,575
Prepaid expenses and other current assets	4,707	1,181	5,689	6,594	13,464	858
Property and equipment	708	8,838	3,588	480	12,906	635
Intangible assets	8,711	174,270	557,900	81,171	813,341	26,235
Goodwill	6,870	263,604	248,231	83,859	595,694	40,395
Deferred income taxes	-	-	40,020	5,694	45,714	-
Other assets	1,953	151	9,289	8,526	17,966	1,122
Total assets acquired	38,743	467,588	895,312	207,210	1,570,110	77,914
Accounts payable	1,479	8,998	25,968	7,473	42,439	4,088
Accrued wages and employee benefits	1,429	2,106	1,354	872	4,332	700
Other accrued liabilities	7,934	1,737	19,898	18,258	39,893	2,151
Short-term borrowings	-	-	-	800	800	-
Current portion of long-term borrowings and finance lease obligations	-	-	-	233	233	-
Deferred income taxes	1,090	33,957	78,753	19,930	132,640	3,827
Other long-term liabilities	1,157	90	33,762	9,997	43,849	2,208
Long-term debt	-	-	-	1,624	1,624	-
Net assets acquired	\$ 25,654	\$ 420,700	\$ 735,577	\$ 148,023	\$ 1,304,300	\$ 64,940

The allocations of the purchase price to identifiable assets and liabilities for the 2021 and 2020 acquisitions are based on the final valuations performed to determine the fair value of the net assets as of their respective acquisition dates.

Pro Forma Information

The following unaudited pro forma information of the Company gives effect to all acquisitions as though the transactions had occurred on January 1, 2020. Refer to Note 1, “Description of Business,” for further information on the acquisitions included in the table.

	Year Ended December 31,		
	2022	2021	2020
Net Sales:			
As reported	\$ 4,564,737	\$ 3,737,184	\$ 2,485,200
Pro forma	4,593,485	3,932,250	2,764,363
Net income attributable to Generac Holdings Inc.:			
As reported	\$ 399,502	\$ 550,494	\$ 350,576
Pro forma (1)	402,670	462,903	267,376
Net income attributable to Generac Holdings Inc. per common share - diluted			
As reported	\$ 5.42	\$ 8.30	\$ 5.48
Pro forma	5.47	6.94	4.11

(1) Includes additional pro forma intangible amortization from all acquisitions as though the transactions had occurred on January 1, 2020 of \$941, \$68,247, and \$84,151 for the years ended December 31, 2022, 2021, and 2020, respectively.

This unaudited pro forma information is presented for informational purposes only and is not necessarily indicative of the results of operations that actually would have been achieved had the acquisitions been consummated on January 1, 2020.

4. Redeemable Noncontrolling Interest

On March 1, 2016, the Company acquired a 65% ownership interest in PR Industrial S.r.l. and its subsidiaries (Pramac). The 35% noncontrolling interest in Pramac had an acquisition date fair value of \$34,253 and was recorded as a redeemable noncontrolling interest in the consolidated balance sheet, as the noncontrolling interest holder had the right to require the Company to redeem its interest in Pramac. In February 2019, the Company amended its agreement with the noncontrolling interest holder of Pramac, extending the agreement by five years, allowing the Company to exercise its call option rights in partial increments at certain times during the five-year period, and providing that the noncontrolling interest holder no longer held the right to put its shares to the Company until April 1, 2021. The put and call option price is based on a multiple of earnings, subject to a floor and the terms of the acquisition agreement, as amended. In May 2021, the Company exercised its call option rights and paid a purchase price of \$27,164 to purchase an additional 15% ownership interest in Pramac, bringing the Company's total ownership interest to 80%. The Company still holds its call option right to purchase the remaining 20% ownership interest in partial increments over the next two years.

On February 1, 2019, the Company acquired a 51% ownership interest in Captiva Energy Solutions, Ltd (Captiva). The 49% noncontrolling interest in Captiva had an acquisition date fair value of \$3,165 and was recorded as a redeemable noncontrolling interest in the consolidated balance sheet, as the noncontrolling interest holder had the right to require the Company to redeem its interest in Captiva. The noncontrolling interest holder has a put option to sell his interest to the Company any time after five years from the date of acquisition, or earlier upon the occurrence of certain circumstances. Further, the Company has a call option that it may redeem any time after five years from the date of acquisition, or earlier upon the occurrence of certain circumstances. The put and call option price is based on a multiple of earnings, subject to the terms of the acquisition agreement. In March 2022, the Company signed an agreement to purchase an additional 15% ownership interest in Captiva for a purchase price of \$461, bringing the Company's total ownership interest in Captiva to 66%. In May 2022, the Company signed an amendment to the purchase agreement resulting in a revised purchase price of \$375, which was paid with cash on hand. The Company still holds its call option right to purchase the remaining 34% ownership interest any time after five years from the date of acquisition, or earlier upon the occurrence of certain circumstances.

For both transactions, the redeemable noncontrolling interest is recorded at the greater of the initial fair value, increased or decreased for the noncontrolling interests' share of subsequent comprehensive income (loss), or the estimated redemption value, with any adjustments to the redemption value impacting retained earnings, but not net income. However, the redemption value adjustments are reflected in the earnings per share calculation, as detailed in Note 14, "Earnings Per Share," to the consolidated financial statements. The following table presents the changes in the redeemable noncontrolling interest:

	Year Ended December 31,		
	2022	2021	2020
Balance at beginning of period	\$ 58,050	\$ 66,207	\$ 61,227
Share of net income (loss)	7,543	5,574	(2,829)
Foreign currency translation	(3,982)	(3,669)	6,562
Purchase of additional ownership interest	(375)	(27,164)	-
Redemption value adjustment	49,235	17,102	1,247
Balance at end of period	\$ 110,471	\$ 58,050	\$ 66,207

5. Derivative Instruments and Hedging Activities

Commodities

The Company is exposed to price fluctuations in commodities including steel, copper and aluminum; and periodically utilizes commodity derivatives to mitigate the impact of these potential price fluctuations on its financial results. These derivatives typically have maturities of less than eighteen months. At December 31, 2022 and 2021, the Company had no commodity contracts outstanding.

Because these contracts do not qualify for hedge accounting, the related gains and losses are recorded in cost of goods sold in the Company's consolidated statements of comprehensive income. Net pre-tax gains recognized were \$29, \$613, and \$2,185 for the years ended December 31, 2022, 2021 and 2020, respectively.

Foreign Currencies

The Company is exposed to foreign currency exchange risk as a result of transactions denominated in currencies other than the U.S. Dollar. The Company periodically utilizes foreign currency forward purchase and sales contracts to manage the volatility associated with certain foreign currency purchases and sales in the normal course of business. Contracts typically have maturities of twelve months or less. As of December 31, 2022 and 2021, the Company had thirty-four and eleven foreign currency contracts outstanding, respectively.

Because these contracts do not qualify for hedge accounting, the related gains and losses are recorded in "other, net" in the Company's consolidated statements of comprehensive income. Net pre-tax gains (losses) recognized for the years ended December 31, 2022, 2021 and 2020 were \$579, \$(416), and \$355, respectively.

Interest Rate Swaps

In 2017, the Company entered into twenty interest rate swap agreements, four of which were still outstanding as of December 31, 2022. In March 2020, the Company entered into three additional interest rate swap agreements, bringing the total outstanding interest rate swaps to seven as of December 31, 2022.

In June 2022, in conjunction with the amendments to the Company's credit agreements discussed further in Note 12, "Credit Agreements," to the consolidated financial statements, the Company amended its interest rate swaps to match the underlying debt and reconfirmed hedge effectiveness. The Company formally documented all relationships between interest rate hedging instruments and the related hedged items, as well as its risk-management objectives and strategies for undertaking various hedge transactions. These interest rate swap agreements qualify as cash flow hedges and therefore, the effective portions of their gains or losses are reported as a component of accumulated other comprehensive loss (AOCL) in the consolidated balance sheets.

The amount of after-tax unrealized gains (losses) recognized for the years ended December 31, 2022, 2021 and 2020 were \$38,494, \$20,529, and \$(14,285), respectively. The cash flows of the swaps are recognized as adjustments to interest expense each period. The ineffective portions of the derivatives' changes in fair value, if any, are immediately recognized in earnings.

Fair Value

The following table presents the fair value of the Company's derivatives:

	December 31, 2022	December 31, 2021
Foreign currency contracts	\$ 94	\$ (36)
Interest rate swaps	49,279	(2,074)

The fair values of the foreign currency contracts and interest rate swaps are included in prepaid expenses and other current assets and operating lease and other assets in the consolidated balance sheet as of December 31, 2022. The fair values of the foreign currency contracts and interest rate swaps are included in other accrued liabilities and other long-term liabilities in the consolidated balance sheet as of December 31, 2021. Excluding the impact of credit risk, the fair value of the derivative contracts as of December 31, 2022, is an asset of \$51,184, which represents the net amount the Company would receive to exit all of the agreements on that date. Excluding the impact of credit risk, the fair value of the derivative contracts as of December 31, 2021, is a liability of \$2,148, which represents the net amount the Company would pay to exit all of the agreements on that date.

6. Accumulated Other Comprehensive Loss

The following presents a tabular disclosure of changes in AOCL during the years ended December 31, 2022 and 2021, net of tax:

	Foreign Currency Translation Adjustments	Unrealized Gain (Loss) on Cash Flow Hedges	Total
Beginning Balance – January 1, 2022	\$ (52,704)	\$ (2,051)	\$ (54,755)
Other comprehensive income (loss) before reclassifications	(48,841) (1)	38,494 (2)	(10,347)
Amounts reclassified from AOCL	-	-	-
Net current-period other comprehensive income (loss)	(48,841)	38,494	(10,347)
Ending Balance – December 31, 2022	\$ (101,545)	\$ 36,443	\$ (65,102)

	Foreign Currency Translation Adjustments	Unrealized Gain (Loss) on Cash Flow Hedges	Total
Beginning Balance – January 1, 2021	\$ (11,674)	\$ (22,580)	\$ (34,254)
Other comprehensive income (loss) before reclassifications	(41,030) (3)	20,529 (4)	(20,501)
Amounts reclassified from AOCL	-	-	-
Net current-period other comprehensive income (loss)	(41,030)	20,529	(20,501)
Ending Balance – December 31, 2021	\$ (52,704)	\$ (2,051)	\$ (54,755)

- (1) Represents unfavorable impact from the strengthening of the U.S. dollar against foreign currencies during the year ended December 31, 2022, particularly the Euro and British Pound.
- (2) Represents unrealized gains of \$51,352 on the interest rate swaps, net of tax effect of \$(12,858) for the year ended December 31, 2022.
- (3) Represents unfavorable impact from the strengthening of the U.S. dollar against foreign currencies during the year ended December 31, 2021, particularly the Euro and British Pound.
- (4) Represents unrealized gains of \$27,462 on the interest rate swaps, net of tax effect of \$(6,933) for the year ended December 31, 2021.

7. Segment Reporting

The Company has two reportable segments for financial reporting purposes – Domestic and International. The Domestic segment includes the legacy Generac business (excluding its traditional Latin American export operations), and the acquisitions that are based in the U.S. and Canada, all of which have revenues substantially derived from the U.S. and Canada. The International segment includes the legacy Generac business' Latin American export operations, and the acquisitions not based in the U.S. and Canada, all of which have revenues substantially derived from outside the U.S. and Canada. Both reportable segments design and manufacture a wide range of energy technology solutions and other power products. The Company has multiple operating segments, which it aggregates into the two reportable segments, based on materially similar economic characteristics, products, production processes, classes of customers, distribution methods, organizational structure, and regional considerations.

The Company's product offerings consist primarily of power generation equipment, energy storage systems, energy management devices & solutions, and other power products geared for varying end customer uses. Residential products and C&I products are each a similar class of products based on similar power output and end customer. The breakout of net sales between residential, C&I, and other products & services by reportable segment is as follows:

Net Sales by Segment			
Year Ended December 31, 2022			
Product Classes	Domestic	International	Total
Residential products	\$ 2,782,037	\$ 129,834	\$ 2,911,871
Commercial & industrial products	746,172	514,565	1,260,737
Other	339,657	52,472	392,129
Total net sales	<u>\$ 3,867,866</u>	<u>\$ 696,871</u>	<u>\$ 4,564,737</u>

Year Ended December 31, 2021			
Product Classes	Domestic	International	Total
Residential products	\$ 2,366,908	\$ 89,857	\$ 2,456,765
Commercial & industrial products	556,520	442,478	998,998
Other	240,622	40,799	281,421
Total net sales	<u>\$ 3,164,050</u>	<u>\$ 573,134</u>	<u>\$ 3,737,184</u>

Year Ended December 31, 2020			
Product Classes	Domestic	International	Total
Residential products	\$ 1,495,383	\$ 61,118	\$ 1,556,501
Commercial & industrial products	404,867	296,884	701,751
Other	188,558	38,390	226,948
Total net sales	<u>\$ 2,088,808</u>	<u>\$ 396,392</u>	<u>\$ 2,485,200</u>

Residential products consist primarily of automatic home standby generators ranging in output from 7.5kW to 150kW, portable generators, energy storage systems, energy management devices & solutions, and other outdoor power equipment. These products are predominantly sold through independent residential dealers, national and regional retailers, e-commerce merchants, electrical/HVAC/solar wholesalers, solar installers, and outdoor power equipment dealers. The residential products revenue consists of the sale of the product to our distribution partners, who in turn sell or rent the product to the end consumer, including installation and maintenance services. In some cases, residential products are sold direct to the end consumer. Substantially all of the residential products revenues are transferred to the customer at a point in time.

