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UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
Form 10-K

☑ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the fiscal year ended December 31, 2020

☐ **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 0-18277

VICOR CORPORATION
(Exact name of registrant as specified in its charter)

Delaware	**04-2742817**
(State or other jurisdiction of incorporation or organization)	*(IRS employer identification no.)*
25 Frontage Road, Andover, Massachusetts	**01810**
(Address of principal executive offices)	*(Zip code)*

Registrant's telephone number, including area code:
(978) 470-2900

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.01 per share	**VICR**	**The NASDAQ Stock Market LLC**

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 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. ☑

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 and non-voting common equity of the registrant held by non-affiliates (for this purpose, persons and entities other than executive officers and directors) of the registrant, as of the registrant's most recently completed second fiscal quarter (June 30, 2020) was approximately $1,454,187,000.

Title of Each Class	*Number of Shares of Common Stock Outstanding as of February 18, 2021*
Common Stock	31,658,143
Class B Common Stock	11,758,218

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Company's definitive proxy statement (the "Definitive Proxy Statement") to be filed with the Securities and Exchange Commission pursuant to Regulation 14A and relating to the Company's 2021 annual meeting of stockholders are incorporated by reference into Part III.

PART I

In this Annual Report on Form 10-K, unless the context indicates otherwise, references to "Vicor®," "the Company," "our company," "we," "us," "our," and similar references, refer to Vicor Corporation and its subsidiaries, unless otherwise specified.

The Company's consolidated operating results are affected by a wide variety of factors that could materially and adversely affect revenues and profitability, including the risk factors described in Item 1A of this Annual Report on Form 10-K. As a result of these and other factors, the Company may experience material fluctuations in future operating results on a quarterly or annual basis, which could materially and adversely affect its business, consolidated financial condition, operating results, and the share price of its listed common stock. This document and other documents filed by the Company with the Securities and Exchange Commission ("SEC") include forward-looking statements regarding future events and the Company's future results that are subject to the safe harbor afforded under the Private Securities Litigation Reform Act of 1995 and other safe harbors afforded under the Securities Act of 1933 and the Securities Exchange Act of 1934. All statements other than statements of historical fact are statements that could be deemed forward-looking statements. Forward-looking statements are based on our current beliefs, expectations, estimates, forecasts, and projections for the future performance of the Company and are subject to risks and uncertainties. Forward-looking statements are identified by the use of words denoting uncertain, future events, such as "anticipate," "assume," "believe," "continue," "could," "estimate," "expect," "future," "goal," "if," "intend," "may," "plan," "potential," "project," "prospective," "seek," "should," "target," "will," or "would," as well as similar words and phrases, including the negatives of these terms, or other variations thereof. Forward-looking statements also include, but are not limited to, statements regarding: our expectations that we have adequate resources to respond to financial and operational risks associated with the novel coronavirus ("COVID-19") and our ability to effectively conduct business during the pandemic; our ongoing development of power conversion architectures, switching topologies, materials, packaging, and products; the ongoing transition of our business strategically, organizationally, and operationally from serving a large number of relatively low volume customers across diversified markets and geographies to serving a small number of relatively large volume customers; our intent to enter new market segments; the levels of customer orders overall and, in particular, from large customers and the delivery lead times associated therewith; anticipated new and existing customer wins; the financial and operational impact of customer changes to shipping schedules; the derivation of a portion of our sales in each quarter from orders booked in the same quarter; our intent to expand the percentage of revenue associated with licensing our intellectual property to third parties; our plans to invest in expanded manufacturing capacity, including the expansion of our Andover facility and the introduction of new manufacturing processes, and the timing, location, and funding thereof; our belief that cash generated from operations and the total of our cash and cash equivalents and short-term investments will be sufficient to fund operations and capital investments for the foreseeable future; our outlook regarding tariffs and the impact thereof on our business; our belief that we have limited exposure to currency risks; our intentions regarding the declaration and payment of cash dividends; our intentions regarding protecting our rights under our patents; and our expectation that no current litigation or claims will have a material adverse impact on our financial position or results of operations. These forward-looking statements are based upon our current expectations and estimates associated with prospective events and circumstances that may or may not be within our control and as to which there can be no assurance. Actual results could differ materially from those implied by forward-looking statements as a result of various factors, including but not limited to those described under Part I, Item 1 — "Business," under Part I, Item 1A — "Risk Factors," under Part I, Item 3 — "Legal Proceedings," and under Part II, Item 7 — "Management's Discussion and Analysis of Financial Condition and Results of Operations." The discussion of our business contained herein, including the identification and assessment of factors that may influence actual results, may not be exhaustive. Therefore, the information presented should be read together with other documents we file with the SEC from time to time, including our Quarterly Reports on Form 10-Q and our Current Reports on Form 8-K, which may supplement, modify, supersede, or update the factors discussed in this Annual Report on Form 10-K. We do not undertake any obligation to update any forward-looking statements as a result of future events or developments, except as required by law.

ITEM 1. *BUSINESS*

Overview

Vicor Corporation designs, develops, manufactures, and markets modular power components and power systems for converting electrical power (expressed as "watts," and represented by the symbol "W", with wattage being the product of voltage, expressed as "volts," and represented by the symbol "V," and current, expressed as "amperes," and represented by the symbol "I"). In electrically-powered devices utilizing alternating current ("AC") voltage from a primary AC source (for example, a wall outlet), a power system converts AC voltage into the stable direct current ("DC") voltage necessary to power subsystems and/or individual applications and devices (known as "loads"). In many electronic devices, this DC voltage may be further converted to one or more voltages and currents required by a range of loads. In equipment utilizing DC voltage from a primary DC source (for example, a battery) or a secondary source (such as an AC-DC converter), the initial DC voltage similarly may require further conversion. A power system most commonly incorporates four voltage conversion functions: transformation, isolation, rectification, and regulation.

Transformation refers to the process of increasing or decreasing an AC voltage; isolation refers to the electrical separation, for safety, of primary and secondary voltages in a transformer; rectification refers to the process of converting a voltage from AC to DC and/or from DC to AC; and regulation refers to the process of providing a near constant voltage under a range of line and load conditions. Because numerous applications requiring different voltages, currents, and varied power ratings may exist within an electronically-powered device, and system power architectures themselves vary, we offer an extensive range of products and accessories in numerous application-specific configurations. We believe our product offering is among the most comprehensive in the market segments we serve.

Our strategy, competitive positioning, and product offerings are all based on highly differentiated product performance, reflecting our anticipation of the evolution of system power architectures and customer performance requirements. Since the Company was founded, we have pursued continuous innovations in product design and achievements in product performance, largely enabled by our focus on the research and development of advanced technologies and processes, often implemented in proprietary semiconductor circuitry, materials, and packaging. Reflecting this strategy, we categorize our offerings as either "Advanced Products" or "Brick Products," generally based on design, performance, and form factor considerations, as well as the range of evolving applications for which the products are appropriate.

Our competition varies, depending on the market segment and application. Generally, we compete with developers and manufacturers of integrated circuits and semiconductor-based modules when addressing the needs of customers in enterprise computing and other market segments with implementations of our proprietary Factorized Power Architecture™ ("FPA") using Advanced Products. In contrast, we generally compete with manufacturers of integrated power supplies when addressing the needs of customers, across a wide range of market segments, implementing conventional power systems architectures (e.g., Centralized Power Architecture ("CPA"), Distributed Power Architecture ("DPA"), and Intermediate Bus Architecture ("IBA")) using Brick Products.

Our website, www.vicorpower.com, sets forth detailed information describing our products, the applications for which they may be used, and our suite of design tools. The information contained on our website is not a part of, nor incorporated by reference into, this Annual Report on Form 10-K and shall not be deemed "filed" under the Securities Exchange Act of 1934, as amended (the "Exchange Act").

We are headquartered in Andover, Massachusetts, where our manufacturing facility is located. Our wholly-owned subsidiary, VICR Securities Corporation also is located in Andover, Massachusetts. Our other domestic offices are located in Santa Clara, California, Lombard, Illinois, and Lincoln, Rhode Island. Our two Vicor Custom Power™ subsidiaries, Freedom Power Systems, Inc. and Northwest Power, Inc., are located in Cedar Park, Texas, and Milwaukie, Oregon, respectively.

We have established individual subsidiaries or unincorporated branch offices outside of the United States, which we call Technical Support Centers ("TSCs"), to conduct preparatory and auxiliary services in support of the Company. Vicor Japan Company, Ltd. ("VJCL"), our 92.5%-owned Japanese subsidiary, which is engaged in sales and customer support activities exclusively for the sale of certain products customized by VJCL for the Japanese market, is headquartered in Tokyo, Japan.

In August 2020, our subsidiary, VLT, Inc., which was a vehicle for licensing technologies, was merged with and into the Company, and its operations and personnel were reassigned. In June 2019, our subsidiary, VI Chip Corporation ("VI Chip"), was merged with and into the Company, and its operations and personnel were reassigned. In December 2019, we closed Vicor B.V., a wholly-owned subsidiary incorporated in the Netherlands, which provided logistical and administrative support for certain sales in the European Union. In May 2018, our subsidiary, Picor Corporation ("Picor"), was merged with and into the Company, and its operations and personnel were reassigned. In December 2018, we merged Granite Power Technologies, Inc., a Vicor Custom Power subsidiary located in Manchester, New Hampshire, with and into the Company, transferring its operations and reassigning certain personnel.

All of our subsidiaries and their legal domicile are set forth in Exhibit 21.1 to this Annual Report on Form 10-K. The activities of all of the above named entities are consolidated in the financial statements presented herein.

Vicor was incorporated in Delaware in 1981, and we completed an initial public offering in May 1991. The Company has two classes of common stock outstanding: shares of our "Common Stock," listed on The NASDAQ Stock Market under the ticker symbol VICR, and shares of our Class B common stock, which are not subject to registration pursuant to the Exchange Act and are not listed on any exchange.

Our Strategy

Our strategy emphasizes demonstrable product differentiation and a value proposition based on competitively superior solution performance, advantageous design flexibility, and a compelling total cost of ownership ("TCO"). Since the Company was founded, our competitive position has been maintained by continuous innovations in product design and achievements in product performance, largely enabled by our focus on the research and development of advanced technologies and processes, often implemented in proprietary semiconductor circuitry, materials, and packaging. Many of our products incorporate patented or proprietary implementations of high-frequency switching topologies, which enable the design of power system solutions more efficient and much smaller than conventional alternatives. This efficiency and small size is enabled by our proprietary switching circuitry and magnetic structures, as well as our use of highly differentiated packaging.

Power system performance is based primarily on conversion efficiency (i.e., the ratio of output power (i.e., watts) to input power) and power density (i.e., the amount of output power divided by the volume of the power system). Higher efficiency and density contribute to superior thermal performance, as the by-product of power conversion and distribution is heat, which must be dissipated in order to assure the performance of the power system solution itself and the overall system to which it is delivering power. Power system performance also is based on the electrical characteristics of the power system (and their effect on and compatibility with the customer's application). Important electrical characteristics include transient responsiveness (i.e., the reaction of a power system to a sudden change in voltage or current levels) and noise profile (i.e., the level of electromagnetic interference created by power conversion). We believe the superior performance of our power systems is the most important element of our differentiation strategy.

Our strategy complements performance superiority with design flexibility (i.e., ease of use), as our products can be utilized individually or combined, given their level of integration, to create power system solutions specific to a customer's precise needs. We articulate this positioning through our "Power Component Design Methodology," an element of our differentiation strategy, which is our approach to providing our customers the modular products, design tools, and engineering support to enable the rapid design of advanced power system solutions by customers and, thereby, accelerate their own product development cycles. Our value proposition is supported by a compelling TCO, representing the cost of acquiring and operating a power system over its useful life, driven by competitive product pricing, high reliability, and demonstrably lower electricity costs.

Our earliest market focus was on telecommunications infrastructure, which uses a standard DC distribution voltage of 48V (nominally 48V to 54V), the highest distribution voltage that meets Safety Extra-Low Voltage (“SELV”) standard requirements, while leaving sufficient margin for over-voltage protection circuits. While we offer products addressing other DC voltage standards (e.g., 380V for power distribution in data centers, 110V for rail applications, 28V for military and avionics applications, and 24V for industrial automation) and a broad range of customer requirements, we consider our core competencies to be associated with 48V distribution, which offers numerous inherent cost and performance advantages over lower distribution voltages, while remaining within the 60V SELV safety limit.

Our product portfolio also includes families of “front-end” devices, which address applications requiring the transformation of AC voltages to regulated DC voltages. Examples of such applications include powering data center server racks, large-scale LED lighting, specialized laboratory, diagnostic, and test equipment, small-cell wireless base stations, and higher power equipment for defense and industrial use.

Reflecting our strategy, we categorize our offerings as either Advanced Products or Brick Products, generally based on design, performance, and form factor considerations, as well as the range of evolving applications for which the respective categories are appropriate. The Advanced Products category consists of our most innovative products, which are used to implement our proprietary distribution architecture, FPA, a highly differentiated approach to power distribution that enables flexible, rapid power system design using individual components optimized to perform a specific function. The Brick Products category largely consists of integrated power converters (i.e., “bricks”), incorporating multiple conversion stages, used in conventional power systems architectures including CPA, DPA, and IBA.

Given the growth profiles and performance requirements of the market segments served with Advanced Products and Brick Products, our strategy involves a transition in organizational focus, emphasizing investment in Advanced Products design and manufacturing, targeting high growth market segments with a low-mix, high-volume operational model, while maintaining a profitable business in mature market segments we serve with Brick Products with a high-mix, low-volume operational model.

Our Products

Reflecting our Power Component Design Methodology, we offer a comprehensive range of modular building blocks enabling rapid design of a power system specific to a customer’s precise needs. Based on design, performance, and form factor considerations, as well as the range of evolving applications for which the products are appropriate, we categorize our product portfolios as either Advanced Products or Brick Products. We also sell a range of electrical and mechanical accessories for use with our products.

Advanced Products

We continue to invest in the research and development of power system technologies and product concepts addressing two accelerating trends, the first toward higher required conversion efficiencies, and the second toward more and diverse on-board voltages, higher performance demands of complex loads, and, in particular, higher current requirements of those loads. These trends are most visible in the microprocessor-based applications we target with Advanced Products, for which energy consumption, energy efficiency, processor performance, and computing density are critical priorities. Recognizing the performance and scale limitations of conventional power distribution architectures and products, we introduced FPA and a range of enabling products incorporating our latest advances in power distribution concepts, switching topologies, materials, and packaging.

FPA, which is focused on, but not limited to, 48V DC distribution solutions, increases power system conversion efficiency, density, and power delivery performance by “factorizing” (i.e., separating) the power conversion process into individual components, reducing the design limitations, thermal management challenges, and scaling trade-offs associated with conventional architectures for DC voltage distribution. All such architectures follow a sequence whereby a DC voltage is first transformed, or reduced, and that lower voltage subsequently conducted (i.e., “bussed”) across the circuit to the “load” (i.e., the point of use), where the voltage is regulated and lowered once more, to the required operating voltage of the load. In a FPA implementation, the sequence is reversed. Regulation occurs first, and the regulation module can be placed in the optimal position for space utilization and thermal management. A regulated voltage approaching 48V is bussed across the circuit to the transformation module, which performs what we refer to as current multiplication, adjacent to the load. Bussing high voltage minimizes the current levels across the circuit, thereby minimizing the potential for distribution losses and reducing the volume of the conduit (e.g., the copper wire). Placing the relatively low noise, low heat current multiplication module adjacent to the load further minimizes the potential for distribution losses associated with bussing a low operating voltage to the load and reduces the potential influence of the power system on the performance of the load.

A typical FPA implementation for delivering 48V DC from a server backplane to a 1.0V microprocessor would consist of three modules: a PRM™ (Pre-Regulator Module) regulator, a VTM™ (Voltage Transformation Module) current multiplier, and a proprietary communications controller. In contrast, a commodity IBA design for delivering 48V DC from a server backplane to a 1.0V microprocessor requires an additional conversion stage, to reduce 48V to 12V, and, at the point of load, a voltage regulation module (i.e., a “VRM” consisting of multiple switching regulators, each representing a phase and consisting of two switching transistors, one or more capacitors, and an inductor, with the transistors switched by pulse width modulation controller). For a 200W two stage, multiphase application, a 12V commodity IBA implementation would require an intermediate bus converter, to reduce 48V to 12V, and a VRM solution consisting of parallel phases (i.e., multiple switching regulators) to reduce and regulate the current for use at 1.0V by the microprocessor. Such a commodity IBA implementation requires a significantly higher component count, consumes more motherboard area, requires more copper conduit, generates more heat due to switching and distribution losses, offers inferior dynamic response, and can be meaningfully less efficient than a 48V FPA implementation.

The advantages of FPA over legacy power distribution architectures are most evident in high performance computing applications. Our “Power-on-Package” power system solutions meet the computational performance requirements of artificial intelligence (“AI”). The microprocessors typically used in AI, particularly in more computationally demanding “machine learning” or “training” applications, are graphics processing units (“GPUs”) and custom application-specific integrated circuits (“ASICs”). Unlike central processing units (“CPUs”), which are designed for serial execution of complex and broad instruction sets, GPUs and AI ASICs are designed for massively parallel (i.e., concurrent) processing of repetitive transactions or calculations. As such, GPUs and AI ASICs generally operate at processing frequencies requiring the higher levels of average and peak current delivered by our FPA-based solutions. Our most popular Power-on-Package solution, consists of one MCD© (Modular Current Driver) unit, providing high-bandwidth, low-noise regulation, and two MCM© (Modular Current Multiplier) units, providing high performance current multiplication. Power-on-Package delivers unprecedented current levels to GPUs and AI ASICs, in part due to the placement of the MCMs directly on the substrate onto which the processor is mounted, thereby minimizing distribution losses associated with high current levels. Placement of MCM units on the substrate also reduces the number of GPU or ASIC processor substrate pins required for power, allowing for their use by other functions (e.g., memory input/output (“I/O”)). This three-module laterally-mounted Power-on-Package configuration, powering an AI accelerator card requiring 350W, delivers 0.7V, 650A average current, and up to 1,200A peak current to the GPU or AI ASIC, with superior transient response and unmatched power density.

We are unaware of any competitive solution for AI acceleration offering the power system performance and density of Power-on-Package, as IBA-based solutions must increase the number of conversion phases to reach high current levels, thereby increasing component count and motherboard area used, which contributes to higher switching and distribution losses, inferior dynamic response, and associated heat generation.

Our latest innovation for powering processors is vertical power delivery, which involves mounting our highest-performance solutions on the underside of the motherboard, opposite the GPU or AI ASIC, thereby enabling a further reduction in distribution losses at the load, yielding higher efficiency and unprecedented power density. Vertically-mounting the solution allows unrestricted access to microprocessor input/output I/O pins on the top side of the motherboard, thereby improving I/O speed and memory access, which are a priority for GPUs and AI ASICs in AI applications. We are in the final development stages of our vertical power delivery solutions and expect to be shipping released products to customers in 2021.

Our proprietary technologies enable us to offer a range of Advanced Products, in various package formats across functional families, applicable to other market segments and power distribution architectures other than FPA. Within computing, these market segments include AC to DC voltage conversion and DC voltage distribution in server racks and high voltage conversion across datacenter infrastructure. We also offer Advanced Product power system solutions for aerospace and aviation (e.g., for use in satellites, unmanned aerial vehicles, and various airframes, including battery-powered aircraft, for which small size, light weight, and design flexibility are advantageous); defense electronics (e.g., for use in airborne, seaborne, or field communications and radar, for which reliability in harsh environments is a priority); industrial automation, instrumentation, and test equipment (e.g., for use in robotics and semiconductor testing, for which high power levels and precision performance are required); solid state lighting (e.g., for use in large scale displays and signage, for which, again, small size, light weight, and design flexibility are advantageous); telecommunications and networking infrastructure (e.g., for use in high-throughput data distribution and pole-mounted small-cell base stations); and vehicles (e.g., in autonomous driving applications, electric vehicles, and hybrid electric vehicles).

Annual revenue associated with the sale of Advanced Products was approximately 35.8%, 28.6%, and 35.9% of the Company’s consolidated revenue for the years ended December 31, 2020, 2019, and 2018, respectively. Sales of Advanced Products recovered in 2020, reflecting the resumption of orders from both AI system vendors and hyperscalers, as the market segment recovered from an unexpected and sustained period of low demand across the computing market that began in 2018 and continued through 2019. This low demand was caused by the buildup of excess inventory levels at contract manufacturers during the second half of 2018 and planning uncertainty associated with the ongoing trade dispute between China and the U.S., the two largest geographic markets we serve. Despite the impact of the COVID-19 pandemic, the data center market has experienced relatively less disruption than other market segments we serve, as the rapid expansion of cloud-based computing and AI-driven applications drove sustained demand for our solutions through 2020.

We anticipate the percentage of periodic revenue associated with the sale of Advanced Products will increase in the future, given our strategic and organizational focus and the relatively higher expected growth of the market segments we serve.

Brick Products

Brick-format converters provide the integrated transformation, rectification, isolation, regulation, filtering, and/or input protection necessary to power and protect loads, across a range of conventional power architectures. We offer a wide range of brick-format DC-DC converters, as well as complementary components providing AC line rectification, input filtering, power factor correction, and transient protection. Wide ranges of input voltages, output voltages, and output power are offered, allowing end users to select components appropriate to their individual applications. The products differ in dimensions, temperature grades, maximum power ratings, performance characteristics, pin configuration, and, in certain cases, characteristics specific to the targeted market.

We also integrate these converters and components into complete power systems representing standard or custom AC-DC and DC-DC solutions for our customers’ power needs. We refer to such standard products as our

"Configurable" product line, while our two Vicor Custom Power subsidiaries design, sell, and service custom power system solutions.