C&I products consist of larger output stationary generators used in C&I applications, with power outputs up to 3,250kW. Also included in C&I products are mobile generators, light towers, mobile energy storage systems, mobile heaters, mobile pumps, and related controllers for power generation equipment. These products are sold globally through industrial distributors and dealers, EPC companies, equipment rental companies, and equipment distributors. The C&I products revenue consists of the sale of the product to our distribution partners, who in turn sell or rent the product to the end customer, including installation and maintenance services. In some cases, C&I products are sold direct to the end customer. Substantially all of the C&I products revenues are transferred to the customer at a point in time.

Other consists primarily of aftermarket service parts and product accessories sold to our customers, the amortization of extended warranty deferred revenue, remote monitoring and grid services subscription revenue, as well as certain installation and maintenance service revenue. The aftermarket service parts and product accessories are generally transferred to the customer at a point in time, while the extended warranty and subscription revenue are recognized over the life of the contract. Other service revenue is recognized when the service is performed.

The following tables sets forth total sales by reportable segment and inclusive of intersegment sales:

	Year Ended December 31, 2022			
	Domestic	International	Eliminations	Total
External net sales	\$ 3,867,866	\$ 696,871	\$ -	\$ 4,564,737
Intersegment sales	60,731	93,699	(154,430)	-
Total sales	<u>\$ 3,928,597</u>	<u>\$ 790,570</u>	<u>\$ (154,430)</u>	<u>\$ 4,564,737</u>

	Year Ended December 31, 2021			
	Domestic	International	Eliminations	Total
External net sales	\$ 3,164,050	\$ 573,134	\$ -	\$ 3,737,184
Intersegment sales	39,339	26,123	(65,462)	-
Total sales	<u>\$ 3,203,389</u>	<u>\$ 599,257</u>	<u>\$ (65,462)</u>	<u>\$ 3,737,184</u>

	Year Ended December 31, 2020			
	Domestic	International	Eliminations	Total
External net sales	\$ 2,088,808	\$ 396,392	\$ -	\$ 2,485,200
Intersegment sales	13,505	1,649	(15,154)	-
Total sales	<u>\$ 2,102,313</u>	<u>\$ 398,041</u>	<u>\$ (15,154)</u>	<u>\$ 2,485,200</u>

Management evaluates the performance of its segments based primarily on Adjusted EBITDA, which is reconciled to Income before provision for income taxes below. The computation of Adjusted EBITDA is based primarily on the definition that is contained in the Company's credit agreements.

	Adjusted EBITDA		
	Year Ended December 31,		
	2022	2021	2020
Domestic	\$ 716,302	\$ 795,417	\$ 563,394
International	109,065	66,008	20,379
Total adjusted EBITDA	<u>\$ 825,367</u>	<u>\$ 861,425</u>	<u>\$ 583,773</u>

Interest expense	(54,826)	(32,953)	(32,991)
Depreciation and amortization	(156,141)	(92,041)	(68,773)
Non-cash write-down and other adjustments (1)	2,091	3,070	327
Non-cash share-based compensation expense (2)	(29,481)	(23,954)	(20,882)
Loss on extinguishment of debt (3)	(3,743)	(831)	-
Transaction costs and credit facility fees (4)	(5,026)	(22,357)	(2,151)
Business optimization and other charges (5)	(4,371)	(33)	(12,158)
Provision for regulatory and clean energy product charges (6)	(65,265)	-	-
Other	(139)	(800)	(954)
Income before provision for income taxes	<u>\$ 508,466</u>	<u>\$ 691,526</u>	<u>\$ 446,191</u>

- (1) Includes gains/losses on disposals of assets and sales of certain investments, unrealized mark-to-market adjustments on commodity contracts, certain foreign currency related adjustments, and certain purchase accounting and contingent consideration adjustments.
- (2) Represents share-based compensation expense to account for stock options, restricted stock and other stock awards over their respective vesting periods.
- (3) Represents the non-cash write-off of original issue discount and deferred financing costs due primarily to a voluntary prepayment of debt.
- (4) Represents transaction costs incurred directly in connection with any investment, as defined in our credit agreement, equity issuance, debt issuance, or refinancing, together with certain fees relating to our senior secured credit facilities.
- (5) For the year ended December 31, 2022, predominantly represents severance and other restructuring charges related to the suspension of operations at certain of our facilities. For the year ended December 31, 2020, represents severance, non-cash asset write-downs and other charges to address the impact of the COVID-19 pandemic and decline in oil prices on demand for C&I products. These charges represent expenses that do not reflect ongoing operations.
- (6) For the year ended December 31, 2022, represents a specific credit loss provision of \$17,926 for a clean energy product customer that filed for bankruptcy, as well as a warranty provision of \$37,338 to address certain clean energy product warranty-related matters. The amount also includes a provision of \$10,000 for a pending and unresolved matter with the CPSC concerning the imposition of potential penalty fines for allegedly failing to timely submit a report under the CPSA in relation to certain portable generators that were subject to a voluntary recall previously announced on July 29, 2021.

The following tables summarize additional financial information by reportable segment:

	Assets		
	December 31,		
	2022	2021	2020
Domestic	\$ 4,032,086	\$ 3,742,101	\$ 2,659,597
International	1,137,376	1,135,679	575,826
Total	<u>\$ 5,169,462</u>	<u>\$ 4,877,780</u>	<u>\$ 3,235,423</u>

	Depreciation and Amortization		
	Year Ended December 31,		
	2022	2021	2020
Domestic	\$ 123,768	\$ 66,675	\$ 53,020
International	32,373	25,366	15,753
Total	<u>\$ 156,141</u>	<u>\$ 92,041</u>	<u>\$ 68,773</u>

	Capital Expenditures		
	Year Ended December 31,		
	2022	2021	2020
Domestic	\$ 69,680	\$ 100,672	\$ 51,867
International	16,508	9,320	10,261
Total	<u>\$ 86,188</u>	<u>\$ 109,992</u>	<u>\$ 62,128</u>

The Company's sales in the United States represent approximately 80%, 82%, and 82% of total sales for the years ended December 31, 2022, 2021 and 2020, respectively. Approximately 77% and 75% of the Company's identifiable long-lived assets are located in the United States as of December 31, 2022 and 2021, respectively.

8. Balance Sheet Details

Inventories consist of the following:

	December 31,	
	2022	2021
Raw material	\$ 798,340	\$ 727,162
Work-in-process	14,899	10,756
Finished goods	592,145	351,787
Total	<u>\$ 1,405,384</u>	<u>\$ 1,089,705</u>

As of December 31, 2022 and 2021, inventories totaling \$17,914 and \$15,555, respectively, were on consignment at customer locations.

Property and equipment consists of the following:

	December 31,	
	2022	2021
Land and improvements	\$ 22,589	\$ 26,137
Buildings and improvements	243,553	244,273
Machinery and equipment	229,593	186,611
Dies and tools	37,343	31,581
Vehicles	9,807	7,621
Office equipment and systems	148,166	125,048
Leasehold improvements	6,849	5,679
Construction in progress	52,522	47,601
Gross property and equipment	750,422	674,551
Accumulated depreciation	(282,818)	(233,699)
Total	\$ 467,604	\$ 440,852

Total property and equipment included finance leases of \$24,719 and \$36,776 at December 31, 2022 and 2021, respectively, primarily made up of buildings and improvements. Amortization of finance lease right of use assets is recorded within depreciation expense in the consolidated statements of comprehensive income. The initial measurement of new finance lease right of use assets is accounted for as a non-cash item in the consolidated statement of cash flows. Refer to Note 10, "Leases," for further information regarding the Company's accounting for leases under ASC 842, *Leases*.

9. Goodwill and Intangible Assets

The changes in the carrying amount of goodwill by reportable segment for the years ended December 31, 2022 and 2021 are as follows:

	Domestic	International	Total
Balance at December 31, 2020	\$ 702,535	\$ 152,693	\$ 855,228
Acquisitions of businesses, net	293,614	284,447	578,061
Foreign currency translation	(705)	(22,910)	(23,615)
Balance at December 31, 2021	995,444	414,230	1,409,674
Acquisitions of businesses, net	22,128	437	22,565
Foreign currency translation	(915)	(30,444)	(31,359)
Balance at December 31, 2022	\$ 1,016,657	\$ 384,223	\$ 1,400,880

Refer to Note 3, "Acquisitions," to the consolidated financial statements for further information regarding the Company's acquisitions.

The details of the gross goodwill applicable to each reportable segment at December 31, 2022 and 2021 are as follows:

	December 31, 2022			December 31, 2021		
	Gross	Accumulated Impairment	Net	Gross	Accumulated Impairment	Net
Domestic	\$ 1,519,850	\$ (503,193)	\$ 1,016,657	\$ 1,498,637	\$ (503,193)	\$ 995,444
International	388,834	(4,611)	384,223	418,841	(4,611)	414,230
Total	\$ 1,908,684	\$ (507,804)	\$ 1,400,880	\$ 1,917,478	\$ (507,804)	\$ 1,409,674

The following table summarizes intangible assets by major category as of December 31, 2022 and 2021:

		December 31, 2022			December 31, 2021		
	Weighted Average Amortization Years		Accumulated Amortization	Net Book Value		Accumulated Amortization	Net Book Value
		Gross			Gross		
Finite-lived intangible assets:							
Tradenames	14	\$ 157,751	\$ (58,821)	\$ 98,930	\$ 162,563	\$ (47,353)	\$ 115,210
Customer lists	11	577,203	(370,216)	206,987	573,910	(335,188)	238,722
Patents and technology	14	665,563	(210,806)	454,757	662,341	(169,868)	492,473
Software	-	1,046	(1,046)	-	1,046	(1,046)	-
Non-compete/other	5	70,585	(28,866)	41,719	79,416	(12,980)	66,436
Total finite-lived intangible assets		\$ 1,472,148	\$ (669,755)	\$ 802,393	\$ 1,479,276	\$ (566,435)	\$ 912,841
Indefinite-lived tradenames		128,321	-	128,321	128,321	-	128,321
Total intangible assets		\$ 1,600,469	\$ (669,755)	\$ 930,714	\$ 1,607,597	\$ (566,435)	\$ 1,041,162

Amortization expense of intangible assets was \$103,320, \$49,886, and \$32,280 in 2022, 2021 and 2020, respectively. Excluding the impact of any future acquisitions, the Company estimates amortization expense for the next five years will be as follows: 2023 - \$99,512; 2024 - \$94,070; 2025 - \$89,561; 2026 - \$82,392; 2027 - \$56,162.

10. Leases

The Company leases certain manufacturing facilities, distribution centers, office space, warehouses, automobiles, machinery and computer equipment globally under both finance and operating leases. The Company's leases have remaining lease terms of up to 20 years, of which certain leases, primarily within the buildings and improvements asset class, include options to extend the leases for up to 10 additional years. Further, the Company leases certain buildings from a noncontrolling interest holder, which the Company has determined to be arm's length transactions.

The Company determines if an arrangement is or contains a lease at contract inception. The Company recognizes a right of use ("ROU") asset and lease liability at the lease commencement date based on the present value of the lease payments over the lease term. As the Company's leases generally do not provide an implicit rate, the incremental borrowing rate is used to determine the present value of lease payments. The incremental borrowing rate is a collateralized rate determined based on the lease term, the Company's credit rating, and other market information available at the commencement date. The ROU asset also includes any lease payments made prior to the commencement date and is reduced by any lease incentives. The lease term may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Lease expense for operating leases is recognized on a straight-line basis over the lease term, while lease expense for finance leases is recognized as depreciation and interest expense using the effective interest method. The Company's variable lease expense generally consists of property tax and insurance payments that are variable in nature, however, these amounts are immaterial to the consolidated financial statements and are therefore not separately reported.

The Company has lease agreements with both lease and nonlease components, which it elected to account for as a single lease component. However, the Company did not elect to apply the recognition exception for short-term leases. The Company is applying these elections to all asset classes.

The Company is a lessor of certain of its C&I mobile products as part of a rental fleet, as well as two of its buildings that it leases to third parties. The lease income related to these arrangements is not material to the consolidated financial statements.

The Company records its operating lease cost and amortization of finance lease ROU assets within cost of goods sold or operating expenses in the consolidated statements of comprehensive income depending on the cost center of the underlying asset. The Company records its finance lease interest cost within interest expense in the consolidated statements of comprehensive income.