We market our standard Brick Products emphasizing "mass customization," using highly automated, efficient, domestic manufacturing to serve customers with product design and performance requirements, across a wide range of worldwide market segments, which could not be met by high-volume oriented competitors. We focus on distributed power implementations, for which our brick-format products are well-suited, in market segments such as aerospace and defense electronics, industrial automation, industrial equipment, instrumentation and test equipment, and transportation (e.g., rail). Our customers range from independent manufacturers of highly specialized electronic devices to larger original equipment manufacturers ("OEMs") and their contract manufacturers. Some of our Brick Product lines have been in production for over a decade, reflecting the maturity of the markets we serve, the long-established relationships we have with many customers, and the long-standing suitability of our products to demanding applications.

Annual revenue associated with the sale of Brick Products, representing the sum of sales to third-parties of the products previously sold under the former Brick Business Unit operating segment during periods prior to the second quarter of 2019, inclusive of such sales of our Vicor Custom Power and VJCL subsidiaries, was approximately 64.2%, 71.4%, and 64.1% of the Company's consolidated revenue for the years ended December 31, 2020, 2019, and 2018, respectively.

Customers and Backlog

The applications in which our Advanced Products and Brick Products are used are typically in the higher-performance, higher-power segments of the market segments we serve. With our Advanced Product lines, our customers are concentrated in the data center and hyperscaler segments of enterprise computing, in which our products are used for voltage distribution on server motherboards, in server racks, and across datacenter infrastructure, although we also target applications in aerospace and aviation, defense electronics, industrial automation, instrumentation, test equipment, solid state lighting, telecommunications and networking infrastructure, and vehicles (notably in the autonomous driving, electric vehicle, and hybrid vehicle niches of the vehicle segment). With our Brick Product lines, we serve customers concentrated in aerospace and defense electronics, industrial automation, industrial equipment, instrumentation and test equipment, and transportation (notably in rail and heavy equipment applications). With our strategic emphasis on larger, high-volume customers, we expect to experience a greater concentration of sales among relatively fewer customers.

As of December 31, 2020, the Company's order backlog was approximately $147,550,000, compared to $104,164,000 as of December 31, 2019. Backlog, as presented here, consists of orders for products for which shipment is scheduled within the following 12 months, subject to our scheduling and cancellation policies.

The lead times between receipt and acceptance of an order and our shipment of the product have increased, largely as a consequence of the COVID-19 pandemic. Although demand visibility and supply chain conditions across the global electronics industry stabilized in 2019, the rapid onset of the COVID-19 pandemic during the first quarter of 2020 caused widespread delays in production and delivery. In response, during the second quarter of 2020, we extended our quoted lead times for delivery to customers to beyond 20 weeks. Since the second quarter of 2020, our supply chain has been stable, with limited instances of delays or interruptions. However, until the pandemic is substantially contained worldwide and supply chain uncertainties are further reduced, we intend to maintain these quoted lead times.

A portion of our revenue in any quarter is, and will continue to be, derived from "turns" volume, representing either orders booked and shipped in the same quarter or orders for which customers have requested accelerated delivery from a later quarter to the current quarter. This volume generally has been associated with orders for Brick Products. Over the past three years, the volume of orders booked and shipped within a quarter has declined steadily, reflecting lengthened delivery lead times across the electronics industry. However, over the same period, the volume of orders for which customers have requested accelerated delivery has increased, which we believe to be a reflection of improved conditions in many of the market segments we serve with Brick Products. An additional influence on turns volume has been our transition to larger OEM customers, which typically schedule large volumes for delivery over multiple quarters and frequently reschedule deliveries for either earlier or later shipment. Average quarterly turns volume averaged approximately 14% of 2020 revenue, approximately 27% of 2019 revenue, and approximately 20% of 2018 revenue.

Competition and Market Characteristics

The competitive characteristics of the markets we serve with Advanced Products and Brick Products can differ significantly. For example, in the higher-performance segments of computing we serve, our Advanced Products most often compete with solutions offered by large integrated device manufacturers (“IDMs”), which offer integrated circuits (“ICs”) and semiconductor-based modules. These IDMs generally offer far broader product portfolios, possess far greater global manufacturing and support resources, and have the ability to aggressively price their products to defend market share. Accordingly, Advanced Products are positioned as highly differentiated alternatives to commodity solutions for customers seeking high levels of performance. The customers we serve with Advanced Products, typically on a direct basis, are in market segments generally characterized by an emphasis on product performance differentiation, a compelling TCO, relatively extended and highly competitive design cycles, and product life cycles of generally less than three years. In contrast, the Brick Products competitive landscape is relatively fragmented, with large-scale, low-cost global suppliers of commodity solutions and many smaller manufacturers focused on specialized products or narrowly defined market segments or geographies. The market segments we serve with Brick Products, typically through sales representatives and distribution partners, generally are characterized by relatively short design cycles, relatively long (i.e., greater than three years) product life cycles, and, given the maturity of many market segments and applications, degrees of commoditization and price competition. As such, Brick Products are positioned with an emphasis on mass customization, through which we offer products with specific features and performance profiles typically not available from catalog-oriented competitors.

The size and growth characteristics of the markets we serve with Advanced Products and Brick Products also can differ significantly, and the range and quality of market data is problematic, making summary statements about these markets challenging. We believe our Advanced Products generally compete with power modules and power ICs developed and manufactured by IDMs and other fabless vendors of power semiconductors. We believe our Brick Products generally compete with similarly integrated switching power supply products developed and manufactured by large global competitors and a fragmented group of small regional competitors. The switching power supply market can be segmented by product type (i.e., DC-DC converters, AC-DC converters, and DC-AC inverters), by output power levels, and by numerous vertical markets (i.e., industry-specific applications).

For 2020, exports to China and Hong Kong exceeded $93,000,000, representing approximately 31.4% of total revenue and an approximately 60.4% increase over the 2019 total. We believe this increased volume was primarily associated with the stimulus spending of the Chinese government, although we also believe an unquantifiable amount of this volume may have been associated with accelerated purchasing by customers anticipating further deterioration of the trade relationship between China and the U.S. Our belief is based on input from our distribution partners in China, as well as the mix of products exported over the past three years, reflecting the transfer by our OEM customers for Advanced Products (and their contract manufacturers) of the majority of production programs from China and Hong Kong to other countries in order to avoid inbound and outbound tariffs. Exports to China and Hong Kong peaked at approximately $109,000,000 in 2018, but that figure included approximately $50,000,000 of exports of Advanced Products to OEM customers and their contract manufacturers. As stated, the majority of the programs associated with this amount have been transferred to other countries. Current exports to China and Hong Kong are heavily oriented toward Brick Products for industrial and rail applications, as well as certain aerospace and defense electronics applications permitted under U.S. export control regulations (our products are designated EAR99 commodities under the Export Administration Regulations of the U.S. Department of Commerce and are not subject to export licenses).

Despite our minor share in the overall merchant market and the competitive presence of numerous, far larger vendors in the market segments we serve with both Advanced Products and Brick Products, we believe we maintain an advantageous competitive position in those market segments. Notably, we believe we have the largest share of 48V power distribution opportunities within the segments of the computing market segments we serve. However, numerous competitors across these market segments have significantly greater engineering, financial, manufacturing, and marketing and sales resources, as well as longer operating histories and longer customer relationships than we do.

Marketing and Sales

We reach and serve customers through several sales channels: a direct sales force; a network of independent sales representative organizations in North America and South America; independent, authorized non-stocking distributors in Europe and Asia; and four authorized stocking distributors world-wide: Arrow Electronics, Inc., Digi-Key Corporation, Future Electronics Incorporated, and Mouser Electronics, Inc. All sales channels are supported by regional TSCs, each offering application engineering and sales support for our channel partners. Domestic TSCs are located in: Andover, Massachusetts; Lombard, Illinois; and Santa Clara, California. International TSCs are located in: Beijing, China; Hong Kong, China; Shanghai, China; Shenzhen, China; Munich, Germany; Bangalore, India; Milan, Italy; Tokyo, Japan; Seoul, South Korea; Taipei, Taiwan (Republic of China); and Camberley, United Kingdom. Customers do not place purchase orders with TSCs, but do so directly with the Company or with our channel partners. In Japan, customers place purchase orders with authorized distributors or, for certain custom products, VJCL.

We generally sell our products on the basis of our standard terms and conditions, and we most commonly warrant our products for a period of two years. Effective January 1, 2017, we extended the warranty period to three years for a range of H Grade, M Grade, and MI Family DC-DC products sold after that date. In a limited number of circumstances, we have entered into supply contracts with certain high-volume customers calling for extended warranty terms. With our distribution partners, we also enter into contracts providing for our product warranties to transfer to the end customer upon final sale of our product(s) by the distributor.

Because of the technically complex nature of our products and the applications they address, we maintain an extensive staff of Field Applications Engineers to support our own sales and customer support activities, as well as those of our channel partners. Field Application Engineers, based in our TSCs, provide direct technical support worldwide by reviewing new applications and technical matters with our channel partners in support of existing and potential customers. Product Line Engineers, located in our Andover headquarters, support Field Application Engineers assigned to all of our TSCs.

Our direct sales force focuses on higher-volume opportunities involving Advanced Products with global OEMs (and the Original Design Manufacturers (“ODMs”) and contract manufacturers serving these OEMs). Because of the high level of product differentiation and the increasing complexity and challenges of customer requirements, we have experienced, and may continue to experience, extended design cycles before production orders are received.

We also reach customers through the electronic commerce capabilities of our website, www.vicorpower.com. Registered, qualified customers in the United States, Canada, and certain European countries are able to purchase selected products online.

Our web-based resources are an important element of our efforts to interact with and support customers. Within our website, *PowerBench*™ is a workspace of tools and references allowing engineers to select, architect, and implement power systems using our products. Our highly differentiated *Whiteboard*™ tool allows users to configure and analyze their own power system designs or those from an extensive library of designs addressing a wide range of applications. Users can modify the operating condition for each component of their design to match the intended application and perform efficiency and loss analysis of individual components and the full power system. We continue to enhance and expand the range and capabilities of engineering tools we make available online to customers and prospective customers.

As stated, our strategy involves maintaining high levels of customer engagement and support for design and engineering, which has resulted in significant expansion of our sales and application engineering infrastructure over historical levels, notably across Asia. We incurred approximately $43,396,000, $43,387,000, and $42,533,000 in marketing and sales expenses in 2020, 2019, and 2018, respectively, representing approximately 14.6%, 16.5%, and 14.6% of revenues in 2020, 2019, and 2018, respectively.

Manufacturing, Quality Assurance, and Supply Chain Management

Our manufacturing facility, of approximately 230,000 square feet, is located in Andover, Massachusetts, where we are headquartered. In this facility, we manufacture Brick Products, with the exception of custom products produced by our Vicor Custom Power and VJCL subsidiaries, and Advanced Products, with the exception of certain products manufactured, packaged, and tested by third party wafer foundries and packaging contractors in the United States and Asia.

Our primary manufacturing processes involve steps common to automated assembly of electronics devices. We also have developed and employ proprietary manufacturing processes that contribute to the differentiated performance of our devices, including the innovative metal finishing of our SM ChiP© modules discussed below. During the third quarter of 2020, we began construction of an addition of approximately 90,000 square feet to our existing manufacturing facility. We plan to take occupancy of this addition during the first half of 2021.

As previously disclosed, we partner with a highly-specialized third-party developer of metal finishing processes and equipment, which performs certain elements of our proprietary manufacturing process using equipment designed by the developer. In 2019 and 2020, we entered into service and equipment purchase agreements with this partner. While commodity services are available from numerous alternate providers, we entered into these agreements due to the level of our collaboration to date with the partner in the refinement of certain proprietary processes we employ and our joint commitment to environmentally sound manufacturing minimizing toxic waste. Approximately one-half of the addition to our manufacturing facility will be allocated to installation of highly-automated equipment scheduled to be delivered by the partner, beginning the first half of 2021, which will enable the vertical integration of all manufacturing process steps for SM-ChiP modules. We expect the pre-production qualification of this installed equipment will begin late during the first half of 2021, with production volumes to follow later in the year. We have relied on this partner’s services to meet our requirements for SM-ChiP production to date, and we expect to do so through 2021, after which we expect to have fully-operational production capabilities on site.

We continue to make investments in automated manufacturing equipment, particularly for expansion of production capacity for Advanced Products. During 2019, through investment in additional capital equipment, we increased our total manufacturing capacity in our Andover facility by approximately 35%. The addition of manufacturing lines and the vertical integration of metal finishing processes are expected to increase our Advanced Products capacity by an additional 100%, based on additional machine capacity and accelerated cycle times due to vertical integration.

Product quality and reliability are critical to our success and, as such, we emphasize quality and reliability in our design and manufacturing activities. We follow industry best practices in manufacturing and are compliant with ISO 9001 certification standards (as set forth by the International Organization for Standardization). Our quality assurance practices include rigorous testing and, as necessary, burn-in and temperature cycling (i.e., extended operation of a product to confirm performance) of our products using automated equipment. Incoming components, assemblies, and other parts are subjected to several levels of inspection procedures, and we maintain robust data on our raw material inventories in order to support our quality assurance procedures.

Components and materials used in our products are purchased from a variety of domestic and international vendors. Generally, the global electronics supply chain recovered during 2020 from the impact of the COVID-19 pandemic, but lead times for delivery of certain raw materials remain extended. Most of these raw materials are available from multiple sources, whether directly from suppliers or indirectly through distributors, and, during 2020 we continued to opportunistically expand certain raw material inventories to offset the uncertainties associated with availability and lead times.

Certain Advanced Products and semiconductor devices used in our production are manufactured by a limited number of wafer foundries, with packaging and test services provided by a limited number of third parties. We rely on these wafer foundries and packaging and test providers for supply continuity of these critical semiconductor devices. During the fourth quarter of 2020 and to date in the first quarter of 2021, the semiconductor test and packaging segment of the global electronics supply chain has experienced well-publicized capacity constraints, and, as a result, we recently have experienced unpredicted delays in receipt of certain semiconductor components from our packaging and test vendors. To date, these delays have not had a material impact on our ability to meet customer delivery requirements. In response to current schedule uncertainties, we are seeking alternate providers of packaging and test services and may further increase inventory levels for these semiconductor components, when possible. Should these capacity constraints continue or worsen and we are unable to obtain the necessary volumes of required semiconductor components, we may not be able to meet delivery commitments for certain customers and may not be able to reduce delivery lead times for the foreseeable future.

To date, we have not experienced material delays or reduced raw material availability as a result of trade disputes between the U.S. and China, including the imposition in 2018 of import tariffs under the provisions of Section 301 of the Trade Act of 1974 (19 U.S.C. § 2411) ("Section 301 Tariffs") on certain Chinese goods imported into the United States. For the year ended December 31, 2020, costs associated with tariffs totaled approximately $7,259,000 an increase of 37% over the $5,280,000 in costs incurred for the year ended December 31, 2019. We continue to assess the impact of these costs and are actively evaluating alternative sources of raw materials. We also have filed "duty drawback" applications with U.S. Customs and Border Protection for the recovery of tariffs paid on raw materials used to produce products we subsequently exported. At this time, we are not able to estimate the amount of such recovery or the timing thereof.

Intellectual Property

Our competitive positioning has been, and will continue to be, supported by our long-standing commitment to research and development of power distribution architectures, power conversion technologies, advanced packaging and manufacturing, and innovative approaches to solving customer problems. Our research and development activities have resulted in important domestic and foreign patents protecting our products and enabling technologies, as well as proprietary trade secrets associated with our use of certain components and materials of our own design and proprietary manufacturing, packaging, and testing processes. We incurred approximately $50,916,000, $46,588,000, and $44,286,000 in research and development expenses in 2020, 2019, and 2018, respectively, representing approximately 17.2%, 17.7%, and 15.2% of revenues in 2020, 2019, and 2018, respectively.

We believe our intellectual property affords advantages by building fundamental and multilayered barriers to competitive encroachment upon key features and performance benefits of our principal product families. Our patents cover the fundamental switching topologies used to achieve the performance attributes of our converter product lines; converter array architectures; product packaging design; product construction; high frequency magnetic structures; and automated equipment and methods for circuit and product assembly.

As of December 31, 2020, in the United States, we have been issued 117 total patents. These patents have expirations scheduled between 2021 and 2038. We also have a number of patent applications pending in the United States and certain countries of Europe and Asia, including applications that would extend the life of current patents. We have vigorously protected our rights under these patents and will continue to do so. Although we believe patents are an effective way of protecting our technology, there can be no assurances our patents will prove to be enforceable in any given jurisdiction.

In addition to generating revenue from product sales, we seek to license our intellectual property. In granting licenses, we generally retain the right to use our patented technologies and manufacture and sell our products in all licensed geographic areas and fields of use. Revenues from licensing arrangements have not exceeded 10% of our consolidated revenues in any of the last three fiscal years.

Human Capital Management

High-caliber employees are important to achieving Vicor's mission of providing the highest performance power solutions to meet the requirements of the most demanding applications. In order to maintain leadership in power systems design in a highly competitive employment market, attracting and retaining the best team worldwide is critical. Accordingly, we offer compelling compensation and benefits, foster a culture of innovation in which employees are empowered to do (and are rewarded for) their best work, and seek to establish Vicor as a meaningful contributor to the communities in which we operate, further strengthening the bonds between employees and the Company.

As of December 31, 2020, we had 1,049 full-time employees, of which 940 were in the U.S. and 109 were in our international locations. None of our employees are represented by a labor union or covered by a collective bargaining agreement.

We recruit from colleges and universities, with a focus on specific engineering disciplines. In collaboration with certain universities, we maintain a student "Co-Op" program, whereby qualifying undergraduate and graduate students work at our Andover facilities for one or two semesters, receiving course credit towards their graduation. In recent years, we have had as many as approximately two dozen participants per semester, with a substantial percentage of participants receiving offers of full-time employment.

Our compensation program is designed to attract and reward talented individuals who possess the skills necessary to support our business objectives, assist in the achievement of our strategic goals, and create long-term value for our stockholders. We provide employees with compensation packages that include a competitive base salary or wage rate and benefits such as life and health (medical, dental, and vision) insurance, supplemental insurance, paid time off, paid parental leave, and a 401(k) plan (with Company match). Generally (and subject to local laws), new employees are awarded non-qualified options for the purchase of the Company's common stock. Depending on an employee's role, he or she may be eligible for annual incentive bonuses and periodic awards of non-qualified options based on the performance of the Company and that of the employee. We believe a compensation program with appropriate long-term incentives aligns employee and stockholder interests in increasing the value of the Company.

We emphasize and encourage employee development and training. To empower employees to reach their potential, we provide a range of development programs and opportunities, including in-house training programs and tuition reimbursement for those pursuing outside certification or degrees.

We seek to support the communities in which we operate and believe this commitment contributes to our efforts to attract and retain employees. We support our employees in volunteer initiatives. We also partner with a range of non-profit organizations and have had notable success in our collaboration for over two decades with the Crest Collaborative of Methuen, MA, a local advocacy agency, in providing enriching employment opportunities for adults participating in that agency's programs.

For more information on our employee and community initiatives, please see our Corporate Social Responsibility webpage at www.vicorpower.com/about-the-company/corporate-social-responsibility.

Available Information

We maintain a website with the address www.vicorpower.com and make available free of charge through this website our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and amendments to these reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act, as soon as reasonably practicable after we electronically file such material with, or furnish such material to, the SEC. We also make available on our website our Code of Business Conduct, as well as the charters for the Audit and Compensation Committees of our Board of Directors.

While our website sets forth extensive information, including information regarding our products and the applications in which they may be used, such information is not a part of, nor incorporated by reference into, this Annual Report on Form 10-K and shall not be deemed “filed” under the Exchange Act.

ITEM 1A. *RISK FACTORS*

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Exchange Act. Actual results could differ materially from those projected in the forward-looking statements as a result of, among other factors, the risk factors set forth below.

Operational Risks

Our future operating results are difficult to predict and are subject to fluctuations.

Our operating results, including revenues, gross margins, operating expenses, and net income (loss), have fluctuated on a quarterly and annual basis. Our strategic focus on higher volume opportunities with OEMs, ODMs, and contract manufacturers has caused the actions of a relative few such customers to disproportionately influence our operating results. Unanticipated delays in purchase orders from, and shipments to, certain large customers have resulted in lower than expected revenue. Similarly, our strategic focus on the development of market-leading technologies and manufacturing processes, often implemented in proprietary semiconductor circuitry, materials, and packaging, has exposed the Company to the risks and costs of delays in such development and the use of a relatively few number of suppliers of proprietary circuits and materials or providers of proprietary services.

Despite recent profitability trends, we cannot predict if we will maintain sustained profitability. Our future operating results may be materially influenced by a number of factors, many of which are beyond our control, including:

- changes in demand for our products and for our customers' end-products incorporating our products, as well as our ability to respond efficiently to such changes in demand, including changes in delivery lead times and the volume of product for which orders are accepted and the product shipped within an individual quarter;
- our ability to manage our supply chain, inventory levels, and our own manufacturing capacity or that of third-party partners, particularly in the event of delays or cancellations of significant customer orders or in the event of delays or cost increases associated within our supply chain;
- our ability to effectively coordinate changes in the mix of products we manufacture and sell, while managing our ongoing transition in organizational focus and manufacturing infrastructure to Advanced Products from Brick Products;
- our ability to provide and maintain a high level of sales and engineering support to an increasing number of demanding, high volume customers;
- the ability of our third party suppliers, and service subcontractors to provide us sufficient quantities of high quality products, components, and/or services on a timely and cost-effective basis;
- the effectiveness of our ongoing efforts to continuously reduce manufacturing costs and manage operating expenses;
- our ability to utilize our manufacturing facilities and personnel at efficient levels, maintaining sufficient production capacity and necessary manufacturing yields;
- our ability to plan, schedule, and execute capacity expansion, including the anticipated addition in 2021 of approximately 90,000 square feet to our Andover manufacturing facility;
- the timing of our new product introductions and our ability to meet customer expectations for timely delivery of fully qualified products;
- the timing of new product introductions or other competitive actions (e.g., product price reductions) by our competitors;

- the ability to hire, retain, and motivate qualified employees to meet the demands of our customers;
- intellectual property disputes;
- litigation-related costs, which may be significant;
- adverse economic conditions in the U.S. and those foreign countries in which we operate, as well as our ability to respond to unanticipated developments, such as the imposition of tariffs or trade restrictions; and
- adverse budgetary conditions within the U.S. government, particularly the Department of Defense, which continue to influence spending on current and anticipated programs into which we sell or anticipate to sell our products;
- costs related to compliance with increasing worldwide governance, quality, environmental, and other regulations;
- costs and consequences of disruption by third-parties of our global computer network and related resources;
- the effects of events outside of our control, including public health emergencies, natural disasters, terrorist activities, political risks, international conflicts, information security breaches, communication interruptions, and other *force majeure*.

As a result of these and other factors, we cannot assure you we will not experience significant fluctuations in future operating results on a quarterly or annual basis. In addition, if our operating results do not meet the expectations of investors, the market price of our Common Stock may decline.

Global economic uncertainty associated with the COVID-19 pandemic could materially and adversely affect our business and consolidated operating results.

During 2020, economic conditions varied by region, and were rapidly and significantly influenced by the COVID-19 pandemic. The COVID-19 pandemic and the response of governments worldwide to contain its spread negatively influenced our financial and operational performance for all four quarters of 2020, and future developments may have a potentially more substantial negative influence on our financial and operational performance over an unknown period of time.

Our deliveries to and orders from North American industrial and defense electronics customers declined sharply at the onset of the pandemic, during the first quarter of 2020, given reduced manufacturing activity and broad uncertainty. The second half of 2020 saw a recovery of North American activity to pre-pandemic levels. We believe domestic demand will further improve once the COVID-19 pandemic is substantially contained and uncertainties are reduced, but we cannot predict when this will occur.

Trading conditions in China (inclusive of Hong Kong, our largest international market), had deteriorated through 2019 due to macroeconomic and trade-related uncertainties. At the beginning of 2020, trading conditions were significantly further affected by the COVID-19 pandemic, with much of the country's manufacturing disrupted for January and February 2020. By late March 2020, after aggressive measures to contain the coronavirus, the Chinese government quickly implemented economic stimulus measures, and we experienced a rapid recovery of demand from China and Hong Kong. This demand was sustained through the remainder of 2020. As addressed in our discussion herein of market characteristics, exports to China and Hong Kong for 2020 totaled approximately $93,000,000, representing approximately 31.4% of total revenue for the year. We believe this volume was primarily associated with the stimulus spending of the Chinese government, although we also believe an unquantifiable amount of this volume may have been associated with accelerated purchasing by customers anticipating further deterioration of the trade relationship between China and the U.S., which, if it were to occur, could substantially limit purchases by such customers. Our belief is based on input from our distribution partners in China, as well as the mix of products exported over the past three years, reflecting the transfer by our OEM customers for Advanced Products (and their contract manufacturers) of the majority of production programs from China and Hong Kong to other countries in order to avoid inbound and outbound tariffs. Exports to China and Hong Kong peaked at approximately $109,000,000 in 2018, but that figure included approximately $50,000,000 of exports of Advanced Products to OEM customers and their contract manufacturers. As stated, the majority of the programs associated with this amount have been transferred to other countries.

We anticipate demand in 2021 from China and Hong Kong will approximate recent quarterly levels, based on information from our customers and distribution partners, and assuming the COVID-19 pandemic is substantially contained. Should China's economic stimulus policies change or if there is a further deterioration of trade relations between the U.S. and China, such demand may decline. However, we cannot predict if or when circumstances may change, nor can we predict the amount by which bookings or shipments may change.

We have taken action to protect the health and safety of our workforce and to otherwise minimize the potential impact of the coronavirus on our operations, the costs of which, to date, have not had a material effect on our financial performance. We expect to maintain the measures put in place until we determine the COVID-19 pandemic is adequately contained for purposes of our business, and we may take further actions we consider to be in the best interests of our employees, customers, business partners, and suppliers or in response to government mandate or requirement. Such further actions may have a negative influence on our costs and productivity and, in turn, our financial and operational performance.

Our customers, business partners, and suppliers have been and may continue to be adversely affected by the COVID-19 pandemic, which also may contribute to a negative influence on our future financial and operational performance.

Global economic and political uncertainties, notably those associated with trade policy, could materially and adversely affect our business and consolidated operating results.

For the years ended December 31, 2020, 2019, and 2018, revenues from sales outside the United States were 64.4%, 53.7%, and 62.0%, respectively, of our total revenues. Net sales to customers in China and Hong Kong, our largest international market, accounted for approximately 31.4% in 2020, approximately 22.1% in 2019, and approximately 37.4% in 2018, respectively, of total net sales. We expect international sales, notably in Asia, will continue to be a significant component of total sales, since many of the OEMs and ODMs we target as customers are domiciled offshore, and such customers increasingly utilize offshore contract manufacturers, and rely upon those contract manufacturers to place orders directly with us. We also expect international revenue from our distributors to continue to increase.

To date, we have not experienced material delays or reduced raw material availability as a result of trade disputes between the U.S. and China, including the imposition in 2018 of import tariffs under the provisions of Section 301 of the Trade Act of 1974 (19 U.S.C. § 2411) ("Section 301 Tariffs") on certain Chinese goods imported into the United States. However, the costs of Section 301 Tariffs have had a material impact on our profitability. For the year ended December 31, 2020, Section 301 Tariffs totaled approximately $7,259,000, an increase of 37% over the $5,280,000 incurred for 2019. For 2020 and 2019, Section 301 Tariffs totaled approximately 2.4% and 2.0%, respectively, of annual revenue, representing a material reduction in our gross profit margin as a percentage of annual revenue.

We continue to evaluate alternative sources of raw materials, and, in late 2020, we qualified non-Chinese vendors for certain high-volume raw materials and components. We anticipate a reduction in Section 301 Tariffs we incur during 2021, given the ongoing transition to non-Chinese vendors, but we are not able to estimate the amount of such reduction, if any. Similarly, we cannot predict if or when the U.S. government may reduce or eliminate Section 301 Tariffs.

We also have filed “duty drawback” applications with U.S. Customs and Border Protection for the recovery of Section 301 Tariffs paid on raw materials and components used to produce products we subsequently exported. At this time, we have received no such recovery, and we are not able to estimate the amount of any recovery or the timing thereof.

In 2019, China implemented reciprocal inbound tariffs of up to 25% on products exported from the U.S., including all of our products. We do not believe these tariffs, incurred by our Chinese and Hong Kong distributors, have had a material impact on the unit volume or dollar value of our exports to China, which we attribute to the differentiated performance of our products in market segments in which we have an established presence. However, we cannot predict the long-term influence of these tariffs on our competitive position in China, especially in light of the increased pressure by the Chinese government on Chinese manufacturers to meet the “China 2025” mandate for targeted development of Chinese technology sectors. Under this mandate, domestic technology vendors are explicitly favored over foreign vendors such as Vicor. We believe we experienced reduced demand in certain segments (e.g., rail), notably in 2019, reflecting the significant role of state-owned enterprises in those segments. We regularly assess the competitive position and profitability of certain product lines sold in China and Hong Kong, and may choose to reduce our product offerings if competitive conditions and reduced profitability so warrant.

Uncertain macroeconomic conditions, extended trade disputes, and the relative strength of the U.S. Dollar may reduce end-demand for our customers’ products and, in turn, their purchases of our products, thereby reducing our revenues and earnings. In addition, such adverse conditions may, among other things, result in increased price competition for our products, notably in our Brick Product categories, increased risk of excess and obsolete inventories, increased risk in the collectability of our accounts receivable from our customers, increased risk in potential reserves for doubtful accounts and write-offs of accounts receivable, and higher operating costs as a percentage of revenues.

Our operating results recently have been influenced by a limited number of customers, and our future results may be similarly influenced.

Since the introduction of our Advanced Products, the Company has derived the majority of its revenue from Advanced Products in any given year from either one customer or a limited number of customers, whether through sales directly to the customer(s) or indirectly to the customers’ contract manufacturers. This concentration of revenue is a reflection of the relatively early stage of adoption of the Advanced Products and the associated technologies and power system architectures, and our targeting of market leading innovators as initial customers.

Our current sales and marketing efforts are focused primarily on accelerating the adoption of Advanced Products by a diversified customer base, across a number of identified market segments. While we believe we have been successful to date in diversifying our Advanced Products customer base beyond early adopters, we cannot assure you our strategy will be successful and further diversification of customers will be achieved.

We may not be able to procure necessary key components or raw materials, or we may purchase excess raw material inventory or unusable inventory, which increases the risk of reserve charges to reduce the value of any inventory deemed excess or obsolete, thereby reducing our profitability.

The power systems industry, and the electronics industry as a whole, can be subject to pronounced, lengthy business cycles and otherwise subject to sudden and sharp changes in demand. Our success, in part, is dependent on our ability to forecast and procure inventories of components and materials to match production schedules and customer delivery requirements. Many of our products require raw materials supplied by a limited number of vendors and, in some instances, a single vendor. During certain periods, key components or materials required to build our products may become unavailable in the timeframe required for us to meet our customers’ needs. Our inability to secure sufficient raw materials to manufacture products for our customers has reduced, in the past, our revenue and profitability and could do so again.

We may choose, and have chosen, to mitigate our inventory risks by increasing the levels of inventory for certain components and materials. Such increased inventory levels may increase the potential risk for excess or obsolete inventories, should our forecasts fail to materialize or if there are negative factors impacting our customers' end markets, leading to order cancellation. If we identify excess inventory or determine certain inventory is obsolete (i.e., unusable), we likely will record additional inventory reserves (i.e., expenses representing the write-off of the excess or obsolete inventory), which could have an adverse effect on our gross margins and on our operating results.

We rely on third-party vendors and subcontractors for supply of components, assemblies, and services and, therefore, cannot control the availability or quality of such components, assemblies, and services.

We depend on third-party vendors and subcontractors to supply components, assemblies, and services used to manufacture our products, some of which are supplied by a single vendor. We have experienced shortages of certain semiconductor components and delays in service delivery, have incurred additional and unexpected costs to address the shortages and delays, and have experienced our own delays in production and shipping.

If suppliers or subcontractors cannot provide their products or services on time or to our specifications, we may not be able to meet the demand for our products and our delivery times may be negatively affected. In addition, we cannot directly control the quality of the products and services provided by third parties. In order to expand revenue, we likely will need to identify and qualify new suppliers and subcontractors to supplant or replace existing suppliers and subcontractors, which may be a time-consuming and expensive process. In addition, any qualification of new suppliers may require customers of our products utilizing products and services from new suppliers and service providers to undergo a re-qualification process. Such circumstances likely would lead to disruptions in our production, increased manufacturing costs, delays in shipping to our customers, and/or increases in prices paid to third parties for products and services.

As previously disclosed, we rely on a third-party partner to provide certain manufacturing steps associated with a proprietary Advanced Products packaging process. This process, developed with the third-party partner, involves complex metal surface finishing, performed on equipment developed by the third-party partner. An important, differentiating benefit of this proprietary process is that it does not generate problematic effluent, resulting in an environmentally safe approach to metal surface finishing, with minimal waste. We have entered into agreements with the third-party partner for production and transfer of technologies and process know-how, including the purchase of the enabling equipment developed by the third-party partner.

To date, we have successfully relied upon this third-party partner to perform these manufacturing steps, although we have experienced delivery delays associated with the third-party partner's volume constraints. This experience caused us to accelerate our schedule for establishing our own high-volume capabilities in-house, modifying, in 2020, our construction plans to accommodate a dedicated, on-premises metal surface finishing facility. We expect to rely on our third-party partner for production requirements through the installation and qualification for production of the enabling equipment in the addition to our Andover manufacturing facility. We also expect to rely on our third-party partner in the future for surge capacity requirements.

If the third-party partner cannot deliver sufficient volumes to us, we are unable to complete our facility expansion in a timely manner, or if we are unable to effectively implement the new manufacturing processes, we may not be able to achieve the expected volumes or production capacity and, as a result, may experience reduced manufacturing yields, delays in product deliveries, and/or increased expenses, any of which could negatively influence our financial condition and results of operations.

Extended interruption of production at our manufacturing facility in Andover, Massachusetts, could materially reduce our revenue, increase our costs, and, potentially, negatively impact our customers.

The majority of our power components and power systems, whether for direct sale to customers or for sale to our subsidiaries for incorporation into their respective products, are manufactured in our Andover facility.

Substantial damage to our existing manufacturing facility due to fire, natural disaster, power loss, or other events, including disruptive events associated with our ongoing expansion of the facility, could interrupt manufacturing, contributing to lengthy shipment delays that could have a negative impact on customers and, in turn, our customer relationships. While we have never experienced any meaningful interruption of manufacturing in our history, any prolonged inability to utilize all or a significant portion of our Andover facility could have a material adverse effect on our results of operations.

An extended delay in completing our capacity expansion could have a material adverse effect on our results of operations and negatively impact our ability to execute on our Advanced Products strategy.

We have been making and will continue to make capital investments for the expansion of manufacturing capacity for the production of Advanced Products at our Andover facility. Based on our extended long-term volume forecast, we anticipate additional capacity will be required to meet expected customer requirements. During the second quarter of 2020, we began construction of an approximately 90,000 square feet, two-story addition to our existing plant, and that construction continues on schedule.

The addition to our facility includes installation of certain equipment and implementation of certain manufacturing steps associated with Advanced Products manufacturing processes we currently outsource to a third-party partner, as described above. These manufacturing processes are associated with a proprietary packaging approach requiring complex metal surface finishing using environmentally safe technologies. Given our volume expectations and the proprietary elements of these processes, we have chosen to accelerate the development of a captive capacity that we expect will exceed the total capacity available from our third-party partner. Today, we own and operate, with our employees, certain equipment on premises at our third-party partner and, as such, have established a level of operational competence we believe will enable us to successfully install and implement these manufacturing processes internally. However, we may experience delays and incur additional costs during 2021 in implementing the manufacturing processes, given the complexity of the installation and qualification of the equipment.

Once the facility expansion has been completed and all manufacturing equipment installed and qualified for volume production, we may not achieve the anticipated production volumes and operating efficiencies. Any delay in achieving anticipated operating efficiencies associated with added capacity may cause manufacturing costs to be higher than expected for some period of time, thereby potentially negatively influencing our operating and financial results.

Disruption of our information technology infrastructure could adversely affect our business.

We depend heavily on our computing and communications infrastructure to achieve our business objectives, particularly for our financial and operational record keeping, our computer-integrated manufacturing processes controlling all aspects of our operations in our manufacturing facility in Andover, Massachusetts, our public website, and our email communications. We also rely on trusted third parties to provide certain infrastructure support services to us. If we or a third party service provider encounter a problem that impairs this infrastructure, the resulting disruption could impede the accuracy and timeliness of our financial reporting processes, and our ability to record or process customer orders, manufacture, and ship in a timely manner, or otherwise carry on business in the normal course. Our image and reputation also could be negatively affected by such circumstances. Additionally, we could incur material liabilities associated with the harm such impairment and disruption of our infrastructure may have on third parties including those associated with the unintentional release of confidential information and/or sensitive data. While we carry business interruption insurance to offset financial losses from such an interruption, and cyber-risk insurance to address potential liabilities from such circumstances, such insurance may be insufficient to compensate us for the potentially significant costs or liabilities incurred. Any such events, if prolonged, could have a material and adverse effect on our operating results and financial condition.

On December 24, 2019, elements of our network were compromised by a form of malware referred to as “ransomware.” In close collaboration with our service provider, we had restored computing and network functions to full operational status by the afternoon of December 27, 2019. Subsequent analysis by management and the forensic specialists we retained allowed us to conclude the incident had no material impact on our operations, financial condition and performance, or the integrity of our financial reporting systems. In response to the vulnerabilities identified, we have substantially enhanced network and file security through expanded and improved system monitoring, network and file access procedures, user training, and emergency response protocols. However, even with our expanded commitment to continuous improvement of the security of our information technology infrastructure, we can offer no assurance that we will be successful in detecting or preventing network security incidents and associated disruptions in the future.

Our systems are designed to protect us from network security incidents and associated disruptions. However, as evidenced by the ransomware incident described above, we remain vulnerable to computer viruses and related software-based challenges to the integrity of our systems, unauthorized or illegal break-ins, or malicious network hacking, equipment or software sabotage, acts of vandalism to our systems by third parties, and, in the extreme, forms of cyber-terrorism. Our security measures or those of our third party service provider detected, but did not prevent, the network security incident and the associated disruptions described above and may not detect or prevent such incidents and disruptions in the future.

As of December 31, 2020, we were compliant with the comprehensive requirements for the protection of controlled unclassified information (“CUI”) as set forth in Special Publication 800-171 of the National Institute of Standards and Technology (“NIST”). The Company provides confidential information to third party business partners and/or receives confidential information from third party business partners in certain circumstances, when doing so is necessary to conduct business, particularly with departments of agencies of the U.S. Government. While we employ confidentiality agreements to protect other sensitive information (i.e., information not considered CUI), our own security measures or those of our third party service providers may not be sufficient to protect such information in the event the computing infrastructure of these third party business partners is compromised. Security incidents involving our computing and communications infrastructure or that of a third party business partner or service provider could result in the misappropriation or unauthorized release of confidential information belonging to us or to our employees, partners, customers or suppliers, which could result in an interruption to our operations, result in a violation of privacy or other laws, expose us to a risk of litigation, or damage our reputation, any of which could have a material and adverse effect on our operating results and financial condition. Our network segmented NIST 800-171 environment was not impacted by the December 2019 ransomware incident, but there can be no assurance that it will not be impacted by similar incidents in the future, which could have a material and adverse effect on our operating results and financial condition for the reasons described above.

We may face legal claims and litigation from product warranty or other claims that could be costly to resolve.

We have in the past and may in the future encounter legal action from customers, vendors, or others concerning product warranty or other claims. We generally offer a two-year warranty from the date title passes from us for all of our standard products. Effective January 1, 2017, we extended the warranty period to three years for a range of H Grade, M Grade and MI Family DC-DC legacy products sold after that date. In a limited number of circumstances, we have entered into supply contracts with certain high-volume customers calling for extended warranty terms. With our distribution partners, we also enter into contracts providing for our product warranties to transfer to the end customer upon final sale of our product(s) by the distributor.

We invest significant resources in the testing of our products; however, if any of our products contain defects, we may be required to incur additional development and remediation costs, pursuant to our warranty policies. These issues may divert our technical and other resources from other product development efforts and could result in claims against us by our customers or others, including liability for costs associated with product returns, which may adversely influence our operating results. If any of our products contain defects, or have reliability, quality, or compatibility problems, the Company's reputation may be damaged, which could make it more difficult for us to sell our products to existing and prospective customers and could adversely affect our operating results. We are currently party to a limited number of supply agreements with certain customers contractually committing us to warranty and indemnification requirements exceeding those to which we have been exposed in the past. While we maintain insurance coverage for such exposure, we could incur significant financial cost beyond the limits of such coverage, as well as operational disruption and damage to our competitive position and image if faced with a significant product warranty or other claim.

Our ability to successfully implement our business strategy may be limited if we do not retain our key personnel and attract and retain skilled and experienced personnel.

Our success depends on our ability to retain the services of our executive officers. The loss of one or more members of senior management could materially adversely influence our business and financial results. In particular, we are dependent on the services of Dr. Vinciarelli, our founder, Chairman of the Board, Chief Executive Officer, and President. The loss of the services of Dr. Vinciarelli could have a material adverse effect on our development of new products and on our results of operations. On February 24, 2021, James A. Simms notified us of his decision to resign from his positions as our Corporate Vice President, Chief Financial Officer, Treasurer, and Secretary effective June 30, 2021. We have initiated a search for a new Chief Financial Officer. Such leadership transitions can be inherently difficult to manage and may result in a loss of institutional knowledge and cause disruptions to our business. If we cannot effectively manage leadership transitions and management changes, it could make it more difficult to successfully operate our business and pursue our business goals. In addition, our research and development and marketing and sales activities depend on highly skilled engineers and other personnel with technical skills, who are in high demand and are difficult to replace. Our continued operations and growth depend on our ability to attract and retain skilled and experienced personnel in a very competitive employment market. If we are unable to attract and retain such employees, our ability to successfully implement our business strategy may be harmed.

Competitive Risks

We compete with many companies possessing far greater resources.

Some of our competitors have far greater financial, manufacturing, technical, and sales and marketing resources than we possess or have access to. Our Brick Products compete with those products offered by domestic and foreign manufacturers of integrated power supplies and related power conversion components. With our Advanced Product lines, we compete with global IDMs and fabless developers of semiconductor-based power management modules and power management ICs. These competitors have far larger organizations and broader semiconductor-based product lines. Competition is generally based on product performance, design flexibility (i.e., ease of use), product price, and product availability, but with the relative importance of these factors varying among products, markets, and customers.

Existing or new competitors may develop products or technologies that more effectively address the demands of our customers and markets with enhanced performance, features and functionality, or lower cost. Larger competitors frequently seek to maintain market share and protect customer relationships through heavily-discounted pricing, which we may not be able to match. If we fail to develop and commercialize leading-edge technologies and products that are cost effective and maintain high standards of quality, and introduce them to the market on a timely basis, our competitive position and results of operations could be materially adversely affected.