The components of total lease cost consist of the following:

	Year Ended December 31, 2022	Year Ended December 31, 2021	Year Ended December 31, 2020
Operating lease cost	\$ 36,292	\$ 22,432	\$ 18,648
Finance lease cost:			
Amortization of ROU assets	3,298	3,187	2,587
Interest on lease liabilities	1,945	2,021	2,237
Total lease cost	<u>\$ 41,535</u>	<u>\$ 27,640</u>	<u>\$ 23,472</u>

Supplemental balance sheet information related to the Company's leases is as follows:

	December 31, 2022	December 31, 2021
Operating Leases		
Operating lease ROU assets (1)	\$ 100,083	\$ 101,266
Operating lease liabilities - current (2)	\$ 30,330	\$ 23,549
Operating lease liabilities - noncurrent (3)	73,547	80,370
Total operating lease liabilities	<u>\$ 103,877</u>	<u>\$ 103,919</u>
Finance Leases		
Finance lease ROU assets, gross	\$ 35,470	\$ 47,119
Accumulated depreciation - finance lease ROU assets	(10,751)	(10,343)
Finance lease ROU assets, net (4)	<u>\$ 24,719</u>	<u>\$ 36,776</u>
Finance lease liabilities - current (5)	\$ 2,650	\$ 4,209
Finance lease liabilities - noncurrent (6)	24,770	34,966
Total finance lease liabilities	<u>\$ 27,420</u>	<u>\$ 39,175</u>

- (1) Recorded in the operating lease and other assets line within the consolidated balance sheets
- (2) Recorded in the other accrued liabilities line within the consolidated balance sheets
- (3) Recorded in the operating lease and other long-term liabilities line within the consolidated balance sheets
- (4) Recorded in the property and equipment, net line within the consolidated balance sheets
- (5) Recorded in the current portion of long-term borrowings and finance lease obligations line within the consolidated balance sheets
- (6) Recorded in the long-term borrowings and finance lease obligations line within the consolidated balance sheets

Supplemental cash flow information related to the Company's leases is as follows:

	Year Ended December 31, 2022	Year Ended December 31, 2021	Year Ended December 31, 2020
Cash paid for amounts included in the measurement of lease liabilities			
Operating cash flows from operating leases	\$ 36,020	\$ 21,250	\$ 18,412
Operating cash flows from finance leases	1,919	1,972	1,871
Financing cash flows from finance leases	4,931	4,679	3,957
ROU assets obtained in exchange for lease liabilities			
Operating leases	28,766	55,057	41,678
Finance leases	2,874	4,026	3,737

Weighted average remaining lease term and discount rate information related to the Company's leases as of December 31, 2022 and 2021 is as follows:

	December 31, 2022	December 31, 2021
Weighted average remaining lease term (in years)		
Operating Leases	4.65	5.21
Finance Leases	11.26	11.94
Weighted average discount rate		
Operating Leases	4.82%	3.58%
Finance Leases	7.58%	7.43%

The maturities of the Company's lease liabilities as of December 31, 2022 are as follows:

	Finance Leases	Operating Leases
2023	\$ 4,487	\$ 34,208
2024	4,223	30,834
2025	3,639	20,386
2026	3,137	9,855
2027	2,929	8,334
After 2027	24,405	14,743
Total minimum lease payments	42,820	118,360
Interest component	(15,400)	(14,483)
Present value of minimum lease payments	\$ 27,420	\$ 103,877

11. Product Warranty Obligations

The Company records a liability for standard product warranty obligations accounted for as assurance warranties at the time of sale of the related product to a customer based on historical warranty experience. The Company also records a liability for specific warranty matters when they become known and are reasonably estimable. The following is a tabular reconciliation of the Company's standard product warranty liability accounted for as an assurance warranty:

	Year Ended December 31,		
	2022	2021	2020
Balance at beginning of period	\$ 94,213	\$ 59,218	\$ 49,316
Product warranty reserve assumed in acquisition	-	3,932	124
Payments	(77,476)	(42,682)	(33,496)
Provision for warranty issued	80,340	69,280	42,093
Changes in estimates for pre-existing warranties (1)	40,934	4,465	1,181
Balance at end of period	\$ 138,011	\$ 94,213	\$ 59,218

(1) Includes a specific warranty provision recorded during the third quarter of 2022 in the amount of \$37,338 to address certain clean energy product related matters.

The Company also sells extended warranty coverage for certain products, which it accounts for as a service warranty. The sales of extended warranties are recorded as deferred revenue, and typically have a duration of five to ten years. The deferred revenue related to extended warranty coverage is amortized over the duration of the extended warranty contract period, following the standard warranty period, using the straight-line method. The Company believes the straight-line method is appropriate because the performance obligation is satisfied based on the passage of time. The amortization of deferred revenue is recorded to net sales in the consolidated statements of comprehensive income. The following is a tabular reconciliation of the deferred revenue related to extended warranty coverage:

	Year Ended December 31,		
	2022	2021	2020
Balance at beginning of period	\$ 111,647	\$ 89,788	\$ 78,738
Deferred revenue contracts issued	42,869	41,560	26,968
Amortization of deferred revenue contracts	(21,703)	(19,701)	(15,918)
Balance at end of period	\$ 132,813	\$ 111,647	\$ 89,788

The timing of recognition of the Company's deferred revenue balance related to extended warranties at December 31, 2022 is as follows:

2023	\$	30,291
2024		24,472
2025		22,120
2026		17,803
After 2026		38,127
Total	\$	<u>132,813</u>

The Company has a post-sale extended warranty marketing agreement with a third party, pursuant to which the Company is required to pay fees to the third-party service provider based on the number of extended warranty contracts that they sell, which it classifies as costs to obtain a contract. These fees are deferred and recorded as other assets in the consolidated balance sheets, and then amortized to net sales in the consolidated statements of comprehensive income over the same period that the underlying deferred revenue is recognized. Deferred contract costs as of December 31, 2022 and 2021 were \$9,199 and \$8,479, respectively. Amortization of deferred contract costs recorded during the years ended December 31, 2022, 2021 and 2020 was \$1,932, \$1,739, and \$1,303, respectively.

Standard product warranty obligations and extended warranty related deferred revenues are included in the consolidated balance sheets as follows:

	December 31,	
	2022	2021
Product warranty liability		
Current portion - accrued product warranty	\$ 89,141	\$ 59,052
Long-term portion - other long-term liabilities	48,870	35,161
Total	<u>\$ 138,011</u>	<u>\$ 94,213</u>
Deferred revenue related to extended warranties		
Current portion - other accrued liabilities	\$ 30,291	\$ 20,556
Long-term portion - other long-term liabilities	102,522	91,091
Total	<u>\$ 132,813</u>	<u>\$ 111,647</u>

12. Credit Agreements

Short-term borrowings included in the consolidated balance sheets as of December 31, 2022 and 2021 consisted of borrowings by the Company's foreign subsidiaries on local lines of credit totaling \$48,990 and \$72,035, respectively.

Long-term borrowings are included in the consolidated balance sheets as follows:

	December 31,	
	2022	2021
Tranche A Term Loan	\$ 750,000	\$ -
Tranche B Term Loan	530,000	780,000
Original issue discount and deferred financing costs	(16,568)	(13,214)
ABL facility	-	100,000
Revolver	90,000	-
Finance lease obligation	27,420	39,175
Other	966	2,060
Total	<u>1,381,818</u>	<u>908,021</u>
Less: current portion of debt	10,083	1,721
Less: current portion of finance lease obligation	2,650	4,209
Total	<u>\$ 1,369,085</u>	<u>\$ 902,091</u>

Maturities of long-term borrowings outstanding at December 31, 2022, excluding finance lease obligations as their maturities are disclosed in Note 10, “Leases,” and before considering original issue discount and deferred financing costs, are as follows:

	Tranche A Term Loan	Tranche B Term Loan	Revolver and Other	Total
2023	\$ 9,375	\$ -	\$ 708	\$ 10,083
2024	28,125	-	53	28,178
2025	46,875	-	56	46,931
2026	65,625	530,000	86	595,711
2027	600,000	-	90,032	690,032
After 2027	-	-	31	31
Total	<u>\$ 750,000</u>	<u>\$ 530,000</u>	<u>\$ 90,966</u>	<u>\$ 1,370,966</u>

The Tranche B Term Loan Facility matures on December 13, 2026, while the Tranche A Term Loan Facility and Revolving Facility mature on June 29, 2027. The Tranche A Term Loan Facility principal is repayable in quarterly installments beginning in September 2023.

The Company’s credit agreements originally provided for a \$1,200,000 term loan B credit facility (Tranche B Term Loan Facility) and included a \$300,000 uncommitted incremental term loan on that facility. The maturity date of the Tranche B Term Loan Facility is December 13, 2026. The Tranche B Term Loan Facility initially bore interest at rates based on either a base rate plus an applicable margin of 1.75% or adjusted LIBOR rate plus an applicable margin of 2.75%, subject to a LIBOR floor of 0.75%. After a number of amendments, as listed below, the Tranche B Term Loan Facility currently bears interest at rates based on either a base rate plus an applicable margin of 0.75% or adjusted Secured Overnight Financing Rate (SOFR) rate plus an applicable margin of 1.75%, subject to a SOFR floor of 0.00%. The interest rate for the Tranche B Term Loan Facility as of December 31, 2022 was 5.97%.

The Tranche B Term Loan Facility does not require an Excess Cash Flow payment if the Company’s net secured leverage ratio is maintained below 3.75 to 1.00 times. As of December 31, 2022, the Company’s net secured leverage ratio was 1.55 to 1.00 times, and the Company was in compliance with all covenants of the Tranche B Term Loan Facility. There are no financial maintenance covenants on the Tranche B Term Loan Facility.

The Company’s credit agreements also originally provided for a senior secured ABL revolving credit facility (ABL Facility). ABL Facility borrowings initially bore interest at rates based on either a base rate plus an applicable margin of 1.00% or adjusted LIBOR rate plus an applicable margin of 2.00%, in each case, subject to adjustments based on average availability under the ABL Facility.

In May 2021, the Company amended the ABL Facility, increasing its borrowing limit from \$300,000 to \$500,000, raising its incremental capacity from \$100,000 to \$200,000, and extending the maturity date from June 12, 2023 to May 27, 2026 (Amended ABL Facility). In addition, the Amended ABL Facility modified the pricing by reducing certain applicable interest rates to either a base rate plus an applicable margin of 0.00% to 0.25% or adjusted LIBOR rate plus an applicable margin of 1.00% to 1.25%, in each case, based on average availability under the Amended ABL Facility. In connection with this amendment, the Company capitalized \$920 of new debt issuance costs as deferred financing costs on long-term borrowings in the second quarter of 2021. At the same time, the Company also amended its Tranche B Term Loan Facility agreement to reflect the same amendments made to the ABL Facility.

In May 2021, the Company borrowed \$50,000 under the Amended ABL Facility, the proceeds of which were used as a voluntary prepayment of the Tranche B Term Loan Facility. As a result of this prepayment of the Tranche B Term Loan Facility, the Company wrote off \$831 of original issue discount and capitalized debt issuance costs during the second quarter of 2021 as a loss on extinguishment of debt in the consolidated statements of comprehensive income.

In June 2022, the Company again amended and restated its existing credit agreements (Amended Credit Agreement) resulting in a new term loan facility in an aggregate principal amount of \$750,000 (Tranche A Term Loan Facility), established a new revolving facility in an aggregate principal amount of \$1,250,000 (Revolving Facility), terminated the ABL Facility, and replaced all LIBOR provisions to the existing Tranche B Term Loan Facility with SOFR provisions. The maturity date of the Tranche A Term Loan Facility and the Revolving Facility is June 29, 2027. Proceeds received by the Company from the Tranche A Term Loan Facility were used to repay the total existing outstanding balance on the Company’s former ABL Facility, make a \$250,000 voluntary prepayment on the Tranche B Term Loan Facility, with the remaining funds to be used for future general corporate purposes. As a result of these prepayments, the Company wrote off \$3,546 of original issue discount and capitalized debt issuance costs during the second quarter of 2022 as a loss on extinguishment of debt in the consolidated statements of comprehensive income. The Revolving Facility was unfunded at closing.

The Tranche A Term Loan Facility and the Revolving Facility initially bear interest at a rate based on adjusted SOFR plus an applicable margin of 1.5% through December 31, 2022, subject to a SOFR floor of 0.0%. Beginning on January 1, 2023, the Tranche A Term Loan Facility and the Revolving Facility will bear interest at a rate based on adjusted SOFR plus an applicable margin between 1.25% and 1.75%, based on the Company's total leverage ratio and subject to a SOFR floor of 0.0%. The interest rate for the Tranche A Term Loan Facility as of December 31, 2022 was 5.72%.

The Tranche A Term Loan Facility and the Revolving Facility added certain financial covenants that require the Company to maintain a total leverage ratio below 3.75 to 1.00 as well as an interest coverage ratio above 3.00 to 1.00. As of December 31, 2022, the Company's total leverage ratio was 1.74 to 1.00 times, and the Company's interest coverage ratio was 14.81 to 1.00. The Company was in compliance with all other covenants of the Amended Credit Agreement as of December 31, 2022.

The Tranche B Term Loan Facility, Tranche A Term Loan Facility and Revolving Facility are guaranteed by substantially all of the Company's wholly-owned domestic restricted subsidiaries and are secured by associated collateral agreements which pledge a first priority lien on virtually all of the Company's assets, including fixed assets and intangibles, cash, trade accounts receivable, inventory, and other current assets and proceeds thereof.

In connection with the June 2022 refinancing and in accordance with ASC 470-50, the Company capitalized \$10,330 of fees paid to creditors as deferred financing costs on long-term borrowings and expensed \$800 of transaction fees. The Company evaluated on a lender-by-lender basis if the debt related to returning lenders on the Revolving Facility was significantly modified or not, resulting in the write-off of \$197 in unamortized deferred financing costs related to the former ABL Facility as a loss on extinguishment of debt in the consolidated statements of comprehensive income.

As of December 31, 2022, there was \$90,000 outstanding under the Revolving Facility, leaving \$1,158,725 of availability, net of outstanding letters of credit.

13. Stock Repurchase Programs

In September 2020, the Company's Board of Directors approved a stock repurchase program, which commenced on October 27, 2020, and allowed for the repurchase of up to \$250,000 of the Company's common stock over a 24-month period. That program was exhausted in the third quarter of 2022. In July 2022, the Company's Board of Directors approved another stock repurchase program, which commenced on August 5, 2022, and allows for the repurchase of up to \$500,000 of the Company's common stock over a 24-month period. Pursuant to the approved program, the Company may repurchase its common stock from time to time, in amounts and at prices the Company deems appropriate, subject to market conditions and other considerations. The repurchases may be executed using open market purchases, privately negotiated agreements or other transactions. The actual timing, number and value of shares repurchased under the program will be determined by management at its discretion and will depend on a number of factors, including the market price of the Company's common stock, general market and economic conditions, applicable legal requirements, and compliance with the terms of the Company's credit agreements. The repurchases may be funded with cash on hand, available borrowings, or proceeds from potential debt or other capital markets sources. The stock repurchase program may be suspended or discontinued at any time without prior notice. During the year ended December 31, 2022, the Company repurchased 2,722,007 shares of its common stock for \$345,840. During the year ended December 31, 2021, the Company repurchased 350,000 shares of its common stock for \$125,992. During the year ended December 31, 2020, the Company did not repurchase any shares of its common stock. Since the inception of all stock repurchase programs (starting in August 2015), we have repurchased 11,748,713 shares of our common stock for \$777,379 (at an average cost per share of \$66.17).

14. Earnings Per Share

Basic earnings per share is calculated by dividing net income attributable to the common shareholders of the Company by the weighted average number of common shares outstanding during the period, exclusive of restricted shares. Except where the result would be anti-dilutive, diluted earnings per share is calculated by assuming the vesting of unvested restricted stock and the exercise of stock options, as well as the satisfaction of certain contingent acquisition consideration conditions as of the end of the period. Refer to Note 4, "Redeemable Noncontrolling Interest," to the consolidated financial statements for further information regarding the accounting for redeemable noncontrolling interests.

The following table reconciles the numerator and the denominator used to calculate basic and diluted earnings per share:

	Year Ended December 31,		
	2022	2021	2020
Numerator			
Net income attributable to Generac Holdings Inc.	\$ 399,502	\$ 550,494	\$ 350,576
Redeemable noncontrolling interest redemption value adjustment	(49,235)	(17,102)	(1,247)
Net income attributable to common shareholders	<u>\$ 350,267</u>	<u>\$ 533,392</u>	<u>\$ 349,329</u>
Denominator			
Weighted average shares, basic	63,117,007	62,686,001	62,280,889
Dilutive effect of stock compensation awards (1)	1,087,219	1,534,603	1,456,845
Dilutive effect of contingently issued shares	477,131	32,804	-
Diluted shares	<u>64,681,357</u>	<u>64,253,408</u>	<u>63,737,734</u>
Net income attributable to common shareholders per share			
Basic	\$ 5.55	\$ 8.51	\$ 5.61
Diluted	\$ 5.42	\$ 8.30	\$ 5.48

(1) For the year ended December 31, 2022, excludes approximately 76,000 stock options and restricted stock awards as the impact of such awards was anti-dilutive. There were no awards with an anti-dilutive impact for the years ended December 31, 2021 and 2020.

15. Income Taxes

The Company's provision for income taxes consists of the following:

	Year Ended December 31,		
	2022	2021	2020
Current:			
Federal	\$ 118,320	\$ 105,236	\$ 62,714
State	25,743	21,295	13,071
Foreign	51,055	10,536	1,974
	<u>195,118</u>	<u>137,067</u>	<u>77,759</u>
Deferred:			
Federal	(43,475)	10,518	20,452
State	(10,966)	(3,728)	1,243
Foreign	(40,109)	(7,863)	(1,197)
	<u>(94,550)</u>	<u>(1,073)</u>	<u>20,498</u>
Change in valuation allowance	(972)	(1,037)	716
Provision for income taxes	<u>\$ 99,596</u>	<u>\$ 134,957</u>	<u>\$ 98,973</u>

The Company files U.S. federal, U.S. state and foreign jurisdiction tax returns which are subject to examination up to the expiration of the statute of limitations. The Company believes the tax positions taken on its returns would be sustained upon an exam, or where a position is uncertain, adequate reserves have been recorded. As of December 31, 2022, the Company is no longer subject to income tax examinations for United States federal income taxes for tax years prior to 2019. Due to the carryforward of net operating losses and research & development credits, the Company's Wisconsin state income tax returns for tax years 2008 through 2021 remain open. In addition, the Company is subject to audit by various foreign taxing jurisdictions for tax years 2011 through 2022.

The Company is regularly under tax return examination by tax authorities in the various jurisdictions in which we operate. The Company is actively managing the examinations and working to address any open matters. While the Company does not believe any material taxes or penalties are due, there is a possibility that the ultimate tax outcome of an examination may result in differences from what was recorded. Such differences may affect the provision for income taxes in the period in which the determination is made and could impact the Company's financial results.

Significant components of deferred tax assets and liabilities are as follows:

	December 31,	
	2022	2021
Deferred tax assets:		
Accrued expenses	\$ 46,994	\$ 37,797
Deferred revenue	34,914	27,003
Inventories	20,229	14,907
Stock-based compensation	11,750	10,202
Operating loss and credit carryforwards	56,279	68,368
Bad debt	1,415	1,253
Other	7,531	12,203
Capitalized R&D	33,738	-
Valuation allowance	(4,638)	(7,874)
Total deferred tax assets	208,212	163,859
Deferred tax liabilities:		
Goodwill and intangible assets	260,745	328,162
Depreciation	44,385	21,340
Debt refinancing costs	1,184	2,916
Interest swap and derivative	12,370	-
Prepaid expenses	2,473	1,664
Total deferred tax liabilities	321,157	354,082
Net deferred tax liabilities	<u>\$ (112,945)</u>	<u>\$ (190,223)</u>

As of December 31, 2022 and 2021, deferred tax assets of \$12,746 and \$15,740, and deferred tax liabilities of \$125,691 and \$205,964, respectively, were reflected on the consolidated balance sheets.

The Company maintains a valuation allowance against the deferred tax assets when it is uncertain it will generate sufficient taxable income to utilize the asset. During 2022, the valuation allowance decreased by \$3,236 primarily due to a reversal of valuation allowance in certain jurisdictions where we believe the deferred tax assets can now be utilized, partially offset by the establishment of valuation allowances in certain jurisdictions where we believe the deferred tax assets cannot be used.

At December 31, 2022, the Company had tax loss carryforwards of approximately \$238,371, which have varying expiration periods ranging from 2023 to indefinite. For carryforward amounts where the Company believes the losses will expire prior to use, a valuation allowance has been established. For all other carryforwards the Company believes it will generate sufficient taxable income in these jurisdictions to utilize its loss carryforwards.

At December 31, 2022, the Company had state manufacturing tax credit carryforwards of approximately \$29,946, which expire between 2028 and 2037. The Company believes it will generate sufficient taxable income in these jurisdictions to fully utilize the credits prior to their expiration.

Changes in the Company's gross liability for unrecognized tax benefits, excluding interest and penalties, were as follows:

	December 31,	
	2022	2021
Unrecognized tax benefit, beginning of period	\$ 8,647	\$ 7,613
Increase in unrecognized tax benefit for positions taken in prior period	97	272
Increase in unrecognized tax benefit for positions taken in current period	975	990
Statute of limitation expirations	(824)	(228)
Settlements	-	-
Unrecognized tax benefit, end of period	<u>\$ 8,895</u>	<u>\$ 8,647</u>

The unrecognized tax benefit as of December 31, 2022 and 2021, if recognized, would favorably impact the effective tax rate.

As of December 31, 2022 and 2021, total accrued interest of approximately \$161 and \$127, respectively, and accrued penalties of approximately \$422 and \$357, respectively, associated with net unrecognized tax benefits are included in the consolidated balance sheets. Interest and penalties are recorded as a component of income tax expense.

The Company does not expect a significant increase or decrease to the total amounts of unrecognized tax benefits related to continuing operations during the following fiscal year ending December 31, 2023.

A reconciliation of the statutory tax rates to the effective tax rates for the years ended December 31, 2022, 2021 and 2020 are as follows:

	Year Ended December 31,		
	2022	2021	2020
U.S. statutory rate	21.0%	21.0%	21.0%
State taxes	4.0	4.3	4.3
State tax rate differential	(0.3)	0.0	0.0
Research and development credits	(1.1)	(1.0)	(1.1)
State credits	(1.5)	(1.1)	(1.5)
Share-based compensation	(2.7)	(3.8)	(1.0)
Nondeductible U.S. compensation	1.6	1.5	0.0
Foreign tax deduction	(0.4)	(1.5)	0.0
Foreign deferred tax rate change	0.0	1.2	0.0
Other	(1.0)	(1.1)	0.5
Effective tax rate	19.6%	19.5%	22.2%

16. Benefit Plans

Medical and Dental Plans

The Company maintains medical and dental benefit plans covering its full-time domestic employees and their dependents. These plans are partially or fully self-funded under which participant claims are obligations of the plan. These plans are funded through employer and employee contributions at a level sufficient to pay for the benefits provided by the plan. The Company's contributions to the plans were \$31,180, \$24,189, and \$24,617 for the years ended December 31, 2022, 2021 and 2020, respectively.

The Company's foreign subsidiaries participate in government sponsored medical benefit plans and other local plans. In certain cases, the Company purchases supplemental medical coverage for certain employees at these foreign locations. The expenses related to these plans are not material to the Company's consolidated financial statements.

Savings Plan

The Company maintains a defined-contribution 401(k) savings plan for eligible domestic employees. Under the plan, employees may defer receipt of a portion of their eligible compensation. The Company may contribute a matching contribution of 50% of the first 6% of eligible compensation of employees that is deferred. The Company may also contribute a non-elective contribution for eligible employees employed on December 31, 2008 that were impacted by the freezing of the Company's pension plans. The Company's matching contributions are subject to vesting. Forfeitures may be applied against plan expenses and Company contributions. The Company recognized \$4,141, \$6,725, and \$5,332 of expense related to these plans for the years ended December 31, 2022, 2021 and 2020, respectively.

17. Share Plans

The Company adopted an equity incentive plan (the 2010 Plan) on February 10, 2010 in connection with its initial public offering. The 2010 Plan, as amended, allowed for granting of up to 9.1 million share-based awards to executives, directors and employees. Awards available for grant under the 2010 Plan included stock options, stock appreciation rights, restricted stock, other share-based awards and performance-based compensation awards. New grants under the 2010 Plan ceased in June 2019. Total share-based compensation expense related to the 2010 Plan, net of estimated forfeitures, was \$2,379, \$6,249, and \$11,681 for the years ended December 31, 2022, 2021 and 2020, respectively, which is recorded in operating expenses in the consolidated statements of comprehensive income.

On June 13, 2019, the stockholders of Generac Holdings Inc. approved the Company's 2019 Equity Incentive Plan (the 2019 Plan). The 2019 Plan allows for granting of up to 2.7 million share-based awards to executives, directors and employees. Awards available for grant under the 2019 Plan include stock options, stock appreciation rights, restricted stock, other share-based awards and performance-based compensation awards. Total share-based compensation expense related to the 2019 Plan, net of estimated forfeitures, was \$27,102, \$17,705, and \$9,201 for the years ended December 31, 2022, 2021 and 2020, respectively, which is recorded in operating expenses in the consolidated statements of comprehensive income.

Stock Options - Stock options granted in 2022 have an exercise price between \$103.50 per share and \$315.88 per share; stock options granted in 2021 have an exercise price between \$323.66 per share and \$438.83 per share; and stock options granted in 2020 have an exercise price between \$91.00 per share and \$158.89 per share. Stock options vest in equal installments over four years, subject to the grantee's continued employment or service and expire ten years after the date of grant.

Stock option exercises can be net-share settled such that the Company withholds shares with value equivalent to the exercise price of the stock option awards plus the employees' minimum statutory obligation for the applicable income and other employment taxes. Total shares withheld were 17,376, 8,608, and 24,070 for the years ended December 31, 2022, 2021 and 2020, respectively, and were based on the value of the stock on the exercise dates. The net-share settlement has the effect of share repurchases by the Company as they reduce the number of shares that would have otherwise been issued.

Employees can also utilize a cashless for cash exercise of stock options, such that all exercised shares will be sold in the market immediately. Cash equivalent to the exercise price of the awards plus the employees' minimum statutory tax obligations is remitted to the Company, with the remaining cash being transferred to the employee. Total net proceeds from the cashless for cash exercise of stock options were \$13,786, \$38,787, and \$13,089 for the years ended December 31, 2022, 2021 and 2020, respectively, and are reflected as a financing activity in the consolidated statements of cash flows.

Total payments made by the Company to the taxing authorities for the employees' tax obligations related to stock option exercises were \$14,089, \$31,680, and \$7,297 for the years ended December 31, 2022, 2021 and 2020, respectively, and are reflected as a financing activity in the consolidated statements of cash flows.