Our future success depends upon our ability to develop and market differentiated, leading-edge power conversion products for larger customers, potentially contributing to lengthy product development and sales cycles that may result in significant expenditures before revenues are generated. Our future operating results are dependent on the growth in such customers' businesses and on our ability to profitably develop and deliver products meeting customer requirements.

The power system industry and the industries in which many of our customers operate are characterized by intense competition, rapid technological change, quickened product obsolescence, and price erosion for mature products, each of which could have an adverse effect on our results of operations. We are following a strategy based on the development of differentiated Advanced Products addressing what we believe to be the long-term limitations of traditional power architectures, while at the same time sustaining sales and profitability of our well-established Brick Products. The development of new, innovative products is often a complex, time-consuming, and costly process involving significant investment in research and development, with no assurance of return on investment. Although we have introduced many Advanced Products over recent years, there can be no assurance we will be able to continue to develop and introduce new and improved products and power system concepts in a timely or efficient manner. Similarly, there can be no assurance recently introduced or to be developed products will achieve customer acceptance.

Our future success depends substantially upon customer acceptance of our innovative Advanced Products, notably our Power-on-Package concept in AI and other high-performance applications. As we have been in the early stages of market penetration for these and other Advanced Products, we have experienced lengthy periods during which we have focused our product development efforts on the specific requirements of a limited number of large customers, followed by further periods of delay before meaningful purchase orders are received. These lengthy development and sales cycle times increase the possibility a customer may decide to cancel or change product plans, which could reduce or eliminate our sales to that customer. As a result, we may incur significant product development expenses, as well as significant sales and marketing expenses, before we generate the related revenues for these products. Furthermore, we may never generate the anticipated revenues from a product after incurring such expenses if our customer cancels or changes its product plans.

We continue to shift our go-to-market strategy to focus on larger opportunities with global OEMs, ODMs, and contract manufacturers. Our growth is therefore dependent on: the pace at which these OEMs and ODMs develop their own new products; the acceptance of our Advanced Products by these OEMs and ODMs; and the success of the customers' products incorporating our Advanced Products. If we fail to anticipate changes in our customers' businesses and their changing product needs or do not successfully identify and enter new markets, our results of operations and financial position could be negatively impacted.

In 2020, we further expanded our dedicated sales effort to penetrate the automotive market with our Advanced Products, notably in the rapidly expanding 48V opportunity within the electric vehicle and mild hybrid vehicle market segments. The automotive market is dominated by relatively few global OEMs and "tiers" of well-established suppliers. Penetrating this market will be challenging and we may not be successful in doing so. Additionally, our early success with vendors of AI computing solutions may not translate into long-term success with customers participating in the long-term development of autonomous driving solutions.

We cannot offer any assurance the markets we currently serve will grow in the future, our Advanced Products or Brick Products will meet respective market requirements, or we can maintain adequate gross margins or operating profits in these markets.

Intellectual Property Risks

We may be unable to adequately protect our proprietary rights, which may limit our ability to compete effectively.

We operate in an industry in which the ability to compete depends on the development or acquisition of proprietary technologies that must be protected to preserve the exclusive use of such technologies. We devote substantial resources to establish and protect our patents and proprietary rights, and we rely on patent and intellectual property law to protect such rights. This protection, however, may not prevent competitors from independently developing products similar or superior to our products. We may be unable to protect or enforce current patents, may rely on unpatented technology that competitors could restrict or replicate, or may be unable to acquire patents in the future, all of which may have a material adverse effect on our competitive position. In addition, the intellectual property laws of foreign countries may not protect our rights to the same extent as those of the United States. We have been defending and may need to continue to defend or challenge patents. We have incurred and expect to incur significant financial costs in the defense of our patented technologies and have devoted and expect to devote significant resources to these efforts which, if unsuccessful, may have a material adverse effect on our operating results and financial position.

We face intellectual property infringement claims that could be disruptive to operations and costly to resolve and may encounter similar infringement claims in the future.

The power supply industry is characterized by vigorous protection and pursuit of intellectual property rights. We have in the past and may in the future receive communications from third parties asserting that our products or manufacturing processes infringe on a third party’s patent or other intellectual property rights. Such assertions, if publicly disclosed, have in the past and may in the future inhibit the willingness of potential customers to purchase certain of our products. In the event a third party makes a valid intellectual property claim against us and a license is not available to us on commercially reasonable terms, or at all, we could be forced to either redesign or stop production of products incorporating that technology, and our operating results could be materially and adversely affected. In addition, litigation may be necessary to defend us against claims of infringement, and this litigation could be costly, extend over a lengthy period of time, and divert the attention of key personnel. An adverse outcome in these types of matters could have a material adverse impact on our operating results and financial condition.

Please see Note 17 — Commitments and Contingencies, to the Consolidated Financial Statements for information regarding current litigation related to our intellectual property.

Any expenses or liability resulting from the outcome of litigation could adversely influence our operating results and financial condition.

From time to time, we may be subject to claims or litigation, including intellectual property litigation as described elsewhere in this Annual Report on Form 10-K. Any such claims or litigation may be time-consuming and costly, divert management resources, require us to change our products, or have other adverse effects on our business. Any of the foregoing could have a material adverse effect on our operating results and could require us to pay significant monetary damages.

The outcomes of legal proceedings and claims brought against us are subject to significant uncertainty. An estimated loss from a loss contingency such as a legal proceeding or claim is accrued by a charge to income if it is considered probable an asset has been impaired or a liability has been incurred and the amount of the loss can be reasonably estimated. Disclosure of a contingency is required if there is at least a reasonable possibility that a loss has been incurred. In determining whether a loss should be accrued, we evaluate, among other factors, the degree of probability of an unfavorable outcome and the ability to make a reasonable estimate of the amount of loss. Changes in these factors could materially impact our financial statements. As of December 31, 2020, our evaluation led us to conclude no accrual of a loss contingency was warranted.

Regulatory Risks

If we fail to maintain an effective system of internal controls over financial reporting or discover material weaknesses in our internal controls over financial reporting, we may not be able to report our financial results accurately or timely or detect fraud, which could have a material adverse effect on our business.

An effective internal control environment is necessary for us to produce reliable financial reports and is an important part of our effort to prevent financial fraud. Section 404 of the Sarbanes-Oxley Act of 2002 (“SOX”) requires our management to report on, and our independent registered public accounting firm to attest to, the effectiveness of our internal control over financial reporting.

We have an ongoing program to perform the system and process evaluation and testing necessary to comply with the requirements of SOX and to continuously improve and, when necessary, remediate internal controls over financial reporting.

While management evaluates the effectiveness of our internal controls on a regular basis, these controls may not always be effective. There are inherent limitations on the effectiveness of internal controls, including collusion, management override, and failure in human judgment. In addition, control procedures are designed to reduce rather than eliminate business risks. In the event our Chief Executive Officer or Chief Financial Officer, our certifying officers under SOX, or our independent registered public accounting firm determines our internal controls over financial reporting are not effective as defined under Section 404, we may be unable to produce reliable financial reports or prevent fraud, which could materially harm our business. In addition, we may be subject to sanctions or investigation by government authorities or self-regulatory organizations, such as the SEC, the Financial Industry Regulatory Authority, or The NASDAQ Stock Market LLC. Any such actions could affect investor perceptions of the Company and result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements, which could cause the market price of our Common Stock to decline or limit our access to capital.

Regulations related to conflict minerals could adversely impact our business.

The Dodd-Frank Wall Street Reform and Consumer Protection Act contains provisions to improve transparency and accountability concerning the supply of certain minerals, known as conflict minerals (including gold, tantalum, tin, and tungsten, and their related ores), originating from the Democratic Republic of Congo (“DRC”) and adjoining countries. As a result, in August 2012 the SEC released final rules for annual disclosure and reporting for those companies who use conflict minerals mined from the DRC and adjoining countries in their products. We began to implement processes within our supply chain to comply with these rules beginning in 2012 filed our initial Form SD in May 2014, and have filed Form SD annually since then. There have been and will continue to be costs associated with complying with these disclosure requirements, including due diligence to determine the sources of conflict minerals used in our products and other potential changes to products, processes, or sources of supply as a consequence of such verification activities. The implementation of these rules could adversely affect the sourcing, supply, and pricing of materials used in our products. As there may be only a limited number of suppliers offering “conflict free” conflict minerals, we cannot be certain we will be able to obtain necessary conflict minerals from such suppliers in sufficient quantities or at competitive prices. Also, we may face reputational challenges if we determine that certain of our products contain minerals not determined to be conflict free or if we are unable to sufficiently verify the origins for all conflict minerals used in our products through the procedures we may implement.

Risks Related to Share Value

The price of our Common Stock has been volatile and may fluctuate in the future.

Because of the factors set forth above and below, among others, the trading price of our Common Stock has fluctuated and may continue to fluctuate significantly:

- volatility of the financial markets, notably the equity markets in the U.S.;
- uncertainty regarding the prospects of domestic and foreign economies, including the impact of volatile currency exchange rates;
- uncertainty regarding domestic and international political conditions, including tax, trade, and tariff policies;
- actual or anticipated fluctuations in our operating performance or that of our competitors;
- the performance and prospects of our major customers, including their adoption of technologies or standards other than those in which we specialize;

- announcements by us or our competitors of significant new products, technical innovations, or litigation;
- investor perception of the Company and the industry in which we operate;
- the liquidity of the market for our Common Stock, reflecting a relatively low trading float and relatively low average trading volumes;
- the uncertainty of the declaration and payment of future cash dividends on our Common Stock; and
- the concentration of ownership of our Common Stock by Dr. Vinciarelli, our Chairman of the Board, Chief Executive Officer, and President.

In the past, we have declared and paid cash dividends on our Common Stock. The payment of dividends is based on the periodic determination by our Board of Directors that we have adequate capital to fund anticipated operating requirements and that excess cash is available for distribution to stockholders via a dividend. We have no formal policy regarding dividends and, as such, investors cannot make assumptions regarding the possibility of future dividend payments nor the amounts and timing thereof. As of December 31, 2020, we have no plans to declare or pay a cash dividend.

The ownership of our Common Stock is concentrated between Dr. Vinciarelli and a limited number of institutional investors. As of December 31, 2020, Dr. Vinciarelli was the beneficial owner of 10,014,454 shares of our Common Stock, plus 155,977 shares which Dr. Vinciarelli has the right to acquire upon exercise of options to purchase Common Stock within 60 days of December 31, 2020. He also holds 11,023,648 shares of our unregistered Class B Common Stock (which may only be sold or transferred after required conversion, on a one-for-one basis, into registered shares of Common Stock), which together with his ownership of Common Stock, represents 49.6% of our total issued and outstanding shares of capital stock. Accordingly, the market float for our Common Stock and average daily trading volumes are relatively small, which may negatively impact investors’ ability to buy or sell shares of our Common Stock in a timely manner.

Dr. Vinciarelli owns 93.8% of the issued and outstanding shares of our Class B Common Stock, which possess 10 votes per share. Dr. Estia J. Eichten, a member of our Board of Directors, owns the majority of the balance of the Class B Common Stock issued and outstanding. As such, Dr. Vinciarelli, controlling in aggregate 80.4% of our outstanding voting securities, has effective control of our governance.

ITEM 1B. *UNRESOLVED STAFF COMMENTS*

None.

ITEM 2. *PROPERTIES*

Our corporate headquarters building in Andover, Massachusetts, which we own, provides approximately 90,000 square feet of office space for our sales, marketing, engineering, and administrative personnel. We also own a building of approximately 230,000 square feet in Andover, Massachusetts, which houses all Massachusetts manufacturing activities.

Current capital investments are focused on the expansion of manufacturing capacity for the production of Advanced Products at our Andover facility. Based on our long-term forecast of production levels, we anticipate substantial additional capacity will be required to meet expected requirements beyond 2023. During 2020, we began construction of a two-story addition to our Andover manufacturing facility that is intended to expand the Advanced Products production area by approximately 90,000 square feet. Construction is proceeding on schedule, and we expect to take occupancy later this year. We also are proceeding with the evaluation of alternative projects for the addition of another, larger manufacturing facility to be focused on Advanced Products for automotive applications, should we anticipate the need based on our forecasts for capacity beyond 2023.

We own a single-story industrial building of approximately 31,000 square feet in Sunnyvale, California, which we lease on a long-term basis to a corporate tenant, which occupied the building beginning in June 2016.

All other domestic and foreign facilities are leased from third-party lessors on arms' length terms. We believe our owned and leased facilities are adequate for our foreseeable needs.

ITEM 3. *LEGAL PROCEEDINGS*

See Note 17 — Commitments and Contingencies, to the Consolidated Financial Statements for a complete description of 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*

Our Common Stock is listed on The NASDAQ Stock Market LLC, under the trading symbol "VICR." Shares of our Class B Common Stock are not registered with the Securities and Exchange Commission, are not listed on any exchange nor traded on any market, and are subject to transfer restrictions under our Restated Certificate of Incorporation, as amended.

As of February 16, 2021, there were 116 holders of record of our Common Stock and 13 holders of record of our Class B Common Stock. These numbers do not reflect persons or entities that hold their shares in nominee or "street name" through various brokerage firms.

Issuer Purchases of Equity Securities

In November 2000, our Board of Directors authorized the repurchase of up to $30,000,000 of our Common Stock (the "November 2000 Plan"). The November 2000 Plan authorizes us to make such repurchases from time to time in the open market or through privately negotiated transactions. The timing and amounts of Common Stock repurchases are at the discretion of management based on its view of economic and financial market conditions.

Month of Fourth Quarter 2020	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased Pursuant to November 2000 Plan	Remaining Dollar Value of Shares Authorized For Purchase Pursuant to November 2000 Plan
October 1 — 31, 2020	—	$ —	—	$ 8,541,000
November 1 — 30, 2020	—	$ —	—	$ 8,541,000
December 1 — 31, 2020	—	$ —	—	$ 8,541,000
Total	—	$ —	—	$ 8,541,000

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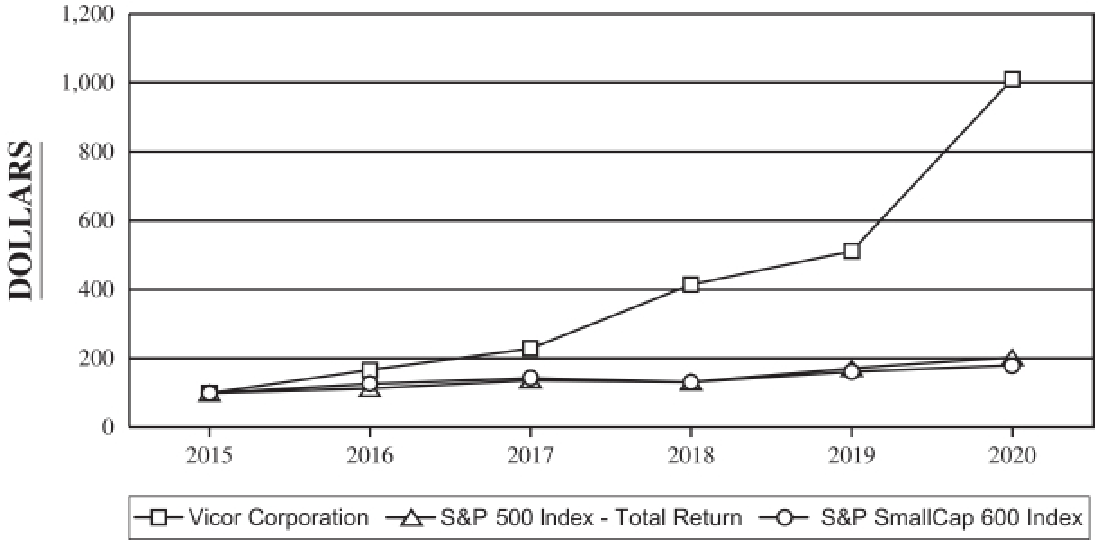
Stockholder Return Performance Graph

The graph set forth below presents the cumulative, five-year stockholder return for each of the Company's Common Stock, the Standard & Poor's 500 Index ("S&P 500 Index"), a value-weighted index made up of 500 of the largest, by market capitalization, listed companies, and the Standard & Poor's SmallCap 600 Index ("S&P SmallCap 600 Index"), a value-weighted index of 600 listed companies with market capitalizations between $200,000,000 and $1,000,000,000.

The graph assumes an investment of $100 on December 31, 2015, in each of our Common Stock, the S&P 500 Index, and the S&P SmallCap 600 Index, and assumes reinvestment of all dividends. The historical information set forth below is not necessarily indicative of future performance.

Comparison of Five Year Cumulative Return
Among Vicor Corporation, S&P 500 Index
and S&P SmallCap 600 Index



	2015	2016	2017	2018	2019	2020
Vicor Corporation	$100.00	$ 165.57	$ 229.17	$ 414.36	$ 512.28	$ 1,011.18
S&P 500 Index	$100.00	$ 111.96	$ 136.40	$ 130.42	$ 171.49	$ 203.04
S&P SmallCap 600 Index	$100.00	$ 126.56	$ 143.30	$ 131.15	$ 161.03	$ 179.20

Our equity plan information required by this item is incorporated by reference to the information in Part III, Item 12 of this Annual Report on Form 10-K.

ITEM 6. *SELECTED FINANCIAL DATA*

The following selected consolidated financial data with respect to our statements of operations for the years ended December 31, 2020, 2019, and 2018, and with respect to our balance sheet as of December 31, 2020 and 2019, are derived from our audited Consolidated Financial Statements, which appear elsewhere in this Annual Report on Form 10-K. The following selected consolidated financial data with respect to our statements of operations for the years ended December 31, 2017 and 2016, and with respect to our balance sheets as of December 31, 2018, 2017, and 2016, are derived from our Consolidated Financial Statements, which are not included herein. The data should be read in conjunction with the Consolidated Financial Statements, related notes and other financial information included herein.

Statement of Operations Data	Year Ended December 31,				
	2020	2019	2018	2017	2016
	(In thousands, except per share data)				
Net revenues	$296,576	$262,977	$291,220	$227,830	$ 200,280
Income (loss) from operations	17,368	13,821	32,059	(1,360)	(6,314)
Consolidated net income (loss)	17,922	14,109	31,846	258	(6,261)
Net income (loss) attributable to noncontrolling interest	12	11	121	91	(14)
Net income (loss) attributable to Vicor Corporation	17,910	14,098	31,725	167	(6,247)
Net income (loss) per share — basic attributable to Vicor Corporation	0.42	0.35	0.80	0.00	(0.16)
Net income (loss) per share — diluted attributable to Vicor Corporation	0.41	0.34	0.78	0.00	(0.16)
Weighted average shares — basic	42,186	40,330	39,872	39,228	38,842
Weighted average shares — diluted	43,869	41,677	40,729	39,933	38,842

Balance Sheet Data	As of December 31,				
	2020	2019	2018	2017	2016
	(In thousands)				
Working capital	$276,419	$149,136	$129,062	$ 90,796	$ 89,545
Total assets	396,239	240,727	221,068	165,724	154,067
Total liabilities	45,084	34,857	36,978	29,305	23,050
Total equity	351,155	205,870	184,090	136,419	131,017

ITEM 7. *MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS*

Overview

A discussion regarding our results of operations for the year ended December 31, 2019, compared to the year ended December 31, 2018, was included in the Company's Annual Report on Form 10-K for the year ended December 31, 2019, on pages 36-38 under Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations", which was filed with the SEC on February 28, 2020.

We design, develop, manufacture, and market modular power components and power systems for converting electrical power for use in electrically-powered devices. Our competitive position is supported by innovations in product design and achievements in product performance, largely enabled by our focus on the research and development of advanced technologies and processes, often implemented in proprietary semiconductor circuitry, materials, and packaging. Many of our products incorporate patented or proprietary implementations of high-frequency switching topologies enabling power system solutions that are more efficient and much smaller than conventional alternatives. Our strategy emphasizes demonstrable product differentiation and a value proposition based on competitively superior solution performance, advantageous design flexibility, and a compelling total cost of ownership. While we offer a wide range of alternating current ("AC") and direct current ("DC") power conversion products, we consider our core competencies to be associated with 48V DC distribution, which offers numerous inherent cost and performance advantages over lower distribution voltages. However, we also offer products addressing other DC voltage standards (e.g., 380V for power distribution in data centers, 110V for rail applications, 28V for military and avionics applications, and 24V for industrial automation).

Based on design, performance, and form factor considerations, as well as the range of evolving applications for which our products are appropriate, we categorize our product portfolios as either "Advanced Products" or "Brick Products." The Advanced Products category consists of our more recently introduced products, which are largely used to implement our proprietary Factorized Power Architecture™ ("FPA"), an innovative power distribution architecture enabling flexible, rapid power system design using individual components optimized to perform a specific conversion function.

The Brick Products category largely consists of our broad and well-established families of integrated power converters, incorporating multiple conversion stages, used in conventional power systems architectures. Given the growth profiles of the markets we serve with our Advanced Products line and our Brick Products line, our strategy involves a transition in organizational focus, emphasizing investment in our Advanced Products line and targeting high growth market segments with a low-mix, high-volume operational model, while maintaining a profitable business in the mature market segments we serve with our Brick Products line with a high-mix, low-volume operational model.

The applications in which our Advanced Products and Brick Products are used are typically in the higher-performance, higher-power segments of the market segments we serve. With our Advanced Products, we generally serve large Original Equipment Manufacturers ("OEMs"), Original Design Manufacturers ("ODMs"), and their contract manufacturers, with sales currently concentrated in the data center and hyperscaler segments of enterprise computing, in which our products are used for voltage distribution on server motherboards, in server racks, and across datacenter infrastructure. We have established a leadership position in the emerging market segment for powering high-performance processors used for acceleration of applications associated with artificial intelligence ("AI"). Our customers in the AI market segment include the leading innovators in processor and accelerator design, as well as early adopters in cloud computing and high performance computing. We also target applications in aerospace and aviation, defense electronics, industrial automation, instrumentation, test equipment, solid state lighting, telecommunications and networking infrastructure, and vehicles (notably in the autonomous driving, electric vehicle, and hybrid vehicle niches of the vehicle segment). With our Brick Products, we generally serve a fragmented base of large and small customers, concentrated in aerospace and defense electronics, industrial automation, industrial equipment, instrumentation and test equipment, and transportation (notably in rail and heavy equipment applications). With our strategic emphasis on larger, high-volume customers, we expect to experience over time a greater concentration of sales among relatively fewer customers.