The grant-date fair value of each option grant is estimated using the Black-Scholes-Merton option pricing model. The fair value is then amortized on a straight-line basis over the requisite service period of the awards, which is generally the vesting period. Use of a valuation model requires management to make certain assumptions with respect to selected model inputs. Expected volatility is calculated based on an analysis of historic volatility of the Company's stock price. The average expected life is based on the contractual term of the option using the simplified method. The risk-free interest rate is based on U.S. Treasury zero-coupon issues with a remaining term equal to the expected life assumed at the date of grant. The compensation expense recognized is net of estimated forfeitures. Forfeitures are estimated based on actual share option forfeiture history and are trueed up upon vesting based on actual forfeiture activity.

The weighted-average assumptions used in the Black-Scholes-Merton option pricing model for 2022, 2021 and 2020 are as follows:

	Year Ended December 31,		
	2022	2021	2020
Weighted average grant date fair value per share	\$ 129.38	\$ 129.47	\$ 35.79
Assumptions:			
Expected stock price volatility	38%	37%	32%
Risk free interest rate	1.54%	0.45%	1.56%
Expected annual dividend per share	\$ -	\$ -	\$ -
Expected life of options (years)	6.25	6.25	6.25

A summary of the Company's stock option activity and related information for the years ended December 31, 2022, 2021 and 2020 is as follows:

	Number of Options	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (\$ in thousands)
Outstanding as of December 31, 2019	1,592,686	\$ 42.04	6.9	\$ 93,242
Granted	173,650	102.32		
Exercised	(216,196)	39.88		
Forfeited	(21,450)	50.25		
Outstanding as of December 31, 2020	1,528,690	49.08	6.3	\$ 272,553
Granted	70,392	335.70		
Exercised	(229,921)	45.95		
Forfeited	(27,030)	63.27		
Outstanding as of December 31, 2021	1,342,131	64.29	5.5	\$ 386,069
Granted	109,266	282.20		
Exercised	(137,305)	36.91		
Forfeited	(45,688)	194.05		
Outstanding as of December 31, 2022	1,268,404	81.35	4.9	\$ 47,764
Exercisable as of December 31, 2022	982,934	50.86	4.1	\$ 44,904

As of December 31, 2022, there was \$16,098 of total unrecognized compensation cost, net of expected forfeitures, related to unvested options. The cost is expected to be recognized over the remaining service period, having a weighted-average period of 2.8 years. Total share-based compensation cost related to stock options for the years ended December 31, 2022, 2021 and 2020 was \$6,911, \$6,462, and \$5,860, respectively, which is recorded in operating expenses in the consolidated statements of comprehensive income.

Restricted Stock – Restricted stock awards vest in equal installments over three years, subject to the grantee's continued employment or service. Certain restricted stock awards also include performance shares, whereby the number of performance shares that can be earned are contingent upon Company performance measures over a three-year period. Performance measures are based on a weighting of a number of financial metrics, from which grantees may earn from 0% to 200% of their target performance share award. The performance period for the 2020 awards covers the years 2020 through 2022, the performance period for the 2021 awards covers the years 2021 through 2023, and the performance period for the 2022 awards covers the years 2022 through 2024. The Company estimates the number of performance shares that will vest based on projected financial performance. The fair value of restricted awards is determined based on the market value of the Company's shares on the grant date. The fair market value of the restricted awards at the time of the grant is amortized to expense over the period of vesting. The compensation expense recognized for restricted share awards is net of estimated forfeitures and is trued up upon vesting based on actual forfeiture activity.

Restricted stock vesting is net-share settled such that, upon vesting, the Company withholds shares with value equivalent to the employees' minimum statutory tax obligation, and then pays the cash to the taxing authorities on behalf of the employees. In effect, the Company repurchases these shares and classifies them as treasury stock. Total shares withheld were 92,008, 80,583, and 70,718 for the years ended December 31, 2022, 2021 and 2020, respectively, and were based on the value of the stock on the vesting dates. Total payments made by the Company to the taxing authorities for the employees' tax obligations related to restricted stock vesting were \$26,834, \$27,223, and \$7,613 for the years ended December 31, 2022, 2021 and 2020, respectively, and are reflected as a financing activity within the consolidated statements of cash flows.

A summary of the Company's restricted stock activity for the years ended December 31, 2022, 2021 and 2020 is as follows:

	Shares	Weighted-Average Grant-Date Fair Value
Non-vested as of December 31, 2019	491,637	\$ 52.84
Granted	183,868	95.14
Vested	(200,390)	45.10
Forfeited	(18,921)	56.58
Non-vested as of December 31, 2020	456,194	68.42
Granted	126,339	223.09
Vested	(202,327)	58.99
Forfeited	(14,241)	138.64
Non-vested as of December 31, 2021	365,965	124.25
Granted	287,821	214.58
Vested	(234,284)	83.52
Forfeited	(41,204)	263.47
Non-vested as of December 31, 2022	378,298	203.04

As of December 31, 2022, there was \$48,934 of unrecognized compensation cost, net of expected forfeitures, related to non-vested restricted stock awards. That cost is expected to be recognized over the remaining service period, having a weighted-average period of 2.1 years. Total share-based compensation cost related to the restricted stock for the years ended December 31, 2022, 2021 and 2020, inclusive of performance shares, was \$22,570, \$17,492, and \$15,022, respectively, which is recorded in operating expenses in the consolidated statements of comprehensive income.

During 2022, 2021 and 2020, 8,572, 4,677, and 15,275 shares of stock, respectively, were granted to certain members of the Company's Board of Directors as a component of their compensation for their service on the Board, all of which were fully vested at time of grant. A non-employee director can elect to receive his or her director fees in the form of deferred stock units, which voluntarily defers the issuance of the related shares granted until the director separates from the Company or a triggering event occurs. 5,008, 3,160, and 10,528 of deferred stock units are included in the shares of stock granted to certain members of the Company's Board of Directors for the years 2022, 2021, and 2020, respectively. Total share-based compensation cost for these share grants in 2022, 2021 and 2020 was \$1,886, \$1,579, and \$1,558, respectively, which is recorded in operating expenses in the consolidated statements of comprehensive income.

18. Commitments and Contingencies

The Company has an arrangement with a finance company to provide floor plan financing for certain dealers. The Company receives payment from the finance company after shipment of product to the dealer. The Company participates in the cost of dealer financing up to certain limits and has agreed to repurchase products repossessed by the finance company, but does not indemnify the finance company for any credit losses they incur. The amount financed by dealers which remained outstanding under this arrangement at December 31, 2022 and 2021 was approximately \$212,200 and \$115,900, respectively.

On August 1, 2022, Power Home Solar, LLC d/b/a Pink Energy filed a lawsuit in the Western District of Virginia against Generac Power Systems, Inc., a wholly-owned subsidiary of the Company ("Generac Power"). The complaint alleges breaches of warranty, product liability, and other various causes of action against Generac Power relating to the sale and performance of certain clean energy equipment and seeks to recover damages, including consequential damages, that Power Home Solar allegedly incurred. The Company disputes the allegations in the complaint, including that Power Home Solar can seek consequential damages or amounts greater than the \$25,000 liability cap set forth in the agreement between the parties. On September 23, 2022, Generac Power moved to dismiss the complaint and compel arbitration consistent with the parties' agreement. On October 7, 2022, Power Home Solar, LLC filed a Chapter 7 bankruptcy petition in the Western District of North Carolina that identified Generac Power as one of its outstanding creditors. The petition listed a \$17,700 liability to Generac Power, which Power Home Solar characterized as disputed. The \$17,700 claim relates to equipment that Generac Power sold to Power Home Solar but was not paid for. The parties agreed to toll Power Home Solar's deadline to respond to the motion to dismiss after Power Home Solar filed the petition for bankruptcy to allow the bankruptcy trustee to evaluate the complaint. The Company intends to vigorously defend against the claims in the complaint, whichever forum in which it may proceed.

On October 28, 2022, Daniel Haak filed a putative class action lawsuit against Generac Power in the Middle District of Florida. The complaint alleges breaches of warranty, tort-based, and unjust enrichment claims against Generac Power relating to the sale and performance of certain clean energy products, and seeks to recover damages, including consequential damages, that the plaintiff and putative class allegedly incurred. The Company disputes the allegations and intends to vigorously defend against the claims in the complaint, including that plaintiff and the putative class can seek consequential damages. Generac Power filed a motion to dismiss the complaint on December 28, 2022.

Four additional putative class actions were filed by consumers of Generac clean energy products between November 21, 2022 and February 2, 2023. These complaints assert claims for breaches of warranty, tort-based, statutory, and unjust enrichment claims against Generac Power or the Company and seek to recover damages, including consequential damages, that plaintiffs and putative class allegedly incurred. The cases are pending in the Eastern District of Wisconsin (*Basler, et al. v. Generac Power Systems, Inc.*, Case No. 22-cv-01386-NJ and *Dillon v. Generac Power Systems, Inc.*, Case No. 23-cv-00034-NJ), the Northern District of California (*Moon v. Generac Power Systems, Inc. et al.*, Case No. 22-cv-09183-CRB), and the Eastern District of California (*Locatell v. Generac Power Systems, Inc., et al.*, Case No. 23-cv-00203-TLN). The Company disputes the allegations and intends to vigorously defend against the claims in the complaints. Generac Power's motion to dismiss the *Basler* complaint is pending with the court.

On December 1, 2022, Oakland County Voluntary Employees' Beneficiary Association and Oakland County Employees' Retirement System filed a putative securities class action lawsuit against the Company and certain of its officers in the Eastern District of Wisconsin. On January 20, 2023, the California Ironworkers Field Pension Trust filed a related putative securities class action, also in the United States District Court for the Eastern District of Wisconsin. Both complaints assert claims for alleged violation of federal securities law related to disclosures of quality issues in Generac's clean energy product, reliance on channel partners, and accounting for warranty reserves. The plaintiffs seek to represent a class of individuals who purchased or otherwise acquired common stock between April 29, 2021 and November 1, 2022 and ask for unspecified compensatory damages and other relief on behalf of a purported class of purchasers. Motions to consolidate the putative class actions and to appoint lead plaintiff have been filed and are pending with the court. In addition, in relation to the aforementioned cases, on February 3, 2023, a purported Company shareholder filed a shareholder derivative action against certain of the Company's officers and directors in the United States District Court for the Eastern District of Wisconsin. The complaint seeks unspecified damages on behalf of the Company and certain other relief, such as certain reforms to corporate governance practices. The complaint (in which the Company is named as a nominal defendant) generally alleges, among other things, breaches of fiduciary duties in connection with the oversight of the Company's public statements and legal compliance, and that the Company was damaged as a result of the breaches of fiduciary duties, and the defendants were unjustly enriched. The complaint also alleges, among other things, violations of Sections 14(a), 10(b) and 20(a) of the Securities Exchange Act of 1934, abuse of control, gross mismanagement, and waste of corporate assets. The Company disputes the allegations and intends to vigorously defend against the claims in the complaint.

On October 28, 2022, Generac Power received a grand jury subpoena from the U.S. Attorney for the Eastern District of Michigan, as a result of which the Company became aware of an enforcement investigation by the U.S. Department of Justice ("DOJ"). The subpoena requests similar documents and information provided by the Company to the U.S. EPA and the CARB in response to civil document requests related to the Company's compliance with emissions regulations for approximately 1,850 portable generators produced by the Company in 2019 and 2020 and sold in 2020. The Company is cooperating with both the DOJ and the EPA and CARB inquiries.

On November 30, 2022, the CPSC notified the Company of its intention to recommend the imposition of a penalty for failing to timely submit a report under section 19(a)(4) of the CPSA, 15 U.S.C. § 2068(a)(4), in relation to certain portable generators that were subject to a voluntary recall previously announced on July 29, 2021. Although the Company is cooperating with the CPSC on this matter, the matter is unresolved and still pending ongoing discussion with the CPSC.

In the opinion of management, it is presently unlikely that any legal or regulatory proceedings pending against or involving the Company will have a material adverse effect on the Company's financial condition, results of operations or cash flows. However, in many of these matters, it is inherently difficult to determine whether a loss is probable or to estimate the size or range of the possible loss given the variety and potential outcomes of actual and potential claims, the uncertainty of future rulings, the behavior or incentives of adverse parties,

and other factors outside the control of the Company. Accordingly, the Company’s loss reserves may change from time to time, and actual losses could exceed the amounts reserved by an amount that could be material to the Company’s consolidated financial position, results of operations or cash flows in any particular reporting period.

19. Quarterly Financial Information (Unaudited)

	Quarters Ended 2022			
	Q1	Q2	Q3	Q4
Net sales	\$ 1,135,856	\$ 1,291,391	\$ 1,088,258	\$ 1,049,232
Gross profit	360,748	456,985	361,104	343,167
Operating income	154,735	216,844	87,523	107,228
Net income attributable to Generac Holdings Inc.	113,858	156,359	58,270	71,015
Net income attributable to common shareholders per common share - basic:	\$ 1.61	\$ 2.24	\$ 0.84	\$ 0.84
Net income attributable to common shareholders per common share - diluted:	\$ 1.57	\$ 2.21	\$ 0.83	\$ 0.83

	Quarters Ended 2021			
	Q1	Q2	Q3	Q4
Net sales	\$ 807,434	\$ 919,981	\$ 942,698	\$ 1,067,071
Gross profit	321,814	339,735	335,994	362,539
Operating income	189,124	182,952	173,579	175,481
Net income attributable to Generac Holdings Inc.	148,993	127,036	131,570	142,895
Net income attributable to common shareholders per common share - basic:	\$ 2.39	\$ 2.06	\$ 1.98	\$ 2.09
Net income attributable to common shareholders per common share - diluted:	\$ 2.33	\$ 2.01	\$ 1.93	\$ 2.04

20. Valuation and Qualifying Accounts

For the years ended December 31, 2022, 2021 and 2020:

	Balance at Beginning of Year	Additions Charged to Earnings	Additions Charged to Retained Earnings (1)	Charges to Reserve, Net (2)	Reserves Established for Acquisitions	Balance at End of Year
Year ended December 31, 2022						
Allowance for credit losses	\$ 12,025	\$ 17,966	\$ -	\$ (2,825)	\$ 498	\$ 27,664
Reserves for inventory	33,537	9,656	-	(4,737)	1,258	39,714
Valuation of deferred tax assets	7,874	649	-	(1,501)	(2,384)	4,638
Year ended December 31, 2021						
Allowance for credit losses	\$ 12,001	\$ 206	\$ -	\$ (1,640)	\$ 1,458	\$ 12,025
Reserves for inventory	27,817	17,698	-	(15,749)	3,771	33,537
Valuation of deferred tax assets	5,740	1,404	-	(2,441)	3,171	7,874
Year ended December 31, 2020						
Allowance for credit losses	\$ 6,968	\$ 4,645	\$ 1,147	\$ (957)	\$ 198	\$ 12,001
Reserves for inventory	24,293	11,353	-	(8,788)	959	27,817
Valuation of deferred tax assets	5,024	716	-	-	-	5,740

- (1) Result of adopting ASU 2016-13, *Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*.
- (2) Deductions from the allowance for doubtful accounts equal accounts receivable written off against the allowance, less recoveries, as well as foreign currency translation adjustments. Deductions from the reserves for inventory excess and obsolete items equal inventory written off against the reserve as items were disposed of, as well as foreign currency translation adjustments.

21. Subsequent Events

On February 1, 2023 the Company acquired REFU Storage Systems (REFUstor), headquartered in Pfullingen, Germany. REFUstor is a developer and supplier of battery storage hardware products, advanced software, and platform services for the commercial and industrial market.

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

There were no changes in, or disagreements with, accountants reportable herein.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Disclosure controls and procedures are controls and other procedures that are designed to ensure that information required to be disclosed by us in reports we file or submit under the Securities Exchange Act of 1934 (Exchange Act), is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow for timely decisions regarding required disclosure.

Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, has conducted an evaluation of the design and operation of our disclosure controls and procedures as defined in Rule 13a-15(e) and 15d-15(e) under the Exchange Act as of the end of the period covered by this report on Form 10-K. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective in providing reasonable assurance that the information required to be disclosed in this report on Form 10-K has been recorded, processed, summarized and reported as of the end of the period covered by this report on Form 10-K.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rule 13a-15(f) and 15d-15(f) under the Exchange Act. Our internal control over financial reporting is designed under the supervision of our Chief Executive Officer and Chief Financial Officer to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the consolidated financial statements in accordance with U.S. GAAP.

Internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of the financial statements in accordance with U.S. GAAP, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and (iii) 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 Company's financial statements.

There are inherent limitations to the effectiveness of any internal control over financial reporting, including the possibility of human error or the circumvention or overriding of the controls. Accordingly, even an effective internal control over financial reporting can provide only reasonable assurance of achieving its objective. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. 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.

Under the supervision and with the participation of our Chief Executive Officer and Chief Financial Officer, our management conducted an assessment of the effectiveness of internal control over financial reporting as of December 31, 2022 based on the criteria established in the 2013 *Internal Control – Integrated Framework*, issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this assessment, our management has concluded that our internal control over financial reporting was effective as of December 31, 2022.

Deloitte & Touche LLP (PCAOB ID No. 34), the Company's independent registered public accounting firm, issued an attestation report on the effectiveness of the Company's internal control over financial reporting as of December 31, 2022, which is included herein.

Changes in Internal Control Over Financial Reporting

There have been no changes in our internal control over financial reporting that occurred during the three months ended December 31, 2022 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

None

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by Item 10 not already provided herein under “Item 1 – Business – Information About Our Executive Officers”, will be included in our 2023 Proxy Statement and is incorporated herein by reference.

Item 11. Executive Compensation

The information required by this item will be included in our 2023 Proxy Statement and is incorporated herein by reference.

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

The information required by this item, including under the heading “Securities Authorized for Issuance Under Equity Compensation Plans,” will be included in our 2023 Proxy Statement and is incorporated herein by reference.

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

The information required by this item will be included in our 2023 Proxy Statement and is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services

The information required by this item will be included in our 2023 Proxy Statement and is incorporated herein by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a)(1) Financial Statements

Included in Part II of this report:

	Page
Reports of Independent Registered Public Accounting Firm	36
Consolidated balance sheets as of December 31, 2022 and 2021	39
Consolidated statements of comprehensive income for years ended December 31, 2022, 2021 and 2020	40
Consolidated statements of stockholders' equity for years ended December 31, 2022, 2021 and 2020	41
Consolidated statements of cash flows for the years ended December 31, 2022, 2021 and 2020	42
Notes to consolidated financial statements	43

(a)(2) Financial Statement Schedules

All financial statement schedules have been omitted, since the required information is not applicable or is not present in amounts sufficient to require submission of the schedule, or because the information required is included in the consolidated financial statements and notes thereto.

(a)(3) Exhibits

The below exhibits index is the list of the exhibits being filed or furnished with or incorporated by reference into this Annual Report on Form 10-K:

Exhibits Number	Description
2.1	Arrangement Agreement dated as of November 1, 2021 by and among 13462234 Canada Inc., Generac Power Systems, Inc., ecobee Inc., and Shareholder Representative Services LLC (incorporated by reference to Exhibit 2.1 of the Company's Current Report on Form 8-K filed with the SEC on November 2, 2021).
2.2	Amendment No. 1, dated as of May 31, 2022, to Arrangement Agreement dated as of November 1, 2021, by and among 13462234 Canada Inc., Generac Power Systems, Inc., ecobee Inc., and Shareholder Representative Services LLC (incorporated by reference to Exhibit 10.2 of the Quarterly Report on Form 10-Q filed with the SEC on August 8, 2022).
2.3*	Amendment, dated as of December 29, 2022, to Arrangement Agreement dated as of November 1, 2021 by and among 13462234 Canada Inc., Generac Power Systems, Inc., ecobee Inc., and Shareholder Representative Services LLC.
3.1	Third Amended and Restated Certificate of Incorporation of Generac Holdings Inc. (incorporated by reference to Exhibit 3.1 of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2009).
3.2	Amended and Restated Bylaws of Generac Holdings Inc. (incorporated by reference to Exhibit 3.1 of the Company's Current Report on Form 8-K filed with the SEC on February 16, 2016).
4.1	Form of Common Stock Certificate (incorporated by reference to Exhibit 4.1 of the Registration Statement on Form S-1 filed with the SEC on January 25, 2010).
4.2	Description of Securities (incorporated by reference to Exhibit 4.2 of the Annual Report on Form 10-K filed with the SEC on February 25, 2020).
10.1	Credit Agreement, Dated as of February 9, 2012, As Amended and Restated as of May 30, 2012, As Further Amended and Restated as of May 31, 2013, among Generac Power Systems, Inc., Generac Acquisition Corp., the lenders party thereto, JPMorgan Chase Bank, N.A., as Administrative Agent and Bank of America, N.A. and Goldman Sachs Bank USA, as syndication agent (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed with the SEC on June 4, 2013).
10.2	First Amendment dated as of May 18, 2015, to Credit Agreement, dated as of February 9, 2012, as amended and restated as of May 30, 2012, as further amended and restated as of May 31, 2013, among Generac Power Systems, Inc., Generac Acquisition Corp., the lenders party thereto, JPMorgan Chase Bank, N.A. as administrative agent and Bank of America, N.A. and Goldman Sachs Bank USA, as syndication agents and Deutsche Bank Securities Inc., Morgan Stanley Senior Funding, Inc. and Wells Fargo Bank, N.A. as document agents (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q filed with the SEC on August 7, 2015).
10.3	Replacement Term Loan Amendment dated as of November 2, 2016, among Generac Power Systems, Inc., Generac Acquisition Corp., the lenders party thereto, JPMorgan Chase Bank, N.A., as Administrative Agent, and the other agents named therein (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on November 3, 2016).
10.4	2017 Replacement Term Loan Amendment dated as of May 11, 2017, among Generac Power Systems, Inc., Generac Acquisition Corp., the lenders party thereto, JPMorgan Chase Bank, N.A., as Administrative Agent, and the other agents named therein (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on May 15, 2017).
10.5	2017-2 Replacement Term Loan Amendment dated as of December 8, 2017, among Generac Power Systems, Inc., Generac Acquisition Corp., the lenders party thereto, JPMorgan Chase Bank, N.A., as Administrative Agent, and the other agents named therein (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on December 11, 2017).
10.6	2018 Replacement Term Loan Amendment, dated as of June 8, 2018, among Generac Power Systems, Inc., Generac Acquisition Corp., the lenders party thereto, JPMorgan Chase Bank, N.A., as Administrative Agent, and the other agents named therein (incorporated by reference to Exhibit 10.1 of the Current Report on Form 8-K filed with the SEC on June 14, 2018).
10.7	2019 Replacement Term Loan Amendment, dated as of December 13, 2019, among Generac Power Systems, Inc., Generac Acquisition Corp., the lenders party thereto, JPMorgan Chase Bank, N.A., as Administrative Agent, and the other agents named therein (incorporated by reference to Exhibit 10.1 of the Current Report on Form 8-K filed with the SEC on December 16, 2019).
10.8	Second Amendment, dated as of May 27, 2021, amending that certain Credit Agreement, dated as of February 9, 2012, as amended and restated as of May 30, 2012, as further amended and restated as of May 31, 2013, as amended by the First Amendment, dated as of May 18, 2015, as further amended by the Replacement Term Loan Amendment, dated as of November 2, 2016, as further amended by the 2017 Replacement Term Loan Amendment, dated as of May 11, 2017, as further amended by the 2017-2 Replacement Term Loan Amendment, dated December 8, 2017, as further amended by the 2018 Replacement Term Loan Amendment, dated June 8, 2018, and as further amended by the 2019 Replacement Term Loan Amendment, dated December 13, 2019, among Generac Power Systems, Inc., Generac Acquisition Corp., the other Loan Parties (as defined therein), party thereto, the lenders party thereto, JPMorgan Chase Bank, N.A., as Administrative Agent and the other agents named therein (incorporated by reference to Exhibit 10.2 of the Current Report on Form 8-K filed with the SEC on May 28, 2021).
10.9	Third Amendment, dated as of June 29, 2022, amending and restating that certain Credit Agreement, dated as of February 9, 2012, as amended and restated as of May 30, 2012, as further amended and restated as of May 31, 2013, as amended by the First Amendment, dated as of May 18, 2015, as further amended by the Replacement Term Loan Amendment, dated as of November 2, 2016, as further amended by the 2017 Replacement Term Loan Amendment, dated as of May 11, 2017, as further amended by the 2017-2 Replacement Term Loan Amendment, dated December 8, 2017, as further amended by the 2018 Replacement Term Loan Amendment, dated June 8, 2018, as further amended by the 2019 Replacement Term Loan Amendment, dated December 13, 2019 and as further amended by the Second Amendment, dated May 27, 2021, among Generac Power Systems, Inc., Generac Acquisition Corp., the other Loan Parties (as defined therein), party thereto, the lenders party thereto, JPMorgan Chase Bank, N.A., as Administrative Agent and the other agents named therein (incorporated by reference to Exhibit 10.1 of the Current Report on Form 8-K filed with the SEC on June 30, 2022).
10.10*	First Amendment, dated as of January 31, 2023, to that certain Credit Agreement, dated as of February 9, 2012, as amended and restated as of May 30, 2012, as further amended and restated as of May 31, 2013, as amended by the First Amendment, dated as of May 18, 2015, as further amended by the Replacement Term Loan Amendment, dated as of November 2, 2016, as further amended by the 2017 Replacement Term Loan Amendment, dated as of May 11, 2017, as further amended by the 2017-2 Replacement Term Loan Amendment, dated December 8, 2017, as further amended by the 2018 Replacement Term Loan Amendment, dated June 8, 2018, as further amended by the 2019 Replacement Term Loan Amendment, dated December 13, 2019, as further amended by the Second Amendment, dated May 27, 2021, and as further amended and restated by the Third Amendment, dated June 29, 2022, among Generac Power Systems, Inc., Generac Acquisition Corp., the other Loan Parties (as defined therein), party thereto, the lenders party thereto, JPMorgan Chase Bank, N.A., as Administrative Agent and the other agents named therein.
10.11	Restatement Agreement, dated as of May 31, 2013, to that certain Credit Agreement, dated as of February 9, 2012, as amended and restated as of May 30, 2012, among Generac Power Systems, Inc., Generac Acquisition Corp., the lenders party thereto, JPMorgan Chase Bank, N.A., as Administrative Agent, and Bank of America, N.A. and Goldman Sachs Bank USA, as syndication agents (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on June 4, 2013).