In June 2020, we completed an underwritten public offering of 1,769,231 shares of our Common Stock, at a price to the public of $65.00 per share. We received net proceeds of approximately $109.7 million, after deduction of underwriting discounts and offering expenses. We intend to use the net proceeds from the offering for the expansion of our manufacturing facilities and other general corporate purposes.

Our quarterly consolidated operating results can be difficult to forecast and have been subject to significant fluctuations. We plan our production and inventory levels based on management's estimates of customer demand, customer forecasts, and other information sources. Customer forecasts, particularly those of OEM, ODM, and contract manufacturing customers to which we supply Advanced Products in high volumes, are subject to scheduling changes on short notice, contributing to operating inefficiencies and excess costs. In addition, external factors such as supply chain uncertainties, which are often associated with the cyclicality of the electronics industry, regional macroeconomic and trade-related circumstances, and *force majeure* events (most recently evidenced by the COVID-19 pandemic), have caused our operating results to vary meaningfully. Our quarterly gross margin as a percentage of net revenues may vary, depending on production volumes, average selling prices, average unit costs, the mix of products sold during that quarter, and the level of importation of raw materials subject to tariffs. Our quarterly operating margin as a percentage of net revenues also may vary with changes in revenue and product level profitability, but our operating costs are largely associated with compensation and related employee costs, which are not subject to sudden or significant changes.

Impact of COVID-19 Pandemic

On January 30, 2020, the World Health Organization designated the COVID-19 outbreak a "Public Health Emergency of International Concern" (i.e., a health emergency requiring coordinated action by the governments of effected countries). On January 31, 2020, the U.S. Department of Health and Human Services declared a public health emergency for the entire United States, thereby facilitating a nationwide public health response. On March 11, 2020, COVID-19 was declared a pandemic by the World Health Organization, an indication of its global severity. Governments worldwide have responded with measures intended to contain the further spread of COVID-19, including mandatory closures of businesses, schools, and organizations.

On March 23, 2020, the Commonwealth of Massachusetts ordered non-essential businesses closed and prohibited gatherings of more than 10 people, extending the Commonwealth's emergency declaration made on March 10, 2020. Our headquarters and primary manufacturing facility are located in Massachusetts. However, the Company is designated as essential by the U.S. Department of Homeland Security, given our role in supporting industrial sectors considered "critical infrastructure." As such, we have continued to operate at, or close to, full manufacturing capacity, although there can be no assurance we will be able to continue to operate at such levels of manufacturing capacity.

Widespread uncertainty associated with the pandemic has contributed to reduced business activity worldwide. As described further below, we experienced production constraints throughout 2020 that resulted in delays, inefficiencies, and higher costs, which, in the aggregate, had a detrimental influence on our financial results for the past four quarters. Given ongoing uncertainty, there is no assurance that our financial performance will not continue to be negatively influenced as a result of the pandemic.

Since early March 2020, we have taken actions intended to protect the health and safety of our employees, customers, business partners, and suppliers. Following guidance from the U.S. Centers for Disease Control and Prevention, the U.S. Occupational Health and Safety Administration, state and local health authorities, and existing internal crisis management policies, we developed and implemented comprehensive health and safety measures at all of our locations, including: establishing a central response team; distributing information and carrying out education initiatives; implementing social distancing requirements, including the installation of transparent panels to physically separate individuals when in close proximity; distributing breathing masks, disposable gloves, disinfectant wipes, and thermometers to employees; implementing temperature checks at the entrances to our manufacturing facility; extensive and frequent disinfecting of our workspaces; modifying our meal services to minimize physical contact; enabling work-from-home arrangements for those employees who do not need to be physically on premises to perform their work effectively; and suspending travel. We expect to maintain these measures until we determine the pandemic is adequately contained for purposes of our business, and we may take further actions we consider to be in the best interests of our employees, customers, business partners, and suppliers, or in response to further government mandates or requirements.

Rates of absenteeism associated with employee self-quarantine due to exposure to COVID-19 were steady at a satisfactory level through the third quarter of 2020, but rose in December. The productivity of our factory may be reduced if quarantine rates increase or if the number of employees diagnosed with COVID-19 requires further implementation of restrictive health and safety measures, including factory closure. As of the date of this report, absenteeism rates have improved, we continue to operate with three shifts in our factory, and, with few exceptions, our engineering, sales, and administrative personnel are working from the Company's offices.

We are closely monitoring the operating performance and financial health of our customers, business partners, and suppliers, but an extended period of operational constraints brought about by the pandemic could cause financial hardship within our customer base and supply chain. Such hardship may continue to disrupt customer demand and limit our customers' ability to meet their obligations to us. Similarly, such hardship within our supply chain could continue to restrict our access to raw materials or services. Additionally, restrictions or disruptions of transportation, such as reduced availability of cargo transport by ship or air, could result in higher costs and inbound and outbound delays. During 2020, we took steps to address certain supply chain risks, and we believe our actions mitigated those risks, particularly for the second half of the year; however, there are no assurances that those steps will continue to mitigate risks in 2021 and beyond.

Although there is uncertainty regarding the extent to which the pandemic will continue to impact our operational and financial results in the future, the Company's high level of liquidity (supplemented by the approximately $109.7 million of net proceeds from the public offering of shares of our Common Stock during the second quarter of 2020), flexible operational model, existing raw material inventories, and increased use of second sources for critical manufacturing inputs together support management's belief the Company will be able to effectively conduct business until the pandemic passes.

We are monitoring the rapidly changing circumstances, and may take additional actions to address COVID-19 risks as they evolve. Because much of the potential negative impact of the pandemic is associated with risks outside of our control, we cannot estimate the extent of such impact on our financial or operational performance, or when such impact might occur.

Recent Developments

On February 24, 2021, James A. Simms notified us of his decision to resign from his positions as our Corporate Vice President, Chief Financial Officer, Treasurer, and Secretary effective June 30, 2021. Mr. Simms' resignation is not related to our operations, policies, or practices, including our internal controls or other matters related to financial reporting. We have initiated a search for a new Chief Financial Officer, a process with which Mr. Simms will be assisting.

2020 Financial Highlights

- Net revenues increased 12.8% to $296,576,000 for 2020, from $262,977,000 for 2019, primarily due to an overall 28.6% increase in bookings for the year ended December 31, 2020, compared to the year ended December 31, 2019, principally due to an increase of 80.9% in new orders for Advanced Products.
- Export sales, as a percentage of total revenues, represented approximately 64.4% in 2020 and 53.7% in 2019, principally reflecting the locations of OEMs, ODMs, and contract manufacturers utilizing higher volumes of Advanced Products.
- Gross margin increased to $131,447,000 for 2020, from $122,966,000 for 2019. Gross margin, as a percentage of net revenues decreased to 44.3% for 2020 from 46.8% for 2019. Despite higher net revenues and gross margin dollars for the year ended December 31, 2020, gross margin as a percentage of net revenues decreased as compared to the year ended December 31, 2019, primarily due to an unfavorable change in product mix (i.e., a higher percentage of lower margin products were produced and shipped during the year ended December 31, 2020), a negative influence from production inefficiencies and cost variances associated with initial production volumes of new products, certain supply chain constraints associated with the COVID-19 pandemic, and higher tariff charges.
- Backlog, representing the total of orders for products received for which shipment is scheduled within the next 12 months, was approximately $147,550,000 at the end of 2020, as compared to $104,164,000 at the end of 2019.

- Operating expenses for 2020 increased $4,934,000, or 4.5%, to $114,079,000 from $109,145,000 for 2019, due to increases in research and development expenses of $4,328,000 and selling, general, and administrative expenses of $606,000. Compensation and related personnel costs closely track headcount and annual merit-based increases in salary and wages. However, certain other expenses, such as prototyping costs in research and development, or advertising and promotion costs associated with sales initiatives, can vary meaningfully period to period.
- We reported net income for 2020 of $17,910,000, or $0.41 per diluted share, compared to net income of $14,098,000, or $0.34 per diluted share, for 2019. Diluted shares outstanding at year-end 2020 increased approximately 2.2 million over the prior year-end, as a result of the June 2020 underwritten offering of Common Stock and employee exercise of stock options during the year.
- In 2020, as a result of activities associated with our construction and capacity expansion, depreciation and amortization totaled $11,056,000, and capital expenditures were $28,653,000, compared to $10,334,000 and $12,485,000, respectively, for 2019.
- Inventories increased by approximately $8,082,000, or 16.4%, to $57,269,000 at the end of 2020, as compared to $49,187,000 at the end of 2019, primarily due to an increase in raw materials of $9,972,000 to meet increasing demand, partially offset by an increase in reserves of $3,442,000.

The following table sets forth certain items of selected consolidated financial information as a percentage of net revenues for the years shown, ended December 31. This table and the subsequent discussion should be read in conjunction with the selected financial data and the Consolidated Financial Statements and related footnotes contained elsewhere in this report.

	Year Ended December 31,		
	2020	2019	2018
Net revenues	100.0%	100.0%	100.0%
Gross margin	44.3%	46.8%	47.7%
Selling, general and administrative expenses	21.3%	23.8%	21.4%
Research and development expenses	17.2%	17.7%	15.2%
Income before income taxes	6.2%	5.7%	11.3%

Critical Accounting Policies and Estimates

Management’s Discussion and Analysis of Financial Condition and Results of Operations is based upon our Consolidated Financial Statements, which have been prepared in accordance with accounting principles generally accepted in the United States (“U.S. GAAP”). The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, expenses, and related disclosures of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates and assumptions, and our associated judgments, including those related to inventories, income taxes, contingencies, and litigation. We base our estimates, assumptions, and judgments on historical experience, knowledge of current conditions, and on various other factors we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. We also have other policies we consider key accounting policies, (See Note 2 to the Consolidated Financial Statements — *Significant Accounting Policies — Recently Adopted Accounting Standards*). However, the application of these other policies does not require us to make significant estimates and assumptions difficult to support quantitatively.

Inventories

We employ a variety of methodologies to evaluate inventory that is estimated to be excess, obsolete or unmarketable, in order to write down that inventory to net realizable value. Our estimation process for assessing net realizable value is based upon forecasted future usage which we derive based on backlog, historical consumption, and expected market conditions. For both Brick and Advanced product lines, the methodology used compares on-hand quantities to forecasted usage and historical consumption, such that amounts of inventory on hand in excess of management's estimate of expected future utility, are fully reserved. While we have used our best efforts and believe we have used the best available information to estimate future demand, due to uncertainty in the economy and our business and the inherent difficulty in forecasting future usage, it is possible actual demand for our products will differ from our estimates. If actual future demand or market conditions are less favorable than those projected by management, additional inventory reserves for existing inventories may need to be recorded in future periods.

Evaluation of the Realizability of Deferred Tax Assets

Significant management judgment is required in determining whether deferred tax assets will be realized in full or in part. We assess the need for a valuation allowance on a quarterly basis. We record a valuation allowance to reduce our deferred tax assets to the amount we believe is more likely than not to be realized. In assessing the need for a valuation allowance, we consider all positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies, and past financial performance. While recent positive operating results, as a result of increases in bookings, caused the Company to be in a cumulative income position as of December 31, 2020, the Company faces uncertainties in forecasting its operating results due to the continued impact of the COVID-19 pandemic on the Company's supply chain, certain process issues with the production of Advanced Products and the unpredictability in certain markets. This operating uncertainty also makes it difficult to predict the availability and utilization of tax benefits over the next several years. As a result, management has concluded, at this time, is more likely than not the Company's net domestic deferred tax assets will not be realized, and a full valuation allowance against all net domestic deferred tax assets is still warranted as of December 31, 2020. The valuation allowance against these deferred tax assets may require adjustment in the future based on changes in the mix of temporary differences, changes in tax laws, and operating performance. If the positive quarterly earnings and increases in bookings continue, and the Company's concerns about industry uncertainty and world events, including the impact of the COVID-19 pandemic on the Company's supply chain, and process issues with the production of Advanced Products are resolved, and the amount of tax benefits the Company is able to utilize to the point that the Company believes future taxable income can be more reliably forecasted, the Company may release all or a portion of the valuation allowance in the near-term. Certain state tax credits, though, will likely never be released by the valuation allowance. If and when the Company determines the valuation allowance should be released (i.e., reduced), the adjustment would result in a tax benefit reported in that period's Consolidated Statements of Operations, the effect of which would be an increase in reported net income.

The amount of any such tax benefit associated with release of our valuation allowance in a particular quarter may be material.

New Accounting Pronouncements

From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board ("FASB") that we adopt as of the specified effective date. Unless otherwise discussed, we believe the impact of recently issued accounting standards will not have a material impact on our future financial condition and results of operations. See Note 2 — *Significant Accounting Policies — Impact of recently issued accounting standards*, to the Consolidated Financial Statements for a description of recently issued and adopted accounting pronouncements, including the dates of adoption and expected impact on our financial position and results of operations.

Other new pronouncements issued but not effective until after December 31, 2020 are not expected to have a material impact on our consolidated financial statements.

Year ended December 31, 2020 compared to Year ended December 31, 2019

See Note 19, *Segment Information*, to the Consolidated Financial Statements for a discussion of our change to segment reporting in the second quarter of 2019.

Consolidated net revenues for 2020 were $296,576,000, an increase of $33,599,000, or 12.8%, as compared to $262,977,000 for 2019.

Net revenues, by product line, for the years ended December 31 were as follows (dollars in thousands):

			Increase	
	2020	2019	$	%
Brick Products	$190,256	$187,896	$ 2,360	1.3%
Advanced Products	106,320	75,081	31,239	41.6%
Total	$296,576	$262,977	$33,599	12.8%

The increase in net revenues was primarily due to an overall 28.6% increase in bookings for the year ended December 31, 2020, compared to the year ended December 31, 2019, principally due to an increase of 80.9% in new orders for Advanced Products.

Gross margin for 2020 increased $8,481,000, or 6.9%, to $131,447,000 from $122,966,000 in 2019. Gross margin as a percentage of net revenues decreased to 44.3% in 2020 from 46.8% in 2019. Despite higher net revenues and gross margin dollars for the year ended December 31, 2020, gross margin as a percentage of net revenues decreased as compared to the year ended December 31, 2019, primarily due to an unfavorable change in product mix (i.e., a higher percentage of lower margin products were produced and shipped during the year ended December 31, 2020), a negative influence from production inefficiencies and cost variances associated with initial production volumes of new products, certain supply chain constraints associated with the COVID-19 pandemic, and higher tariff charges.

Selling, general, and administrative expenses were $63,163,000 for 2020, an increase of $606,000, or 1.0%, as compared to $62,557,000 for 2019. As a percentage of net revenues, selling, general, and administrative expenses decreased to 21.3% in 2020 from 23.8% in 2019, primarily due to the increase in net revenues.

The components of the $606,000 increase in selling, general, and administrative expenses were as follows (dollars in thousands):

	Increase (decrease)	
Compensation	$ 3,153	8.2%(1)
Depreciation and amortization	318	11.3%(2)
Legal fees	231	14.5%(3)
Facilities allocations	(137)	(8.3)%
Outside services	(191)	(8.7)%(4)
Advertising expenses	(281)	(8.5)%(5)
Commissions	(326)	(9.1)%(6)
Travel expense	(1,973)	(63.3)%(7)
Other, net	(188)	(3.2)%
	$ 606	1.0%

(1) Increase primarily attributable to merit-based compensation increases for non-exempt hourly employees in May 2020, increases in headcount and higher stock-based compensation expense associated with stock options awarded in June 2020.

(2) Increase attributable to net additions of furniture and fixtures and capitalization of building improvements.

(3) Increase primarily attributable to higher use of outside legal services associated with the December 2019 ransomware incident, which carried into the first quarter of 2020, and other corporate legal matters.

(4) Decrease primarily attributable to a decrease in the use of outside service providers at our Andover, MA facility.

(5) Decrease primarily attributed to decreases in sales support expenses, direct mailings, and advertising in trade publications.

(6) Decrease primarily attributable to the decline in net revenues subject to commissions.

(7) Decrease primarily attributable to reduced travel by our sales and marketing personnel, due to travel restrictions caused by the COVID-19 pandemic.

Research and development expenses increased $4,328,000, or 9.3%, to $50,916,000 in 2020 from $46,588,000 in 2019. As a percentage of net revenues, research and development expenses decreased to 17.2% in 2020 from 17.7% in 2019, primarily due to the increase in net revenues.

The components of the $4,328,000 increase in research and development expenses were as follows (dollars in thousands):

	Increase (decrease)	
Compensation	$2,613	7.9%(1)
Deferred costs	1,004	57.6%(2)
Project and pre-production materials	789	11.3%(3)
Computer expense	170	33.3%
Depreciation and amortization	164	9.1%
Overhead absorption	(296)	(33.1)%(4)
Other, net	(116)	(1.7)%
	$4,328	9.3%

(1) Increase primarily attributable to merit-based compensation increases for non-exempt hourly employees in May 2020, increases in headcount, and higher stock-based compensation expense associated with stock options awarded in June 2020.

(2) Increase primarily attributable to a decrease in the capitalization of costs for certain non-recurring engineering projects for which the related revenues have been deferred.

(3) Increase primarily attributable to higher spending for new product development of Advanced Products.

(4) Decrease primarily attributable to a decrease in research and development (“R&D”) personnel incurring time on production activities, compared to R&D activities.

The significant changes in the components of “Other income (expense), net” for the years ended December 31 were as follows (in thousands):

	2020	2019	Increase (decrease)
Rental income	$ 792	$ 792	$ —
Foreign currency gains (losses), net	181	(108)	289
Interest income	95	300	(205)
Gain on disposal of equipment	13	38	(25)
Credit gains on available-for-sale securities	4	4	—
Other	8	40	(32)
	$1,093	$1,066	$ 27

Our exposure to market risk fluctuations in foreign currency exchange rates relates to the operations of VJCL, for which the functional currency is the Japanese Yen, and all other subsidiaries in Europe and Asia, for which the functional currency is the U.S. Dollar. These other subsidiaries in Europe and Asia experienced more favorable foreign currency exchange rate fluctuations in 2020 compared to 2019. Interest income decreased due to a decrease in interest rates.

Income before income taxes was $18,461,000 in 2020, as compared to $14,887,000 in 2019.

The provision for income taxes and the effective income tax rate for the years ended December 31 were as follows (dollars in thousands):

	2020	2019
Provision for income taxes	$539	$778
Effective income tax rate	2.9%	5.2%

The effective tax rates were lower than the statutory tax rates for the year ended December 31, 2020 and 2019 primarily due to the Company's full valuation allowance position against domestic deferred tax assets. The provision for income taxes for the years ended December 31, 2020 and 2019 included estimated foreign income taxes and estimated state taxes in jurisdictions in which the Company does not have sufficient net operating loss carryforwards.

See Note 16 to the Consolidated Financial Statements for disclosure regarding our current assessment of the valuation allowance against all domestic deferred tax assets, and the possible release (i.e., reduction) of the allowance in the future.

We reported net income for the year ended December 31, 2020 of $17,910,000, or $0.41 per diluted share, as compared to $14,098,000, or $0.34 per diluted share, for the year ended December 31, 2019.

LIQUIDITY AND CAPITAL RESOURCES

At December 31, 2020, we had $161,742,000 in cash and cash equivalents and $50,166,000 of highly liquid short-term investments. The ratio of current assets to current liabilities was 7.8:1 at December 31, 2020, as compared to 6.0:1 at December 31, 2019. Net working capital increased $127,283,000 to $276,419,000 at December 31, 2020 from $149,136,000 at December 31, 2019.

The primary working capital changes were due to the following (in thousands):

	Increase (decrease)
Cash and cash equivalents	$ 77,074
Short-term investments	50,166
Accounts receivable	2,884
Inventories	8,082
Other current assets	(340)
Accounts payable	(5,116)
Accrued compensation and benefits	(3,684)
Accrued expenses	66
Sales allowances	144
Short-term lease liabilities	(109)
Income taxes payable	(82)
Short-term deferred revenue and customer prepayments	(1,802)
	$ 127,283

The primary sources of cash for the year ended December 31, 2020 were: (i) approximately $109,681,000 of cash received in the form of net proceeds from the completion of the public offering of our Common Stock in June 2020, (ii) $34,547,000 of cash generated through operating activities, and (iii) $11,585,000 of cash received in connection with the exercise of options to purchase our Common Stock awarded under our stock option plans and the issuance of Common Stock under our 2017 Employee Stock Purchase Plan. The primary uses of cash during the year ended December 31, 2020 were $50,166,000 for the purchase of short-term investments and $28,653,000 for the purchase of property and equipment.

In November 2000, our Board of Directors authorized the repurchase of up to $30,000,000 of Common Stock (the "November 2000 Plan"). The November 2000 Plan authorizes us to make such repurchases from time to time in the open market or through privately negotiated transactions. The timing of such repurchases and the number of shares purchased in each transaction are at the discretion of management based on its view of economic and financial market conditions. We did not repurchase shares of Common Stock under the November 2000 Plan during the year ended December 31, 2020. As of December 31, 2020, we had approximately $8,541,000 remaining for share purchases under the November 2000 Plan.

As of December 31, 2020, we had no off-balance sheet arrangements.

The table below summarizes our contractual obligations for operating leases as of December 31, 2020 (in thousands):

	Payments Due by Period				
Contractual Obligations	**Total**	**Less than 1 Year**	**Years 2 & 3**	**Years 4 & 5**	**More Than 5 Years**
Operating lease obligations (1)	$4,919	$ 1,740	$ 2,199	$ 980	$ —

(1) For further information, refer to Note 13 to the Consolidated Financial Statements, *Leases*, included in Part II, Item 8 of this Annual Report on Form 10-K.

As of December 31. 2020, we had approximately $13,141,000 of capital expenditure commitments, principally for manufacturing equipment, which we intend to fund with existing cash. In addition to these commitments, as of December 31, 2020 we had approximately $63,800,000, in aggregate, of budgeted capital expenditures associated with the construction of an addition to the Company's existing manufacturing facility and the purchase and installation of new production equipment, which represent our primary liquidity needs for the foreseeable future. We believe cash generated from operations together with our available cash and cash equivalents and short-term investments will be sufficient to fund planned operational needs, capital equipment purchases, and the construction activities for the foreseeable future.

We do not consider the impact of inflation and changing prices on our business activities or fluctuations in the exchange rates for foreign currency transactions to have been significant during the last three fiscal years.

ITEM 7A. *QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK*

We are exposed to a variety of market risks, including changes in interest rates affecting the return on our cash and cash equivalents, short-term investments and fluctuations in foreign currency exchange rates. As our cash and cash equivalents and short-term investments consist principally of cash accounts, money market securities and U.S. Treasury securities, which are short-term in nature, we believe our exposure to market risk on interest rate fluctuations for these investments is not significant. As of December 31, 2020, our long-term investment portfolio, recorded on our Consolidated Balance Sheet as "Long-term investment, net", consisted of a single auction rate security with a par value of $3,000,000, purchased through and held in custody by a broker-dealer affiliate of Bank of America, N.A., that has experienced failed auctions (the "Failed Auction Security") since February 2008. While the Failed Auction Security is Aaa/AA+ rated by major credit rating agencies, collateralized by student loans and guaranteed by the U.S. Department of Education under the Federal Family Education Loan Program, continued failure to sell at its periodic auction dates (i.e., reset dates) could negatively impact the carrying value of the investment, in turn leading to impairment charges in future periods. Periodic changes in the fair value of the Failed Auction Security attributable to credit loss (i.e., risk of the issuer's default) are recorded through earnings as a component of "Other income (expense), net", with the remainder of any periodic change in fair value not related to credit loss (i.e., temporary "mark-to-market" carrying value adjustments) recorded in "Accumulated other comprehensive loss", a component of Vicor Corporation Stockholders' Equity. Should we conclude a decline in the fair value of the Failed Auction Security is other than temporary, such losses would be recorded through earnings as a component of "Other income (expense), net". We do not believe there was an "other-than-temporary" decline in value in this security as of December 31, 2020.

We estimate our annual interest income would change by approximately $30,000 in 2020 for each 100 basis point increase or decrease in interest rates.

Our exposure to market risk for fluctuations in foreign currency exchange rates relates primarily to the operations of VJCL, for which the functional currency is the Japanese Yen, and changes in the relative value of the Yen to the U.S. Dollar. Relative to our Yen exposure as of December 31, 2020, we estimate a 10% unfavorable movement in the value of the Yen relative to the U.S. Dollar would increase our foreign currency loss by approximately $96,000. The functional currency of all other subsidiaries in Europe and other subsidiaries in Asia is the U.S. Dollar. While we believe risk to fluctuations in foreign currency rates for these subsidiaries is generally not significant, they can be subject to substantial currency changes, and therefore foreign exchange exposures.

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ITEM 8. *FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA*

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and Board of Directors
Vicor Corporation:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Vicor Corporation and subsidiaries (the Company) as of December 31, 2020 and 2019, the related consolidated statements of operations, comprehensive income, cash flows, and equity for each of the years in the three-year period ended December 31, 2020, and the related notes and financial statement schedule listed in Item 15(a)(2) (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2020, in conformity with U.S. generally accepted accounting principles.

We also have 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, 2020, 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 March 1, 2021 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated 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 consolidated 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 consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

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

Realizability of raw materials inventory

As discussed in Note 2 to the consolidated financial statements, the Company values inventories at the lower of cost, determined using the first-in, first-out method, or net realizable value. The Company's estimation process for assessing net realizable value is based upon forecasted future usage, which was derived based on backlog, historical consumption and expected market conditions. As disclosed in Note 3 to the consolidated financial statements, approximately 74%, or $42.6 million, of the Company's total inventory balance is comprised of raw materials.

We identified the evaluation of the realizability of raw materials inventory to be a critical audit matter. Subjective auditor judgment was required as a result of uncertainty in market conditions used to estimate forecasted future usage and the long lead times to acquire raw materials within the global electronics supply chain. Changes in forecasted future usage could have a significant impact on the realizability of raw materials inventory.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the critical audit matter. This included controls related to the Company's process to develop its forecast of usage, including estimates of the projected demand based on historical usage and the potential impact of market conditions. We evaluated the Company's estimate of the realizability of raw materials by:

- assessing historical consumption as a predictor of future product demand by comparing it to trends in industry publications
- examining the historical accuracy of the Company's prior estimates by considering subsequent sales and write off activity
- evaluating the adjustments made to forecast future demand based on historical usage data
- interviewing operational personnel of the Company involved in purchasing and manufacturing to evaluate product innovations, changes in customer mix, and other factors that may impact expected future sales and usage of raw material inventory.

Realizability of domestic deferred tax assets

As discussed in Note 16 to the consolidated financial statements, the Company had a valuation allowance of $37.9 million against all domestic deferred tax assets, for which realization cannot be considered more likely than not. In assessing the need for a valuation allowance, the Company considers all positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies, and past financial performance.

We identified the evaluation of the realizability of the domestic deferred tax assets as a critical audit matter due to the subjectivity involved in assessing the recoverability of those deferred tax assets. Subjective auditor judgment was required to evaluate the uncertainty inherent in estimating the Company's ability to generate sufficient domestic taxable income exclusive of reversing temporary differences of the appropriate character in the future.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company's income tax process, including a control related to the assessment of the realizability of deferred tax assets and the application of relevant tax regulations. To assess the Company's ability to forecast its financial performance used to determine future domestic taxable income, we compared the Company's previous forecasts to actual results, and evaluated the Company's consideration of the impact of industry and global economic conditions through inquiry with operational personnel and inspection of third-party publications. We involved federal and state income tax professionals with specialized skills and knowledge, who assisted in assessing the Company's application of the relevant tax regulations and evaluating the realizability of deferred tax assets

/s/ KPMG LLP

We have served as the Company's auditor since 2013.

Boston, Massachusetts
March 1, 2021

VICOR CORPORATION

CONSOLIDATED BALANCE SHEETS
December 31, 2020 and 2019
(In thousands, except per share data)

	2020	2019
ASSETS		
Current assets:		
Cash and cash equivalents	$ 161,742	$ 84,668
Short-term investments	50,166	—
Accounts receivable, less allowance of $82 in 2020 and $59 in 2019	40,999	38,115
Inventories, net	57,269	49,187
Other current assets	6,756	7,096
Total current assets	316,932	179,066
Long-term deferred tax assets	226	205
Long-term investment, net	2,517	2,510
Property, plant and equipment, net	74,843	56,952
Other assets	1,721	1,994
Total assets	$ 396,239	$ 240,727
LIABILITIES AND EQUITY		
Current liabilities:		
Accounts payable	$ 14,121	$ 9,005
Accrued compensation and benefits	14,094	10,410
Accrued expenses	2,624	2,690
Sales allowances	597	741
Short-term lease liabilities	1,629	1,520
Income taxes payable	139	57
Short-term deferred revenue and customer prepayments	7,309	5,507
Total current liabilities	40,513	29,930
Long-term deferred revenue	733	1,054
Contingent consideration obligations	227	451
Long-term income taxes payable	643	567
Long-term lease liabilities	2,968	2,855
Total liabilities	45,084	34,857
Commitments and contingencies (Note 17)		
Equity:		
Vicor Corporation stockholders’ equity:		
Class B Common Stock: 10 votes per share, $.01 par value, 14,000,000 shares authorized, 11,758,218 shares issued and outstanding in 2020 and 2019	118	118
Common Stock: 1vote per share, $.01 par value, 62,000,000 shares authorized 43,204,671 shares issued and 31,569,865 shares outstanding in 2020; 40,403,058 shares issued and 28,768,252 shares outstanding in 2019	433	405
Additional paid-in capital	328,392	201,251
Retained earnings	161,008	143,098
Accumulated other comprehensive loss	(204)	(383)
Treasury stock at cost: 11,634,806 shares in 2020 and 2019	(138,927)	(138,927)
Total Vicor Corporation stockholders’ equity	350,820	205,562
Noncontrolling interest	335	308
Total equity	351,155	205,870
Total liabilities and equity	$ 396,239	$ 240,727

See accompanying notes.

VICOR CORPORATION

CONSOLIDATED STATEMENTS OF OPERATIONS
Years Ended December 31, 2020, 2019 and 2018
(In thousands, except per share amounts)

	2020	2019	2018
Net revenues	$296,576	$262,977	$291,220
Cost of revenues	165,129	140,011	152,249
Gross margin	131,447	122,966	138,971
Operating expenses:			
Selling, general and administrative	63,163	62,557	62,224
Research and development	50,916	46,588	44,286
Severance and other charges	—	—	402
Total operating expenses	114,079	109,145	106,912
Income from operations	17,368	13,821	32,059
Other income (expense), net:			
Total unrealized gains (losses) on available-for-sale securities, net	7	(16)	1
Portion of losses (gains) recognized in other comprehensive income (loss)	(3)	20	6
Net credit gains recognized in earnings	4	4	7
Other income (expense), net	1,089	1,062	867
Total other income (expense), net	1,093	1,066	874
Income before income taxes	18,461	14,887	32,933
Less: Provision for income taxes	539	778	1,087
Consolidated net income	17,922	14,109	31,846
Less: Net income attributable to noncontrolling interest	12	11	121
Net income attributable to Vicor Corporation	$ 17,910	$ 14,098	$ 31,725
Net income per common share attributable to Vicor Corporation:			
Basic	$ 0.42	$ 0.35	$ 0.80
Diluted	$ 0.41	$ 0.34	$ 0.78
Shares used to compute net income per common share attributable to Vicor Corporation:			
Basic	42,186	40,330	39,872
Diluted	43,869	41,677	40,729

See accompanying notes.

VICOR CORPORATION

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
Years Ended December 31, 2020, 2019 and 2018
(In thousands)

	2020	2019	2018
Consolidated net income	$17,922	$14,109	$31,846
Foreign currency translation gains, net of tax benefit (1)	200	33	98
Unrealized losses on available-for-sale securities, net of tax (1)	(6)	(20)	(6)
Other comprehensive income	194	13	92
Consolidated comprehensive income	18,116	14,122	31,938
Less: Comprehensive income attributable to noncontrolling interest	27	13	129
Comprehensive income attributable to Vicor Corporation	$18,089	$14,109	$31,809

(1) The deferred tax assets associated with cumulative foreign currency translation gains and cumulative unrealized losses on available for sale securities are completely offset by a tax valuation allowance as of December 31, 2020, 2019, and 2018. Therefore, there is no income tax benefit (provision) recognized in any of the three years ended December 31, 2020.

See accompanying notes.

VICOR CORPORATION

CONSOLIDATED STATEMENTS OF CASH FLOWS
Years Ended December 31, 2020, 2019 and 2018
(In thousands)

	2020	2019	2018
Operating activities:			
Consolidated net income	$ 17,922	$ 14,109	$ 31,846
Adjustments to reconcile consolidated net income to net cash provided by operating activities:			
Depreciation and amortization	11,056	10,334	9,254
Stock-based compensation expense	5,883	3,036	3,396
(Decrease) increase in long-term deferred revenue	(321)	822	(71)
Increase in long-term income taxes payable	76	329	43
Deferred income taxes	(21)	60	(55)
Increase in other long-term liabilities	—	—	9
Gain on disposal of equipment	(13)	(38)	(57)
Provision (recovery) for doubtful accounts	23	(144)	65
Credit gain on available-for-sale securities	(4)	(4)	(7)
Increase in contingent consideration obligations	—	280	—
Change in current assets and liabilities, net	(54)	(6,576)	(8,252)
Net cash provided by operating activities	34,547	22,208	36,171
Investing activities:			
Purchases of short-term investments	(50,166)	—	—
Additions to property, plant and equipment	(28,653)	(12,485)	(18,211)
Proceeds from sale of equipment	13	38	57
Decrease (increase) in other assets	182	(35)	(85)
Net cash used for investing activities	(78,624)	(12,482)	(18,239)
Financing activities:			
Proceeds from public offering of Common Stock	109,681	—	—
Proceeds from employee stock plans	11,585	4,742	8,656
Payment of contingent consideration obligations	(224)	(237)	(270)
Noncontrolling interest dividend paid	—	(139)	—
Net cash provided by financing activities	121,042	4,366	8,386
Effect of foreign exchange rates on cash	109	19	9
Net increase in cash and cash equivalents	77,074	14,111	26,327
Cash and cash equivalents at beginning of year	84,668	70,557	44,230
Cash and cash equivalents at end of year	$161,742	$ 84,668	$ 70,557
Change in current assets and liabilities:			
Accounts receivable	$ (2,816)	$ 5,714	$ (8,834)
Inventories, net	(8,049)	(1,812)	(10,827)
Other current assets	369	(2,895)	176
Accounts payable and accrued liabilities	8,668	(7,339)	7,450
Accrued severance and other charges	—	(234)	234
Short-term lease payable	34	12	—
Income taxes payable	82	(653)	410
Deferred revenue	1,658	631	3,139
Change in current assets and liabilities, net	$ (54)	$ (6,576)	$ (8,252)
Supplemental disclosures:			
Cash paid during the year for income taxes, net of refunds	$ 79	$ 2,194	$ 743

See accompanying notes.

VICOR CORPORATION

CONSOLIDATED STATEMENTS OF EQUITY
Years Ended December 31, 2020, 2019 and 2018
(In thousands)

	Class B Common Stock	Common Stock	Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Stock	Total Vicor Corporation Stockholders' Equity	Noncontrolling Interest	Total Equity
Balance on December 31, 2017	$ 118	$ 401	$ 181,395	$ 93,605	$ (478)	$ (138,927)	$ 136,114	$ 305	$136,419
Issuance of Common Stock under employee stock plans		7	8,649				8,656		8,656
Stock-based compensation expense			3,396				3,396		3,396
Cumulative effect of adoption of new accounting principle (Topic 606)				3,670			3,670		3,670
Other		(6)	17				11		11
Components of comprehensive income, net of tax									
Net income				31,725			31,725	121	31,846
Other comprehensive income					84		84	8	92
Total comprehensive income							31,809	129	31,938
Balance on December 31, 2018	118	402	193,457	129,000	(394)	(138,927)	183,656	434	184,090
Issuance of Common Stock under employee stock plans		3	4,739				4,742		4,742
Stock-based compensation expense			3,036				3,036		3,036
Noncontrolling interest dividend paid							—	(139)	(139)
Other			19				19		19
Components of comprehensive income, net of tax									
Net income				14,098			14,098	11	14,109
Other comprehensive income					11		11	2	13
Total comprehensive income							14,109	13	14,122
Balance on December 31, 2019	118	405	201,251	143,098	(383)	(138,927)	205,562	308	205,870
Issuance of Common Stock under employee stock plans		10	11,575				11,585		11,585
Issuance of Common Stock in public offering, net (See Note 10)		18	109,663				109,681		109,681
Stock-based compensation expense			5,883				5,883		5,883
Other			20				20		20
Components of comprehensive income, net of tax									
Net income				17,910			17,910	12	17,922
Other comprehensive income					179		179	15	194
Total comprehensive income							18,089	27	18,116
Balance on December 31, 2020	$ 118	$ 433	$ 328,392	$161,008	$ (204)	$ (138,927)	$ 350,820	$ 335	$351,155

See accompanying notes.

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. DESCRIPTION OF BUSINESS

Vicor Corporation (the "Company" or "Vicor") designs, develops, manufactures, and markets modular power components and power systems for converting electrical power. The Company also licenses certain rights to its technology in return for recurring royalties. The principal markets for the Company's power converters and systems are large original equipment manufacturers ("OEMs"), original design manufacturers ("ODMs") and their contract manufacturers, and smaller, lower volume users, which are broadly distributed across several major market areas.

2. SIGNIFICANT ACCOUNTING POLICIES

Principles of consolidation

The Consolidated Financial Statements include the accounts of the Company and its subsidiaries. All intercompany transactions and balances have been eliminated upon consolidation.

Use of estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States ("U.S. GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingencies at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Such estimates and assumptions relate to the useful lives of fixed assets and identified intangible assets, recoverability of long-lived assets, fair value of short-term and long-term investments, allowances for doubtful accounts, potential excess, obsolete or unmarketable inventory, potential reserves relating to litigation matters, accrued liabilities, accrued taxes, deferred tax valuation allowances, assumptions pertaining to share-based payments, and other reserves. Actual results could differ from those based on these estimates and assumptions, and such differences may be material to the financial statements.

Foreign currency translation

The financial statements of Vicor Japan Company, Ltd. ("VJCL"), a majority-owned subsidiary, for which the functional currency is the Japanese Yen, have been translated into U.S. Dollars using the exchange rate in effect at the balance sheet date for balance sheet amounts and the average exchange rates in effect during the year for income statement amounts. The gains and losses resulting from the changes in exchange rates from year to year have been reported in other comprehensive income.

Transaction gains and losses resulting from the remeasurement of foreign currency denominated assets and liabilities of the Company's foreign subsidiaries where the functional currency is the U.S. Dollar are included in other income (expense), net. Foreign currency gains (losses) included in other income (expense), net, were approximately $181,000, $(108,000), and $(260,000) in 2020, 2019, and 2018, respectively.

Investments

The Company's principal sources of liquidity are its existing balances of cash and cash equivalents and short-term investments, as well as cash generated from operations. Consistent with the guidelines of the Company's investment policy, the Company can invest, and has historically invested, its cash balances in demand deposit accounts, money market funds, government debt securities, and auction rate securities meeting certain quality criteria.

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Cash and Cash Equivalents

Cash and cash equivalents are highly liquid investments with insignificant interest rate risk and maturities of 90 days or less at the time of acquisition. Cash and cash equivalents include funds held in disbursement (i.e., checking) and money market accounts, certificates of deposit, and debt securities with maturities of less than three months at the time of purchase. Cash and cash equivalents are valued at cost, approximating market value. The Company's money market securities are purchased and redeemed at par value. Their estimated fair value is equal to their cost, and, due to the nature of the securities and their classification as cash equivalents, there are no unrealized gains or losses recorded at the balance sheet dates.

Short-term Investments

The Company's short-term investments, consisting of obligations of the U.S. Treasury, are debt securities with original maturities greater than three months but less than one year the time of purchase.

Long-term Investment

The Company's long-term investment is an auction rate debt security with a maturity of greater than one year and is subject to credit, liquidity, market, and interest rate risk.

Available-For-Sale Securities

Certain of the cash and cash equivalents, all of the short-term investments and the long-term investment are classified as available-for-sale securities ("AFS"). These securities are recorded at fair value, with unrealized gains and losses, net of tax, attributable to credit loss recorded through the Consolidated Statement of Operations and unrealized gains and losses, net of tax, attributable to other non-credit factors recorded in "Accumulated other comprehensive loss," a component of Total Equity. Given the nature of the cash and cash equivalents and the short-term investments designated as AFS, credit losses are not considered to be material. In determining the amount of credit loss for the long-term investment, the Company compares the present value of cash flows expected to be collected to the amortized cost basis of the security, considering credit default risk probabilities and changes in credit ratings, among other factors.

The Company periodically evaluates the long-term investment to determine if impairment is required, whether an impairment is other than temporary, and the measurement of an impairment loss. The Company considers a variety of impairment indicators such as, but not limited to, a significant deterioration in the earnings performance, credit rating, or asset quality of the investment.

The amortized cost of the debt securities are adjusted for amortization of premiums and accretion of discounts to maturity, the net amount of which, along with interest and realized gains and losses, is included in "Other income (expense), net" in the Consolidated Statements of Operations.

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Fair value measurements

The Company accounts for certain financial assets at fair value, defined as the price that would be received to sell an asset or paid to transfer a liability (i.e., an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. 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. A three-level hierarchy is used to show the extent and level of judgment used to estimate fair value measurements:

Level 1	Inputs used to measure fair value are unadjusted quoted prices available in active markets for the identical assets or liabilities as of the reporting date.
Level 2	Inputs used to measure fair value, other than quoted prices included in Level 1, are either directly or indirectly observable as of the reporting date through correlation with market data, including quoted prices for similar assets and liabilities in active markets and quoted prices in inactive markets. Level 2 also includes assets and liabilities valued using models or other pricing methodologies that do not require significant judgment since the input assumptions used in the models, such as interest rates and volatility factors, are corroborated by readily observable data from actively quoted markets for substantially the full term of the financial instrument.
Level 3	Inputs used to measure fair value are unobservable inputs supported by little or no market activity and reflect the use of significant management judgment. These values are generally determined using pricing models for which the assumptions utilize management’s estimates of market participant assumptions.

The carrying amounts of cash and cash equivalents, short-term investments, accounts receivable, and accounts payable approximate fair value because of the short maturities of these financial instruments.

Inventories

Inventories are valued at the lower of cost (determined using the first-in, first-out method) or net realizable value. Fixed production overhead is allocated to the inventory cost per unit based on the normal capacity of the production facilities. Abnormal production costs, including fixed cost variances from normal production capacity, if any, are charged to cost of revenues in the period incurred. All shipping and handling costs incurred in connection with the sale of products are included in cost of revenues.