- 10.12 [Guarantee and Collateral Agreement, dated as of February 9, 2012, as amended and restated as of May 30, 2012, among Generac Holdings Inc., Generac Acquisition Corp., Generac Power Systems, Inc., certain subsidiaries of Generac Power Systems, Inc. and JPMorgan Chase Bank, N.A., as Administrative Agent \(incorporated by reference to Exhibit 10.2 of the Company's Current Report on Form 8-K filed with the SEC on May 31, 2012\).](#)
- 10.13 [First Amendment to Guarantee and Collateral Agreement dated as of May 31, 2013, among Generac Holdings Inc., Generac Acquisition Corp., Generac Power Systems, Inc., certain subsidiaries of Generac Power Systems, Inc. and JPMorgan Chase Bank, N.A., as Administrative Agent \(incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K filed with the SEC on June 4, 2013\).](#)

Exhibits Number	Description
10.14	<u>Credit Agreement, dated as of May 30, 2012, among Generac Power Systems, Inc., its Domestic Subsidiaries listed as Borrowers on the signature pages thereto, Generac Acquisition Corp., the lenders party thereto, Bank of America, N.A. as Administrative Agent, JPMorgan Chase Bank, N.A. and Goldman Sachs Bank USA, as syndication agents, and Wells Fargo Bank, National Association, as Documentation Agent (incorporated by reference to Exhibit 10.3 of the Company's Current Report on Form 8-K filed with the SEC on May 31, 2012).</u>
10.15	<u>Amendment No. 1 dated as of May 31, 2013, among Generac Power Systems, Inc., its Domestic Subsidiaries listed as Borrowers on the signature pages thereto, Generac Acquisition Corp., the lenders party thereto, Bank of America, N.A. as Administrative Agent, JPMorgan Chase Bank, N.A. and Goldman Sachs Bank USA, as syndication agents, and Wells Fargo Bank, National Association, as Documentation Agent (incorporated by reference to Exhibit 10.4 to the Company's Current Report on Form 8-K filed with the SEC on June 4, 2013).</u>
10.16	<u>Amendment No. 2 dated as of May 29, 2015, among Generac Power Systems, Inc., its Domestic Subsidiaries listed as Borrowers on the signature pages thereto, Generac Acquisition Corp., the lenders party thereto, Bank of America, N.A. as Administrative Agent, and the other agents named therein (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed with the SEC on June 1, 2015).</u>
10.17	<u>Second Amended and Restated Credit Agreement, dated as of June 12, 2018, among Generac Power Systems, Inc., its Subsidiaries listed as Borrowers on the signature pages thereto, Generac Acquisition Corp., the lenders party thereto, Bank of America, N.A. as Administrative Agent, JPMorgan Chase Bank, N.A., as Syndication Agent, and Wells Fargo Bank, National Association, as Documentation Agent (incorporated by reference to Exhibit 10.2 of the Current Report on Form 8-K filed with the SEC on June 14, 2018).</u>
10.18	<u>Third Amended and Restated Credit Agreement, dated as of May 27, 2021, among Generac Power Systems, Inc., its Subsidiaries listed as Borrowers on the signature pages thereto, Generac Acquisition Corp., the lenders party thereto, Bank of America, N.A. as Administrative Agent, JPMorgan Chase Bank, N.A. as Syndication Agent, and Wells Fargo Bank, National Association as Documentation Agent (incorporated by reference to Exhibit 10.1 of the Current Report on Form 8-K filed with the SEC on May 28, 2021).</u>
10.19	<u>Guarantee and Collateral Agreement, dated as of May 30, 2012, among Generac Holdings Inc., Generac Acquisition Corp., Generac Power Systems, Inc., certain subsidiaries of Generac Power Systems, Inc. and Bank of America, N.A., as Administrative Agent (incorporated by reference to Exhibit 10.4 of the Company's Current Report on Form 8-K filed with the SEC on May 31, 2012).</u>
10.20	<u>First Amendment to Guarantee and Collateral Agreement dated as of May 31, 2013, among Generac Holdings Inc., Generac Acquisition Corp., Generac Power Systems, Inc., certain subsidiaries of Generac Power Systems, Inc. and Bank of America, N.A., as Administrative Agent (incorporated by reference to Exhibit 10.5 to the Company's Current Report on Form 8-K filed with the SEC on June 4, 2013).</u>
10.21+	<u>Generac Holdings Inc. Amended and Restated 2010 Equity Incentive Plan (incorporated by reference to Appendix A to the Definitive Proxy Statement on Schedule 14A of the Company filed with the SEC on April 27, 2012).</u>
10.22+	<u>Generac Holdings Inc. Annual Performance Bonus Plan (incorporated by reference to Exhibit 10.63 of the Registration Statement on Form S-1 filed with the SEC on January 25, 2010).</u>
10.23+	<u>Amended and Restated Employment Agreement, dated November 5, 2018, between Generac and Aaron Jagdfeld (incorporated by reference to Exhibit 10.1 of the Company's Quarterly Report on Form 10-Q filed with the SEC on November 6, 2018).</u>
10.24	<u>Form of Confidentiality, Non-Competition and Intellectual Property Agreement (incorporated by reference to Exhibit 10.40 of the Registration Statement on Form S-1 filed with the SEC on November 24, 2009).</u>
10.25+	<u>Form of Nonqualified Stock Option Award Agreement (incorporated by reference to Exhibit 10.45 of the Registration Statement on Form S-1 filed with the SEC on January 25, 2010).</u>

Exhibits Number	Description
10.26+	Amended Form of Restricted Stock Award Agreement pursuant to the 2010 Equity Incentive Plan (incorporated by reference to Exhibit 10.3 of the Quarterly Report on Form 10-Q filed with the SEC on May 8, 2012).
10.27+	Amended Form of Nonqualified Stock Option Award Agreement pursuant to the 2010 Equity Incentive Plan (incorporated by reference to Exhibit 10.4 of the Quarterly Report on Form 10-Q filed with the SEC on May 8, 2012).
10.28+	Amended Form of Nonqualified Stock Option Award Agreement pursuant to the 2010 Equity Incentive Plan (incorporated by reference to Exhibit 10.24 of the Annual Report on Form 10-K filed with the SEC on February 26, 2019).
10.29+	Amended Form of Restricted Stock Award Agreement pursuant to the 2010 Equity Incentive Plan (incorporated by reference to Exhibit 10.25 of the Annual Report on Form 10-K filed with the SEC on February 26, 2019).
10.30	Form of Director Indemnification Agreement (incorporated by reference to Exhibit 10.51 of the Registration Statement on Form S-1 filed with the SEC on January 11, 2010).
10.31	Form of Officer Indemnification Agreement (incorporated by reference to Exhibit 10.52 of the Registration Statement on Form S-1 filed with the SEC on January 11, 2010).
10.32+	Amended Form of Performance Share Award Agreement pursuant to the 2010 Equity Incentive Plan (incorporated by reference to Exhibit 10.29 of the Annual Report on Form 10-K filed with the SEC on February 26, 2019).
10.33+	Generac Holdings Inc. Non-Employee Director Compensation Policy (incorporated by reference to Exhibit 10.31 of the Annual Report on Form 10-K filed with the SEC on February 22, 2022).
10.34+	Generac Power Systems, Inc. Executive Change in Control Policy, effective November 5, 2018 (incorporated by reference to Exhibit 10.2 of the Quarterly Report on Form 10-Q filed with the SEC on November 6, 2018).
10.35+	Generac Holdings Inc. 2019 Equity Incentive Plan (incorporated by reference to Appendix A to the Definitive Proxy Statement on Schedule 14A of the Company filed with the SEC on April 26, 2019).
10.36+	Form of Restricted Stock Award Agreement pursuant to the Generac Holdings Inc. 2019 Equity Incentive Plan (incorporated by reference to Exhibit 10.1 of the Quarterly Report on Form 10-Q filed with the SEC on November 5, 2019).
10.37+	Form of Nonqualified Stock Option Award Agreement pursuant to the Generac Holdings Inc. 2019 Equity Incentive Plan (incorporated by reference to Exhibit 10.2 of the Quarterly Report on Form 10-Q filed with the SEC on November 5, 2019).
10.38+	Form of Performance Share Unit Award Agreement pursuant to the Generac Holdings Inc. 2019 Equity Incentive Plan (incorporated by reference to Exhibit 10.3 of the Quarterly Report on Form 10-Q filed with the SEC on November 5, 2019).
21.1*	List of Subsidiaries of Generac Holdings Inc.
23.1*	Consent of Deloitte & Touche LLP, Independent Registered Public Accounting Firm.
31.1*	Certification of Chief Executive Officer pursuant to Securities Exchange Act Rules 13a-14(a) and 15d-14(a), pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification of Chief Financial Officer pursuant to Securities Exchange Act Rules 13a-14(a) and 15d-14(a), pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.

Exhibits**Number****Description**

32.1**	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted by Section 906 of the Sarbanes-Oxley Act of 2002.
32.2**	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted by Section 906 of the Sarbanes-Oxley Act of 2002.
101*	The following financial information from the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2022, filed with the SEC on February 22, 2023, formatted in Inline eXtensible Business Reporting Language (iXBRL): (i) Consolidated Balance Sheets at December 31, 2022 and December 31, 2021; (ii) Consolidated Statements of Comprehensive Income for the Fiscal Years Ended December 31, 2022, December 31, 2021 and December 31, 2020; (iii) Consolidated Statements of Stockholders' Equity for the Fiscal Years Ended December 31, 2022, December 31, 2021 and December 31, 2020; (iv) Consolidated Statements of Cash Flows for the Fiscal Years Ended December 31, 2022, December 31, 2021 and December 31, 2020; (v) Notes to Consolidated Financial Statements.
104	Cover Page Interactive Data File (embedded within the Inline XBRL and contained in Exhibit 101)
	<hr/>
*	Filed herewith.
**	Furnished herewith.
+	Indicates management contract or compensatory plan or arrangement.

Item 16. Form 10-K Summary

None.

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.

GENERAC HOLDINGS INC.

By: /s/ AARON JAGDFELD
 Aaron Jagdfeld
Chairman, President and Chief Executive Officer

Dated: February 22, 2023

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

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ AARON JAGDFELD</u> Aaron Jagdfeld	Chairman, President and Chief Executive Officer	February 22, 2023
<u>/s/ YORK A. RAGEN</u> York A. Ragen	Chief Financial Officer and Chief Accounting Officer	February 22, 2023
<u>/s/ BENNETT MORGAN</u> Bennett Morgan	Lead Director	February 22, 2023
<u>/s/ MARCIA J. AVEDON</u> Marcia J. Avedon	Director	February 22, 2023
<u>/s/ JOHN D. BOWLIN</u> John D. Bowlin	Director	February 22, 2023
<u>/s/ ROBERT D. DIXON</u> Robert D. Dixon	Director	February 22, 2023
<u>/s/ WILLIAM JENKINS</u> William Jenkins	Director	February 22, 2023
<u>/s/ ANDREW G. LAMPEREUR</u> Andrew G. Lampereur	Director	February 22, 2023
<u>/s/ NAM TRAN NGUYEN</u> Nam Tran Nguyen	Director	February 22, 2023
<u>/s/ DAVID A. RAMON</u> David A. Ramon	Director	February 22, 2023
<u>/s/ KATHRYN ROEDEL</u> Kathryn Roedel	Director	February 22, 2023
<u>/s/ DOMINICK ZARCONE</u> Dominick Zarcone	Director	February 22, 2023

Generac Power Systems, Inc.
S45 W29290 Hwy. 59
Waukesha, Wisconsin 53189
P (262) 544-4811



December 29, 2022

Via Email

Shareholder Representative Services LLC
Attn: Janelle Dixon
950 17th Street, Suite 1400
Denver, CO 80202
jdixon@srsacquiom.com

RE: ecobee Earnout Settlement

Dear Janelle:

Reference is made to the Agreement and Plan of Arrangement by and among Generac Power Systems, Inc., Generac Holdings Inc., 13462234 Canada Inc., ecobee Inc. and Shareholder Representative Services LLC dated effective as of November 1, 2021 (the "Agreement"). Capitalized terms used here but not defined have the meanings provided in the Agreement.

As we have discussed, Purchaser and the Securityholder Representative have agreed to an early settlement and payment of the Earnout Consideration related to the June 30, 2023 Earnout Measurement Date equal to 90% achievement that amounts to Earnout Consideration of \$45,000,000. The Generac Share Value for this Earnout Consideration shall be the volume-weighted average closing price of Generac Common Stock on the New York Stock Exchange over a period of twenty trading days ending on January 6, 2023. Within five Business Days after receiving a Company Securityholder distribution spreadsheet from the Securityholder Representative for such payment (that accounts also for any Transaction Expense payable to Bank of America), Purchaser shall cause Generac Holdings to instruct the Exchange Agent to distribute such Earnout Consideration Shares to Company Securityholders and any corresponding cash amount to Bank of America.

Please confirm your agreement with these terms by signing this letter agreement in the space provided below and return an executed copy to my attention. Purchaser and the Securityholder Representative agree that the payment specified herein is in full and final satisfaction of the Earnout Consideration. Except as expressly amended herein, all other terms and conditions of the Agreement shall continue and remain in full force and effect.

Sincerely,

Steve Goran
Chief Strategy Officer
Generac Power Systems, Inc.