Inventory estimated to be excess, obsolete, or unmarketable is written down to net realizable value. The Company’s estimation process for assessing net realizable value is based upon management’s estimate of expected future utility which is derived based on backlog, historical consumption and expected market conditions. If the Company’s estimated demand and/or market expectations were to change or if product sales were to decline, the Company’s estimation process may cause larger inventory reserves to be recorded, resulting in larger charges to cost of revenues.

Concentrations of risk

Financial instruments potentially subjecting the Company to significant concentrations of credit risk consist principally of cash and cash equivalents and short-term investments, of which a significant portion are held by three financial institutions, its long-term investment, and trade accounts receivable. The Company maintains cash and cash equivalents, short-term investments and certain other financial instruments with high credit counterparties, and continuously monitors the amount of credit exposure to any one issuer and diversifies its investments in order to minimize its credit risk. Generally, amounts invested with these financial institutions are in excess of federal deposit insurance limits. The Company has not experienced any losses in such accounts, and management believes the Company is not exposed to significant credit risk. The Company’s long-term investment as of December 31, 2020 consists of a single auction rate security with a par value of $3,000,000, which is collateralized by student loans. It is a highly rated (Aaa/AA+) municipal and corporate debt security. Through December 31, 2020, auctions held for the Company’s auction rate security have failed. The funds associated with an auction rate security that has failed auction may not be accessible until a successful auction occurs, a buyer is found outside of the auction process, the security is called, or the underlying securities have matured. If the credit rating of the issuer of the auction rate security held deteriorates, the Company may be required to adjust the carrying value of the investment for an other-than-temporary decline in value through an impairment charge. The Company’s investment policy, approved by the Board of Directors, limits the amount the Company may invest in any issuer, thereby reducing credit risk concentrations.

The Company’s products are sold worldwide to customers ranging from smaller, independent manufacturers of highly specialized electronic devices, to larger OEMs, ODMs and their contract manufacturers. See Note 19, *Segment Information*, for a discussion of a change to segment reporting in the second quarter of 2019. The Company’s Brick Products’ customers are primarily concentrated in the following industries: aerospace and defense electronics, industrial automation, industrial equipment, instrumentation and test equipment, and transportation (notably in rail and heavy equipment applications). The Company’s Advanced Products’ customers are concentrated in the data center and hyperscaler segments of enterprise computing, in which the Company’s products are used for voltage distribution on server motherboards, in server racks, and across datacenter infrastructure The Company also targets applications in aerospace and aviation, defense electronics, industrial automation, instrumentation, test equipment, solid state lighting, telecommunications and networking infrastructure, and vehicles (notably in the autonomous driving, electric vehicle, and hybrid vehicle niches of the vehicle segment). While, overall, the Company has a broad customer base and sells into a variety of industries, a substantial portion of the Company’s revenue from its Advanced Products line has been derived from a limited number of customers. This concentration of revenue is a reflection of the relatively early stage of adoption of the technologies, architectures and products offered in the Advanced Products line, and the Company’s strategy of targeting market leading innovators as initial customers for its Advanced Products. Concentrations of credit risk with respect to trade accounts receivable are limited due to the number of entities comprising the Company’s customer base. As of December 31, 2020 and 2019, one customer accounted for approximately 24.1% and 14.3%, respectively, of trade account receivables.

Components and materials used in the Company’s products are purchased from a variety of vendors. While most of the components are available from multiple sources, some key components for certain Advanced Products, in particular, are supplied by single vendors. In instances of single source items, the Company maintains levels of inventories management considers appropriate to enable meeting the delivery requirements of customers. If suppliers or subcontractors cannot provide their products or services on time or to the required specifications, the Company may not be able to meet the demand for its products and its delivery times may be negatively affected.

Long-lived assets

The Company reviews property, plant and equipment and finite-lived intangible assets for impairment whenever events or changes in circumstances indicate the carrying value of such assets may not be recoverable. Management determines whether the carrying value of an asset or asset group is recoverable based on comparison to the undiscounted expected future cash flows the assets are expected to generate over their remaining economic lives. If an asset value is not recoverable, the impairment loss is equal to the amount by which the carrying value of the asset exceeds its fair value, which is determined by either a quoted market price, if any, or a value determined by utilizing a discounted cash flow technique. Evaluation of impairment of long-lived assets requires estimates of future operating results that are used in the preparation of the expected future undiscounted cash flows. Actual future operating results and the remaining economic lives of our long-lived assets could differ from the estimates used in assessing the recoverability of these assets. These differences could result in impairment charges, which could be material.

Intangible assets

Values assigned to patents are amortized using the straight-line method over periods ranging from three to 20 years. Patents and other intangible assets are included in “Other assets” in the accompanying Consolidated Balance Sheets.

Product warranties

The Company generally offers a two-year warranty for all of its products, though it has extended the warranty period to three years for certain military grade products. The Company is party to a limited number of supply agreements with certain customers contractually committing the Company to warranty and indemnification requirements exceeding those to which the Company has been exposed in the past. The Company provides for the estimated cost of product warranties at the time product revenue is recognized. Factors influencing the Company’s warranty reserves include the number of units sold, historical and anticipated rates of warranty returns, and the cost per return. The Company periodically assesses the adequacy of warranty reserves and adjusts the amounts as necessary. Warranty obligations are included in “Accrued expenses” in the accompanying Consolidated Balance Sheets.

Revenue recognition

Revenue is recognized when control of the promised goods or services is transferred to a customer, in an amount that reflects the consideration the Company expects to be entitled to in exchange for those goods or services. Sales, value add, and other taxes collected concurrent with revenue producing activities are excluded from revenue. The expected costs associated with product warranties continue to be recognized at the time product revenue is recognized. Shipping and handling costs associated with outbound freight after control over a product has transferred to a customer are accounted for as a fulfillment cost and are included in cost of revenues.

The Company’s primary source of net revenue comes from the sale of products, which are modular power components and power systems for converting, regulating and controlling electric current. The principal customers for the Company’s power converters and systems are large OEMs, ODMs and the original design manufacturers and contract manufacturers serving them, and smaller, lower volume users, which are broadly distributed across several major market areas. The Company recognizes revenue for product sales at a point in time following the transfer of control of such products to the customer, including sales to stocking distributors, which typically occurs upon shipment or delivery, depending on the terms of the underlying contract. The Company establishes sales allowances on shipments to stocking distributors for estimated future product returns including distributor returns and price adjustment credits, primarily based upon historical and anticipated rates of product returns and allowances.

Certain contracts with customers contain multiple performance obligations, which typically may include a combination of non-recurring engineering services (“NRE”), prototype units, and production units. For these contracts, the individual performance obligations are accounted for separately if they are distinct. Generally, the Company has determined the NRE and prototype units represent one distinct performance obligation and the production units represent a separate distinct performance obligation. For such arrangements, revenue is allocated to each performance obligation based on its relative standalone selling price, based on prices charged to customers or using the expected cost plus a margin approach. The Company delays revenue recognition for NRE and prototype units until the point in time at which the final milestone under the NRE arrangement is completed and control is transferred to the customer, which is generally the shipment or delivery of the prototype. Revenue for production units is recognized upon shipment or delivery, consistent with product revenue summarized above.

The Company licenses its intellectual property under right to use licenses, in which royalties due to the Company are based upon a percentage of the licensee's sales. The Company utilizes the exception under the revenue recognition guidance for the recognition of sales- or usage-based royalties, in which the royalties are not recognized until the later of when 1) the customer's subsequent sales or usages occur, or 2) the performance obligation to which some or all of the sales- or usage-based royalty has been allocated is satisfied or partially satisfied.

Accounts receivable includes amounts billed and currently due from customers. The amounts due are stated at their estimated realizable value. The Company's payment terms vary by the type and location of its customers and the products or services offered, although terms generally include a requirement of payment within 30 to 60 days. The Company maintains allowances for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments, based on assessments of customers' credit-risk profiles and payment histories. If the financial condition of the Company's customers were to deteriorate, resulting in an impairment of their ability to make payments, additional allowances may be required. The Company does not require collateral from its customers, although there have been circumstances when the Company has required cash in advance (i.e., a partial down-payment) to facilitate orders in excess of a customer's established credit limit. To date, such amounts have not been material.

The Company records deferred revenue, which represents a contract liability, when cash payments are received or due in advance of performance under a contract with a customer. During the years ended December 31, 2020 and 2019, the Company recognized revenue of approximately $3,550,000 and $76,000, respectively, that was included in deferred revenue at the beginning of the respective period.

The Company applies the practical expedient for the incremental costs of obtaining a contract for sales commissions, which are expensed when incurred because the amortization period is generally less than one year. These costs are included in selling, general and administrative expenses.

The Company also applies another practical expedient and does not disclose the value of unsatisfied performance obligations for contracts with an original expected length of one year or less.

Advertising expense

The cost of advertising is expensed as incurred. The Company incurred approximately $2,637,000, $2,749,000, and $2,610,000 in advertising costs during 2020, 2019, and 2018, respectively.

Legal Costs

Legal costs in connection with litigation are expensed as incurred.

Stock-based compensation

The Company uses the Black-Scholes option-pricing model to calculate the fair value of stock option awards, whether they possess time-based vesting provisions or performance-based vesting provisions, and

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

awards granted under the Vicor Corporation 2017 Employee Stock Purchase Plan ("ESPP"), as of their grant date. For stock options with time-based vesting provisions, the calculated compensation expense, net of expected forfeitures, is recognized on a straight-line basis over the service period of the award, which is generally five years for stock options. For stock options with performance-based vesting provisions, recognition of compensation expense, net of expected forfeitures, commences if and when the achievement of the performance criteria is deemed probable. For stock options with performance-based vesting provisions, compensation expense, net of expected forfeitures, when recognized, is recognized over the relevant performance period.

Income taxes

Deferred tax assets and liabilities are determined based on the differences between the financial reporting and tax bases of assets and liabilities and are measured using the enacted income tax rates and laws expected to be in effect when the temporary differences are expected to reverse. Deferred tax assets are reduced by a valuation allowance if management determines it is more likely than not that some portion or all of the deferred tax assets will not be realized. All deferred tax assets and liabilities are classified as noncurrent.

The Company follows a two-step process to determine the amount of tax benefit to recognize. The first step is to evaluate the tax position to determine the likelihood it would be sustained upon examination by a tax authority. If the tax position is deemed "more-likely-than-not" to be sustained, the second step is to assess the tax position to determine the amount of tax benefit to be recognized in the financial statements. The amount of the benefit that may be recognized is the largest amount that possesses greater than 50 percent likelihood of being realized upon ultimate settlement. If the tax position does not meet the "more-likely-than-not" threshold, then it is not recognized in the financial statements. Additionally, the Company accrues interest and penalties, if any, related to unrecognized tax benefits as a component of income tax expense. The unrecognized tax benefits, including accrued interest and penalties, if any, are included in "Long-term income taxes payable" in the accompanying Consolidated Balance Sheets.

Net income per common share

The Company computes basic net income per share using the weighted average number of common shares outstanding and diluted net income per share using the weighted average number of common shares outstanding plus the effect of outstanding dilutive stock options, if any. The following table sets forth the computation of basic and diluted net income per share for the years ended December 31 (in thousands, except per share amounts):

	2020	2019	2018
Numerator:			
Net income attributable to Vicor Corporation	$17,910	$14,098	$31,725
Denominator:			
Denominator for basic net income per share-weighted average shares (1)	42,186	40,330	39,872
Effect of dilutive securities:			
Employee stock options (2)	1,683	1,347	857
Denominator for diluted net income per share-adjusted weighted-average shares and assumed conversions (3)	43,869	41,677	40,729
Basic net income per share	$ 0.42	$ 0.35	$ 0.80
Diluted net income per share	$ 0.41	$ 0.34	$ 0.78

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(1) Denominator represents weighted average number of Common Shares and Class B Common Shares outstanding.

(2) Options to purchase 181,196, 164,367 and 67,247 shares of Common Stock in 2020, 2019, and 2018, respectively, were not included in the calculation of net income per share as the effect would have been antidilutive.

(3) Denominator represents weighted average number of Common Shares and Class B Common Shares outstanding for the year, adjusted to include the dilutive effect, if any, of outstanding options.

Comprehensive income (loss)

The components of comprehensive income (loss) include, in addition to consolidated net income (loss), unrealized gains and losses on investments, net of tax and foreign currency translation adjustments related to VJCL, net of tax.

Impact of recently issued accounting standards

In December 2019, the FASB issued guidance designed to simplify the accounting for income taxes by eliminating certain exceptions to the general principles in Topic 740, *Income Taxes*, and also improve consistent application of and simplify U.S. GAAP for other areas of Topic 740 by clarifying and amending existing guidance. This new guidance will be effective for the Company for its fiscal year beginning after December 15, 2020, with early adoption permitted. The Company has not yet determined the impact this new guidance will have on its consolidated financial statements and disclosures

In August 2018, the FASB issued guidance which modifies the disclosure requirements on fair value measurements under Topic 820, Fair Value Measurements, including the consideration of costs and benefits. The new guidance is effective for all entities for annual and interim periods in fiscal years beginning after December 15, 2019, with early adoption permitted. It is required to be applied on a retrospective approach with certain elements being adopted prospectively for only the most recent interim or annual period presented in the initial fiscal year of adoption. The Company adopted the new guidance as of January 1, 2020. The adoption did not have a material impact on the Company's consolidated financial statements and disclosures.

In June 2016, the FASB issued new guidance which will require measurement and recognition of expected credit losses on certain types of financial instruments. It also modifies the impairment model for available-for-sale debt securities and provides for a simplified accounting model for purchased financial assets with credit deterioration since their origination. The new guidance is effective for interim and annual reporting periods beginning after December 15, 2019, with early adoption permitted. It is required to be applied on a modified-retrospective approach with certain elements being adopted prospectively. The Company adopted the new guidance as of January 1, 2020. The adoption did not have a material impact on the Company's consolidated financial statements and disclosures.

Other new pronouncements issued but not effective until after December 31, 2020 are not expected to have a material impact on the Company's consolidated financial statements.

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

3. INVENTORIES

Inventories as of December 31 were as follows (in thousands):

	2020	2019
Raw materials	$42,556	$35,901
Work-in-process	7,424	5,184
Finished goods	7,289	8,102
	$57,269	$49,187

4. SHORT-TERM AND LONG-TERM INVESTMENTS

As of December 31, 2020 the Company held $50,166,000 of short-term investments, consisting of obligations of the U.S. Treasury, all of which were debt securities with original maturities greater than three months but less than one year the time of purchase.

As of December 31, 2020 and 2019, the Company held one auction rate security with a par value of $3,000,000, purchased through and held in custody by a broker-dealer affiliate of Bank of America, N.A., that has experienced failed auctions (the “Failed Auction Security”) since February 2008. The Failed Auction Security held by the Company is Aaa/AA+ rated by major credit rating agencies, is collateralized by student loans, and is guaranteed by the U.S. Department of Education under the Federal Family Education Loan Program. Management is not aware of any reason to believe the issuer of the Failed Auction Security is presently at risk of default. Through December 31, 2020, the Company has continued to receive interest payments on the Failed Auction Security in accordance with the terms of its indenture. Management believes the Company ultimately should be able to liquidate the Failed Auction Security without significant loss primarily due to the overall quality of the issue held and the collateral securing the substantial majority of the underlying obligation. However, current conditions in the auction rate securities market have led management to conclude the recovery period for the Failed Auction Security exceeds 12 months. As a result, the Company continued to classify the Failed Auction Security as long-term as of December 31, 2020.

Details of our investments are as follows (in thousands):

	December 31, 2020		
	Cash and Cash Equivalents	Short-Term Investments	Long-Term Investments
Measured at fair value:			
Available-for-sale debt securities:			
Money Market Funds	$ 69,493	$ —	$ —
U.S. Treasury Obligations	19,998	50,166	—
Failed Auction Security	—	—	2,517
Total	89,491	50,166	2,517
Other measurement basis:			
Cash on hand	72,251	—	—
Total	$ 161,742	$ 50,166	$ 2,517

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	December 31, 2019		
	Cash and Cash Equivalents	Short-Term Investments	Long-Term Investments
Measured at fair value:			
Available-for-sale debt securities:			
Money Market Funds	$ 9,630	$ —	$ —
Failed Auction Security	—	—	2,510
Total	9,630	—	2,510
Other measurement basis:			
Cash on hand	75,038	—	—
Total	$ 84,668	$ —	$ 2,510

The following is a summary of the available-for-sale securities (in thousands):

December 31, 2020	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
U.S. Treasury Obligations	$70,172	$ —	$ 8	$ 70,164
Failed Auction Security	3,000	—	483	2,517
December 31, 2019				
Failed Auction Security	$3,000	$—	$490	$2,510

As of December 31, 2020 and 2019, the Failed Auction Security had been in an unrealized loss position for greater than 12 months.

The amortized cost and estimated fair value of the available-for-sale securities on December 31, 2020, by type and contractual maturities, are shown below (in thousands):

U.S. Treasury Obligations:	Cost	Estimated Fair Value
Maturities greater than three months but less than one year	$50,174	$ 50,166
Maturities less than three months	19,998	19,998
	$70,172	$ 70,164

Failed Auction Security:	Cost	Estimated Fair Value
Due in twenty to forty years	$ 3,000	$ 2,517

Based on the fair value measurements described in Note 5, the fair value of the Failed Auction Security on December 31, 2020, with a par value of $3,000,000, was estimated by the Company to be approximately $2,517,000. The gross unrealized loss of $483,000 on the Failed Auction Security consists of two types of estimated loss: an aggregate credit loss of $33,000 and an aggregate temporary impairment of $450,000. In determining the amount of credit loss, the Company compared the present value of cash flows expected to be collected to the amortized cost basis of the security, considering credit default risk probabilities and changes in credit ratings as significant inputs, among other factors (see Note 5).

The following table represents a rollforward of the activity related to the credit loss recognized in earnings on the Failed Auction Security held by the Company for the years ended December 31 (in thousands):

	2020	2019	2018
Balance at the beginning of the period	$ 37	$ 41	$ 48
Reductions in the amount related to credit gain for which other-than-temporary impairment was not previously recognized	(4)	(4)	(7)
Balance at the end of the period	$ 33	$ 37	$ 41

At this time, the Company has no intent to sell the Failed Auction Security and does not believe it is more likely than not the Company will be required to sell the security. If current market conditions deteriorate further, the Company may be required to record additional unrealized losses. If the credit rating of the security deteriorates, the Company may be required to adjust the carrying value of the investment through impairment charges recorded in the Consolidated Statement of Operations, and any such impairment adjustments may be material.

Based on the Company’s ability to access cash and cash equivalents, its short-term investments, and its expected operating cash flows, management does not anticipate the current lack of liquidity associated with the Failed Auction Security held will affect the Company’s ability to execute its current operating plan.

5. FAIR VALUE MEASUREMENTS

The Company accounts for certain financial assets at fair value, defined as the price that would be received to sell an asset or paid to transfer a liability (i.e., an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. As such, fair value is a market-based measurement that should be determined based on assumptions market participants would use in pricing an asset or liability. A three-level hierarchy is used to show the extent and level of judgment used to estimate fair value measurements.

Assets and liabilities measured at fair value on a recurring basis included the following as of December 31, 2020 (in thousands):

	Using			
	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total Fair Value as of December 31, 2020
Cash equivalents:				
Money market funds	$ 69,493	$ —	$ —	$ 69,493
U.S. Treasury Obligations	19,998	—	—	19,998
Short-term investments:				
U.S. Treasury Obligations	50,166	—	—	50,166
Long-term investments:				
Failed Auction Security	—	—	2,517	2,517
Liabilities:				
Contingent consideration obligations	—	—	(227)	(227)

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Assets measured at fair value on a recurring basis included the following as of December 31, 2019 (in thousands):

	Using			
	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total Fair Value as of December 31, 2019
Cash equivalents:				
Money market funds	$ 9,630	$ —	$ —	$ 9,630
Long-term investments:				
Failed Auction Security	—	—	2,510	2,510
Liabilities:				
Contingent consideration obligations	—	—	(451)	(451)

As of December 31, 2020, there was insufficient observable auction rate security market information available to determine the fair value of the Failed Auction Security using Level 1 or Level 2 inputs. As such, the Company's investment in the Failed Auction Security was deemed to require valuation using Level 3 inputs. Management, after consulting with advisors, valued the Failed Auction Security using analyses and pricing models similar to those used by market participants (i.e., buyers, sellers, and the broker-dealers responsible for execution of the Dutch auction pricing mechanism by which each issue's interest rate was set). Management utilized a probability weighted discounted cash flow ("DCF") model to determine the estimated fair value of this security as of December 31, 2020. The major assumptions used in preparing the DCF model included: estimates for the amount and timing of future interest and principal payments based on default probability assumptions used to measure the credit loss of 1.0%; the rate of return required by investors to own this type of security in the current environment, which we estimate to be 5.0% above the risk free rate of return; and an estimated time frame of three to five years for successful auctions for this type of security to occur. In making these assumptions, management considered relevant factors including: the formula applicable to each security defining the interest rate paid to investors in the event of a failed auction (the "Penalty Rate"); forward projections of the interest rate benchmarks specified in such formulas; the likely timing of principal repayments; the probability of full repayment considering the guarantees by the U.S. Department of Education of the underlying student loans, guarantees by other third parties, and additional credit enhancements provided through other means; and publicly available pricing data for recently issued student loan asset-backed securities not subject to auctions. In developing its estimate of the rate of return required by investors to own these securities, management compared the Penalty Rate of the Failed Auction Security with yields of actively traded long-term bonds with similar characteristics and, reflecting the limited liquidity for auction rate securities and the discounts to par value seen in recent tender offers by issuers and arm's length market transactions between informed buyers and sellers, estimated the implied yield (i.e., the discount to par value) necessary to complete a sale of the Failed Auction Security. Management has calculated an increase or decrease in the liquidity risk premium of 5.0% referenced above of 1.0% (i.e., 100 basis points) as used in the model, would decrease or increase, respectively, the fair value of the Failed Auction Security by approximately $100,000.