Agreed and accepted as of December 29, 2022:

SECURITYHOLDER REPRESENTATIVE:

SHAREHOLDER REPRESENTATIVE SERVICES LLC,
solely in its capacity as the Securityholder Representative

By: _____
Name: Casey McTigue
Title: Managing Director

Cc: John Pitfield, jpitfield@choate.com

FIRST AMENDMENT

FIRST AMENDMENT, dated as of January 31, 2023 (this "Agreement"), to that certain Credit Agreement, dated as of February 9, 2012, as amended and restated as of May 30, 2012, as further amended and restated as of May 31, 2013, and as further amended and restated as of June 29, 2022 (the "Credit Agreement"), among Generac Acquisition Corp., a Delaware corporation ("Holdings"), Generac Power Systems, Inc., a Wisconsin corporation (the "Borrower"), the several lenders from time to time party thereto (the "Lenders"), JPMorgan Chase Bank, N.A., as administrative agent (in such capacity, the "Administrative Agent") and the other agents and parties party thereto.

W I T N E S S E T H:

WHEREAS, pursuant to the Credit Agreement, the Lenders have agreed to make, and have made, certain loans and other extensions of credit to the Borrower;

WHEREAS, the Borrower and the Administrative Agent have jointly identified an obvious error or error or omission of a technical nature in the Credit Agreement;

WHEREAS, the Borrower has requested that the Administrative Agent enter into this Agreement to effect certain modifications to the Credit Agreement as described herein (the Credit Agreement, as so modified hereby, the "Amended Credit Agreement") in order to correct, amend or cure such obvious error or error or omission of a technical nature; and

WHEREAS, Section 9.08(e)(ii) of the Credit Agreement permits the Borrower and the Administrative Agent to amend the provision of the Credit Agreement containing such obvious error or error or omission of a technical nature without the input or consent of any Lender or the Required Lenders;

WHEREAS, the Borrower and the Administrative Agent are willing to amend the Credit Agreement as set forth herein; and

NOW THEREFORE, in consideration of the premises and mutual covenants hereinafter set forth, the parties hereto agree as follows:

SECTION 1. Definitions. Except as otherwise defined herein, all capitalized terms used but not defined herein shall have the meanings ascribed to such terms in the Amended Credit Agreement.

SECTION 2. Amendments to the Credit Agreement. The Credit Agreement is hereby amended, effective as of the Effective Date, as follows:

2.1. Amendment to Section 6.06(m)(ii)(A). Section 6.06(m)(ii)(A) of the Credit Agreement is hereby amended by deleting the amount "\$60.0 million" and substituting in lieu thereof the amount "\$300.0 million".

2.2. Amendment to Section 6.05(g). Section 6.05(g) of the Credit Agreement is hereby amended by deleting the reference therein to "Section 2.11(b)" and substituting in lieu thereof the reference to "Section 2.11(a)".

2.3. Amendment to Section 6.05(dd). Section 6.05(dd) of the Credit Agreement is hereby amended by deleting the reference therein to "Section 2.11(b)" and substituting in lieu thereof the reference to "Section 2.11(a)".

SECTION 3. Effectiveness. This Agreement shall become effective as of the date (the “Effective Date”) on which the Borrower and the Administrative Agent shall have executed and delivered this Agreement.

SECTION 4. [Reserved].

SECTION 5. Effect of Amendment.

5.1. Except as expressly set forth herein, this Agreement shall not by implication or otherwise limit, impair, constitute a waiver of or otherwise affect the rights and remedies of the Lenders or the Administrative Agent under the Credit Agreement, the Amended Credit Agreement or any other Loan Document, and shall not alter, modify, amend or in any way affect any of the terms, conditions, obligations, covenants or agreements contained in the Credit Agreement or any other provision of the Credit Agreement or of any other Loan Document, all of which are ratified and affirmed in all respects and shall continue in full force and effect. Nothing herein shall be deemed to entitle the Borrower to a consent to, or a waiver, amendment, modification or other change of, any of the terms, conditions, obligations, covenants or agreements contained in the Amended Credit Agreement or any other Loan Document in similar or different circumstances. It is the intent of the parties hereto, and the parties hereto agree, that this Agreement shall not constitute a novation of the Credit Agreement, any other Loan Document or any of the rights, obligations or liabilities thereunder.

5.2. On and after the Effective Date, each reference in the Credit Agreement to “this Agreement”, “hereunder”, “hereof”, “herein”, or words of like import, and each reference to the Credit Agreement in any other Loan Document shall be deemed a reference to the Amended Credit Agreement. This Agreement shall constitute a “Loan Document” for all purposes of the Amended Credit Agreement and the other Loan Documents.

SECTION 6. General.

6.1. GOVERNING LAW. THIS AGREEMENT AND THE RIGHTS AND OBLIGATIONS OF THE PARTIES UNDER THIS AGREEMENT SHALL BE GOVERNED BY, AND CONSTRUED AND INTERPRETED IN ACCORDANCE WITH, THE LAW OF THE STATE OF NEW YORK.

6.2. Costs and Expenses. The Borrower agrees to reimburse the Administrative Agent for its reasonable out-of-pocket expenses in connection with the preparation, negotiation and execution of this Agreement, including the reasonable fees, charges and disbursements of counsel for the Administrative Agent in accordance with Section 9.05 of the Amended Credit Agreement.

6.3. Counterparts. This Agreement may be executed in counterparts (and by different parties hereto on different counterparts), each of which shall constitute an original, but all of which when taken together shall constitute a single contract. Delivery of any executed counterpart of a signature page of this Agreement by telecopy or email transmission shall be effective as delivery of a manually executed counterpart of this Agreement. The words “execution,” “signed,” “signature,” “delivery,” and words of like import in or relating to this Agreement shall be deemed to include Electronic Signatures (as defined below), deliveries or the keeping of records in electronic form, each of which shall be of the same legal effect, validity or enforceability as a manually executed signature, physical delivery thereof or the use of a paper-based recordkeeping system, as the case may be. “Electronic Signatures” means any electronic symbol or process attached to, or associated with, any contract or other record and adopted by a person with the intent to sign, authenticate or accept such contract or record.

6.4. Headings. Article and Section headings are used herein are for convenience of reference only, are not part of this Agreement and are not to affect the construction of, or to be taken into consideration in interpreting, this Agreement.

[remainder of page intentionally left blank]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed and delivered by their respective duly authorized officers as of the day and year first above written.

GENERAC POWER SYSTEMS, INC.

By: _____
Name: York A. Ragen
Title: Chief Financial Officer

Signature Page to First Amendment

JPMORGAN CHASE BANK, N.A., as Administrative Agent

By: _____
Name:
Title:

Signature Page to First Amendment

LISTING OF SUBSIDIARIES OF GENERAC HOLDINGS INC.

Subsidiaries of the Registrant	State or Other Jurisdiction of Incorporation
Generac Power Systems, Inc.	Wisconsin, U.S
Generac Mobile Products, LLC	Wisconsin, U.S
Warehouse Development Group LLC	Wisconsin, U.S.
Generac Acquisition Corp.	Delaware, U.S
MAC, Inc.	Delaware, U.S
CHP Holdings, Inc.	Delaware, U.S.
Country Home Products, Inc.	Delaware, U.S.
Powermate, LLC	Delaware, U.S
Generac Grid Services LLC	Delaware, U.S.
Pika Energy, Inc.	Delaware, U.S.
Power Management Holdings (U.S.), Inc.	Delaware, U.S.
Enbala U.S. Power Inc.	Delaware, U.S.
Generac TEP I, LLC	Delaware, U.S.
Sunnova TEP V-A, LLC	Delaware, U.S.
Tank Utility, Inc.	Delaware, U.S.
Energy Systems Holdings Inc.	Delaware, U.S.
Generac Power Plan, Inc.	Vermont, U.S.
Generac Services, Inc.	Vermont, U.S.
Route 22A & 1 Main LLC	Vermont, U.S.
MAC Holdings, LLC	North Dakota, U.S
PR-NA Industries Inc.	Florida, U.S.
Motortech Americas, L.L.C	Louisiana, U.S.
East Coast Energy Systems LLC	Massachusetts, U.S.
Electronic Environments Co. LLC	Massachusetts, U.S.
Energy Systems New York, LLC	New York, U.S.
West Coast Energy Systems LLC	California, U.S.
ecobee Ltd.	Nevada, U.S.
Deep Sea Electronics, Inc.	United States
PR Australia PTY Ltd	Australia
PR Middle East WLL	Bahrain
Generac do Brasil Ltda	Brazil
GPR Brazil Equipamentos Ltda	Brazil
Neurio Technology ULC	Canada
Enbala Power Networks ULC	Canada
Enbala Power Networks B.C. ULC	Canada
ecobee Technologies ULC	Canada
Axcendo Innovation Corporation	Canada
Pramac Fu Lee Foshan Power Equipment Ltd	China
Motortech Shanghai Co., Ltd.	China
Suzhou Generac Power Systems Co., Ltd	China
Generac Colombia S.A.S.	Colombia
GAM Dominicana SA	Dominican Republic
Pramac Europe SAS	France
Services & Gestion France Sarl	France
Pramac GmbH	Germany
Motortech GmbH	Germany
Captiva Energy Solutions Pvt. Ltd.	India
Deep Sea Electronics India Private Limited	India
Generac Mobile Products S.r.l	Italy
Generac Holdings Italy S.r.l.	Italy
PR Industrial S.r.l.	Italy
Generac Mexico Administracion, S.A. de C.V.	Mexico
Generac Mexico, S.A. de C.V.	Mexico
Selmec Equipos Industriales, S.A. de C.V.	Mexico
Generac Servicios Mantenimiento, S.A. de C.V.	Mexico
Servicios Administrativos Selmec, S.A. de C.V.	Mexico
Generac Hidalgo, S.A. de C.V.	Mexico
GMH 2020, S. de R.L. de C.V.	Mexico
Pramac Sp. Z.o.o.	Poland
Motortech Polska Sp. Z.o.o.	Poland
Pramac Generators S.r.l.	Romania
Pramac RUS Ltd	Russia
Pramac Iberica S.A.U.	Spain
PR Middle East Fze	United Arab Emirates
Generac UK Acquisition Limited	United Kingdom
Generac UK DSE Topco Limited	United Kingdom
Generac UK DSE Midco Limited	United Kingdom
Generac UK DSE Bidco Limited	United Kingdom
Deep Sea Electronics Limited	United Kingdom
Generac Holdings UK Limited	United Kingdom
Generac Global UK Limited	United Kingdom
Ottomotores Nominees Limited	United Kingdom
Generac Mobile Products UK Ltd.	United Kingdom
Pramac - Generac UK Ltd.	United Kingdom
Pramac Racing Limited	United Kingdom
DSE Development Limited	United Kingdom
Off Grid Energy Limited	United Kingdom
Cocoon Labs Ltd.	United Kingdom

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in Registration Statement Nos. 333-164851, 333-183109, 333-197944, and 333-233050 on Form S-8 of our reports dated February 22, 2023, relating to the financial statements of Generac Holdings Inc. and the effectiveness of Generac Holdings Inc.'s internal control over financial reporting appearing in this Annual Report on Form 10-K of Generac Holdings Inc. for the year ended December 31, 2022.

/s/ Deloitte & Touche LLP

Milwaukee, Wisconsin
February 22, 2023

**CERTIFICATION OF CHIEF EXECUTIVE OFFICER PURSUANT TO
SECURITIES EXCHANGE ACT RULES 13a-14(a) AND 15d-14(a), AS ADOPTED
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Aaron Jagdfeld, certify that:

1. I have reviewed this annual report on Form 10-K of Generac Holdings 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, 2023

/s/ Aaron Jagdfeld

Name: Aaron Jagdfeld

Title: Chairman, President and Chief Executive Officer

**CERTIFICATION OF CHIEF FINANCIAL OFFICER PURSUANT TO
SECURITIES EXCHANGE ACT RULES 13a-14(a) AND 15d-14(a), AS ADOPTED
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, York A. Ragen, certify that:

1. I have reviewed this annual report on Form 10-K of Generac Holdings 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, 2023

/s/ York A. Ragen

Name: York A. Ragen
Title: Chief Financial Officer

**CERTIFICATION OF THE CHIEF EXECUTIVE OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED
BY SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

Pursuant to Section 1350, Chapter 63 of Title 18, United States Code, as adopted by Section 906 of the Sarbanes-Oxley Act of 2002, the undersigned, as Chief Executive Officer of Generac Holdings Inc. (the "Company"), does hereby certify that to his knowledge:

1. the Company's annual report on Form 10-K for the fiscal year ended December 31, 2022 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
2. the information contained in the Company's annual report on Form 10-K for the fiscal year ended December 31, 2022 fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 22, 2023

/s/ Aaron Jagdfeld

Name: Aaron Jagdfeld

Title: *Chairman, President and Chief Executive Officer*

**CERTIFICATION OF THE CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED
BY SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

Pursuant to Section 1350, Chapter 63 of Title 18, United States Code, as adopted by Section 906 of the Sarbanes-Oxley Act of 2002, the undersigned, as Chief Financial Officer of Generac Holdings Inc. (the "Company"), does hereby certify that to his knowledge:

1. the Company's annual report on Form 10-K for the fiscal year ended December 31, 2022 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
2. the information contained in the Company's annual report on Form 10-K for the fiscal year ended December 31, 2022 fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 22, 2023

/s/ York A. Ragen

Name: York A. Ragen

Title: *Chief Financial Officer*