The significant unobservable inputs used in the fair value measurement of the Company's Failed Auction Security are the cumulative probability of earning the maximum rate until maturity, the cumulative probability of principal return prior to maturity, the cumulative probability of default, the liquidity risk premium, and the recovery rate in default. Significant increases (decreases) in any of those inputs in isolation would result in changes in fair value measurement. Significant increases (decreases) in the cumulative probability of earning the maximum rate until maturity, the cumulative probability of principal return prior to maturity, and the recovery rate in default would result in a higher (lower) fair value measurement, while increases (decreases) in the

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

cumulative probability of default and the liquidity risk premium would result in a (lower) higher fair value measurement.

Generally, the interrelationships are such that a change in the assumption used for the cumulative probability of principal return prior to maturity is accompanied by a directionally similar change in the assumption used for the cumulative probability of earning the maximum rate until maturity and a directionally opposite change in the assumptions used for the cumulative probability of default and the liquidity risk premium. The recovery rate in default is somewhat independent and based upon the securities' specific underlying assets and published recovery rate indices.

Quantitative information about Level 3 fair value measurements as of December 31, 2020 are as follows (dollars in thousands):

	Fair Value	Valuation Technique	Unobservable Input	Weighted Average
Failed Auction Security	$2,517	Discounted cash flow	Cumulative probability of earning the maximum rate until maturity	0.14 %
			Cumulative probability of principal return prior to maturity	93.62 %
			Cumulative probability of default	6.23 %
			Liquidity risk premium	5.00 %
			Recovery rate in default	40.00 %

The change in the estimated fair value calculated for the investment valued on a recurring basis utilizing Level 3 inputs (i.e., the Failed Auction Security) for the year ended December 31, 2020 was as follows (in thousands):

Balance at the beginning of the period	$2,510
Credit gain on available-for-sale security included in Other income (expense), net	4
Gain included in Other comprehensive income	3
Balance at the end of the period	$2,517

The Company has classified its contingent consideration obligations as Level 3 because the fair value for this liability was determined using unobservable inputs. The liability is based on estimated sales of legacy products over the period of royalty payments at the royalty rate (see Note 9), discounted using the Company's estimated cost of capital.

The change in the estimated fair value calculated for the liabilities valued on a recurring basis utilizing Level 3 inputs (i.e., the Contingent consideration obligations) for the year ended December 31, 2020 was as follows (in thousands):

Balance at the beginning of the period	$ 451
Payments	(224)
Balance at the end of the period	$ 227

There were no transfers between Level 1 and Level 2 of the fair value hierarchy during the year ended December 31, 2020.

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

6. PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment are stated at cost and are depreciated and amortized over a period of three to 39 years generally under the straight-line method for financial reporting purposes and accelerated methods for income tax purposes.

Property, plant and equipment as of December 31 were as follows (in thousands):

	2020	2019
Land	$ 3,600	$ 3,600
Buildings and improvements	45,905	45,791
Machinery and equipment	233,635	220,405
Furniture and fixtures	8,429	8,231
Construction in-progress and deposits	17,987	4,362
	309,556	282,389
Accumulated depreciation and amortization	(239,162)	(229,698)
Right of use asset — net	4,449	4,261
Net balance	$ 74,843	$ 56,952

Depreciation expense for the years ended December 31, 2020, 2019 and 2018 was approximately $10,950,000, $10,226,000, and $9,135,000, respectively. As of December 31, 2020, the Company had approximately $13,141,000 of capital expenditure commitments.

7. INTANGIBLE ASSETS

Patent costs, which are included in Other assets in the accompanying Consolidated Balance Sheets, as of December 31 were as follows (in thousands):

	2020	2019
Patent costs	$ 1,859	$ 1,992
Accumulated amortization	(1,434)	(1,483)
	$ 425	$ 509

Definite lived intangible assets, such as patent rights, are amortized and tested for impairment if a triggering event occurs.

Amortization expense was approximately $106,000, $108,000 and $119,000 in 2020, 2019 and 2018, respectively. The estimated future amortization expense from patent assets held as of December 31, 2020, is projected to be $96,000, $64,000, $54,000, $46,000 and $33,000, in fiscal years 2021, 2022, 2023, 2024, and 2025, respectively.

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

8. PRODUCT WARRANTIES

Product warranty activity for the years ended December 31 was as follows (in thousands):

	2020	2019	2018
Balance at the beginning of the period	$ 372	$ 268	$ 290
Accruals for warranties for products sold in the period	366	250	173
Fulfillment of warranty obligations	(398)	(140)	(117)
Revisions of estimated obligations	(32)	(6)	(78)
Balance at the end of the period	$ 308	$ 372	$ 268

9. CONTINGENT CONSIDERATION OBLIGATIONS

In connection with noncontrolling interest transactions completed in 2015 and 2016, the Company entered into arrangements with the selling principals such that the principals would receive quarterly royalty payments through June 30, 2021 for the sale of certain legacy products manufactured by the remaining Vicor Custom Power entities. The Company increased the liability by approximately $280,000 in the fourth quarter of 2019 based on a reassessment of the total remaining obligation under the royalty arrangements. The amount was included in selling, general, and administrative expenses.

10. STOCKHOLDERS' EQUITY

Each share of Common Stock entitles the holder thereof to one vote on all matters submitted to the stockholders.

Each share of Class B Common Stock entitles the holder thereof to ten votes on all such matters.

Shares of Class B Common Stock are not transferable by a stockholder except to or among the stockholder's spouse, certain of the stockholder's relatives, and certain other defined transferees. Class B Common Stock is not listed or traded on any exchange or in any market. Class B Common Stock is convertible at the option of the holder thereof at any time and without cost to the stockholder into shares of Common Stock on a one-for-one basis.

In November 2000, the Board of Directors of the Company authorized the repurchase of up to $30,000,000 of the Company's Common Stock (the "November 2000 Plan"). The plan authorizes the Company to make repurchases from time to time in the open market or through privately negotiated transactions. The timing of this program and the amount of the stock that may be repurchased is at the discretion of management based on its view of economic and financial market conditions. There were no repurchases under the November 2000 Plan in 2020, 2019, and 2018. On December 31, 2020, the Company had approximately $8,541,000 available for share repurchases under the November 2000 Plan.

In June 2020, the Company completed an underwritten public offering of its Common Stock, resulting in the issuance of a total of 1,769,231 shares of registered Common Stock and net proceeds of approximately $109,714,000, after deduction of underwriting discounts and offering expenses. The Company intends to use the net proceeds from the offering to expand its manufacturing facilities and for other general corporate purposes.

Dividends are declared at the discretion of the Company's Board of Directors and depend on actual cash from operations, the Company's financial condition and capital requirements and any other factors the Company's Board of Directors may consider relevant at the time. Common Stock and Class B Common Stock participate in dividends and earnings equally.

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

On December 31, 2020, 2019, and 2018, there were 21,852,334, 20,895,747, and 21,233,659, respectively, shares of Vicor Common Stock reserved for issuance upon exercise of Vicor stock options, upon conversion of Class B Common Stock and under the ESPP.

11. REVENUES

Revenue from the sale of Advanced Products represents the sum of third-party sales of the products sold under the Advanced Products line, which were sold under the former Picor and VI Chip operating segments during periods prior to the second quarter of 2019. Revenue from the sale of Brick Products represents the sum of third-party sales of the products sold under the Brick Products line, which were previously sold under the former Brick Business Unit operating segment, inclusive of such sales of our Vicor Custom Power and VJCL subsidiaries. See Note 19, *Segment Information*, for a discussion of changes to the Company’s segment reporting.

The following tables present the Company’s net revenues disaggregated by geography based on the location of the customer, by product line (in thousands):

	Twelve Months Ended December 31, 2020		
	Brick Products	Advanced Products	Total
United States	$ 80,065	$ 25,493	$ 105,558
Europe	23,491	6,641	30,132
Asia Pacific	83,985	73,899	157,884
All other	2,715	287	3,002
	$ 190,256	$ 106,320	$ 296,576

	Twelve Months Ended December 31, 2019		
	Brick Products	Advanced Products	Total
United States	$ 98,822	$ 22,806	$ 121,628
Europe	22,172	5,090	27,262
Asia Pacific	62,720	46,107	108,827
All other	4,182	1,078	5,260
	$ 187,896	$ 75,081	$ 262,977

	Twelve Months Ended December 31, 2018		
	Brick Products	Advanced Products	Total
United States	$ 77,995	$ 32,784	$ 110,779
Europe	23,484	4,205	27,689
Asia Pacific	80,097	66,981	147,078
All other	5,128	546	5,674
	$ 186,704	$ 104,516	$ 291,220

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The following tables present the Company's net revenues disaggregated by the category of revenue, by product line (in thousands):

	Twelve Months Ended December 31, 2020		
	Brick Products	Advanced Products	Total
Direct customers, contract manufacturers and non-stocking distributors	$ 160,004	$ 91,405	$ 251,409
Stocking distributors, net of sales allowances	29,411	8,510	37,921
Non-recurring engineering	841	6,181	7,022
Royalties	—	152	152
Other	—	72	72
	$ 190,256	$ 106,320	$ 296,576

	Twelve Months Ended December 31, 2019		
	Brick Products	Advanced Products	Total
Direct customers, contract manufacturers and non-stocking distributors	$ 159,135	$ 63,567	$ 222,702
Stocking distributors, net of sales allowances	27,797	9,802	37,599
Non-recurring engineering	843	1,614	2,457
Royalties	121	24	145
Other	—	74	74
	$ 187,896	$ 75,081	$ 262,977

	Twelve Months Ended December 31, 2018		
	Brick Products	Advanced Products	Total
Direct customers, contract manufacturers and non-stocking distributors	$ 163,206	$ 91,579	$ 254,785
Stocking distributors, net of sales allowances	22,362	9,370	31,732
Non-recurring engineering	1,066	3,356	4,422
Royalties	70	140	210
Other	—	71	71
	$ 186,704	$ 104,516	$ 291,220

The following table presents the changes in certain contract assets and (liabilities) (in thousands):

	December 31, 2020	December 31, 2019	Change
Accounts receivable	$ 40,999	$ 38,115	$ 2,884
Short-term deferred revenue and customer prepayments	(7,309)	(5,507)	(1,802)
Long-term deferred revenue	(733)	(1,054)	321
Deferred expenses	1,650	1,897	(247)
Sales allowances	(597)	(741)	144

The increase in accounts receivable was primarily due to an increase in net revenues of approximately $6,723,000 in December 2020 compared to December 2019.

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Deferred expenses are included in Other current assets, in the accompanying Consolidated Balance Sheets.

Net revenues from unaffiliated customers by geographic region, based on the location of the customer, for the years ended December 31 were as follows (in thousands):

	2020	2019	2018
United States	$105,558	$121,628	$110,779
Europe	30,132	27,262	27,689
Asia Pacific	157,884	108,827	147,078
All other	3,002	5,260	5,674
	$296,576	$262,977	$291,220

During 2020, 2019, and 2018, one customer accounted for approximately 18.5%, 12.7%, and 13.4% of net revenues, respectively, which included net revenues from both business product lines in each of the three years.

Net revenues from customers in China (including Hong Kong), the Company's largest international market, accounted for approximately 31.4% of total net revenues in 2020, 22.1% in 2019 and 37.4% in 2018, respectively.

12. STOCK-BASED COMPENSATION AND EMPLOYEE BENEFIT PLANS

Vicor currently grants options for the purchase of Common Stock (i.e., "stock options") under the following equity compensation plans that are stockholder-approved:

Amended and Restated 2000 Stock Option and Incentive Plan, as amended and restated (the "2000 Plan") — Under the 2000 Plan, the Board of Directors or the Compensation Committee of the Board of Directors may grant stock incentive awards based on the Company's Common Stock, including stock options, stock appreciation rights, restricted stock, performance shares, unrestricted stock, deferred stock, and dividend equivalent rights. Awards may be granted to employees and other key persons, including non-employee directors. Incentive stock options may be granted to employees at a price at least equal to the fair market value per share of the Common Stock on the date of grant, and non-qualified options may be granted to non-employee directors at a price at least equal to 85% of the fair market value of the Common Stock on the date of grant. A total of 10,000,000 shares of Common Stock have been reserved for issuance under the 2000 Plan. The period of time during which an option may be exercised and the vesting periods are determined by the Compensation Committee. The term of each option may not exceed 10 years from the date of grant.

Vicor Corporation 2017 Employee Stock Purchase Plan (the "Plan" or the "ESPP"). Under the ESPP, the Company has reserved 2,000,000 shares of Common Stock for issuance to eligible employees who elect to participate. The ESPP is intended to qualify as an "employee stock purchase plan" under Section 423 of the Internal Revenue Code. The ESPP operates in successive periods of approximately six months, each referred to as an "offering period." Generally, offering periods commence on or around September 1 and March 1 and end on or around the following February 28 or August 31, respectively. Under the ESPP, an option is granted to participating employees on the first day of an offering period to purchase shares of the Company's Common Stock at the end of that offering period at a purchase price equal to 85% of the lesser of the fair market value of a share of Common Stock on either the first day or the last day of that offering period. The purchase of shares is funded by means of periodic payroll deductions, which may not exceed 15.0% of the employee's eligible compensation, as defined in the Plan. Among other provisions, the Plan limits the number of shares that can be purchased by a participant during any offering period and cumulatively for any calendar year.

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

VI Chip Corporation ("VI Chip") was a privately held, majority-owned subsidiary of Vicor until June 28, 2019, at which date it was merged with and into Vicor, and its separate corporate existence ceased (see Note 18). Until that time, VI Chip could grant stock options under the *VI Chip Corporation Amended and Restated 2007 Stock Option and Incentive Plan* (the "2007 VI Chip Plan"), that had been approved by its Board of Directors. All awards thereunder were approved by the Compensation Committee of the Company's Board of Directors. To effect the merger, holders of VI Chip Common Stock and VI Chip stock options received an equivalent value of Vicor Common Stock and Vicor stock options, respectively, pursuant (with respect to the stock options) to the assumption of the 2007 VI Chip Plan, and options outstanding thereunder, by Vicor. No additional awards will be granted under the assumed and restated 2007 VI Chip Plan.

Picor Corporation ("Picor") was a privately held, majority-owned subsidiary of Vicor until May 30, 2018, at which date it was merged with and into Vicor, and its separate corporate existence ceased (see Note 18). Until that time, Picor could grant stock options under the *Picor Corporation Amended and Restated 2001 Stock Option and Incentive Plan* (the "2001 Picor Plan") that had been approved by its Board of Directors. All awards thereunder were approved by the Compensation Committee of the Company's Board of Directors. To effect the merger, holders of Picor Common Stock and Picor stock options received an equivalent value of Vicor Common Stock and Vicor stock options, respectively, pursuant (with respect to the stock options) to the assumption of the 2001 Picor Plan, and options outstanding thereunder, by Vicor. No additional awards will be granted under the assumed and restated 2001 Picor Plan.

All time-based (i.e., non-performance-based) options for the purchase of Vicor common stock are granted at an exercise price equal to or greater than the market price for Vicor Common Stock at the date of the grant. All time-based (i.e., non-performance-based) options for the purchase of VI Chip Common Stock and Picor Common Stock prior to the mergers and assumptions of the 2007 VI Chip Plan and of the 2001 Picor Plan, respectively, had been granted at an exercise price equal to or greater than the estimated fair market value of the respective share price, based on valuation methodologies consistent with U.S. GAAP and the requirements of Section 409A of the Internal Revenue Code, as amended (the "Code").

Stock-based compensation expense for the years ended December 31 was as follows (in thousands):

	2020	2019	2018
Cost of revenues	$ 934	$ 342	$ 237
Selling, general and administrative	3,164	1,979	2,517
Research and development	1,785	715	642
Total stock-based compensation	$5,883	$3,036	$3,396

The increase in stock option compensation expense in 2020 compared to 2019, was primarily due to an increase in the number of stock options granted and to the acceleration of recognition of compensation expense on stock options granted to retirement eligible employees, both associated with stock option awards in June 2020.

Compensation expense by type of award for the years ended December 31 was as follows (in thousands):

	2020	2019	2018
Stock options	$4,982	$2,072	$2,649
ESPP	901	964	747
Total stock-based compensation	$5,883	$3,036	$3,396

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The fair value for non-performance-based stock options awarded under the 2000 Plan for the years shown below was estimated at the date of grant using the Black-Scholes option pricing model with the following weighted-average assumptions:

	2020	2019	2018
Risk-free interest rate	0.5%	1.8%	2.9%
Expected dividend yield	—	—	—
Expected volatility	48%	42%	44%
Expected lives (years)	6.1	6.3	6.4

Risk-free interest rate:

The Company uses the yield on zero-coupon U.S. Treasury “Strip” securities for a period that is commensurate with the expected term assumption for each vesting period.

Expected dividend yield:

The Company determines the expected dividend yield by annualizing the most recent prior cash dividends declared by the Company’s Board of Directors, if any, and dividing that result by the closing stock price on the date of that dividend declaration. Dividends are not paid on options.

Expected volatility:

Vicor uses historical volatility to estimate the grant-date fair value of the options, using the expected term for the period over which to calculate the volatility (see below). The Company does not expect its future volatility to differ from its historical volatility. The computation of the Company’s volatility is based on a simple average calculation of monthly volatilities over the expected term.

Expected term:

The Company uses historical employee exercise and option expiration data to estimate the expected term assumption for the Black-Scholes grant-date valuation. The Company believes this historical data is currently the best estimate of the expected term of options, and all groups of the Company’s employees exhibit similar exercise behavior.

Forfeiture rate:

The amount of stock-based compensation recognized during a period is based on the value of the portion of the awards that are ultimately expected to vest. Forfeitures are estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. The term “forfeitures” is distinct from “cancellations” or “expirations” and represents only the unvested portion of the surrendered option. The forfeiture analysis is re-evaluated annually and the forfeiture rate is adjusted as necessary. Ultimately, the actual expense recognized over the vesting period will only be for those shares that vest.

Based on an analysis of historical forfeitures, the Company applied an annual forfeiture rate of 5.25% in 2020, 2019, and 2018, estimating approximately 85% of its options will actually vest in those three years.

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Vicor Stock Options

A summary of the activity under the 2000 Plan as of December 31, 2020 and changes during the year then ended, is presented below (in thousands except for share and weighted-average data):

	Options Outstanding	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Life in Years	Aggregate Intrinsic Value
Outstanding on December 31, 2019	2,687,896	$ 10.81		
Granted	354,075	$ 68.34		
Forfeited and expired	(69,987)	$ 23.77		
Exercised	(948,507)	$ 9.62		
Outstanding on December 31, 2020	2,023,477	$ 20.98	4.87	$144,153
Exercisable on December 31, 2020	924,964	$ 9.05	3.41	$ 76,932
Vested or expected to vest as of December 31, 2020(1)	1,947,127	$ 20.22	4.79	$140,186

(1) In addition to the vested options, the Company expects a portion of the unvested options to vest at some point in the future. The number of options expected to vest is calculated by applying an estimated forfeiture rate to the unvested options.

As of December 31, 2019 and 2018 the Company had options exercisable for 1,475,947 and 888,257 shares respectively, for which the weighted average exercise prices were $8.74 and $8.93, respectively.

During the years ended December 31, 2020, 2019, and 2018, the total intrinsic value of Vicor options exercised (i.e., the difference between the market price at exercise and the price paid by the employee to exercise the options) was approximately $50,410,000, $6,636,000, and $22,938,000, respectively. The total amount of cash received by the Company from options exercised in 2020, 2019, and 2018, was $9,127,000, $2,437,000, and $6,782,000, respectively. The total grant-date fair value of stock options granted during the years ended December 31, 2020, 2019, and 2018 was approximately $10,847,000, $1,657,000, and $2,921,000, respectively.

As of December 31, 2020, there was approximately $9,758,000 of total unrecognized compensation cost related to unvested non-performance based awards for Vicor. That cost is expected to be recognized over a weighted-average period of 1.6 years for those awards. The expense will be recognized as follows: $4,656,000 in 2021, $2,741,000 in 2022, $1,396,000 in 2023, $682,000 in 2024, and $283,000 in 2025.

The weighted-average fair value of Vicor options granted was $30.63, $14.30, and $17.46, in 2020, 2019, and 2018, respectively.

401(k) Plan

The Company sponsors a savings plan available to all domestic employees, which qualifies under Section 401(k) of the Code. Employees may contribute to the plan in amounts representing from 1% to 80% of their pre-tax salary, subject to statutory limitations. The Company matches employee contributions to the plan at a rate of 50%, up to the first 3% of an employee’s compensation. The Company’s matching contributions currently vest at a rate of 20% per year, based upon years of service. The Company’s contributions to the plan were approximately $1,031,000, $1,001,000, and $976,000 in 2020, 2019, and 2018, respectively.

Stock Bonus Plan

Under the Company's 1985 Stock Bonus Plan, as amended, shares of Common Stock may be awarded to employees from time to time as determined by the Board of Directors. On December 31, 2020, 109,964 shares were available for further award. All shares awarded to employees under this plan have vested. No further awards are contemplated under this plan at the present time.

13. LEASES

Substantially all of the Company's leases are classified as operating leases. The majority of the Company's leases are for office and manufacturing space, along with several automobiles and certain equipment. Leases with initial terms of less than twelve months are not recorded on the balance sheet. Expense for these leases is recognized on a straight-line basis over the lease term. The Company's leases have remaining terms of less than one year to just over six years. The majority of the Company's leases do not have options to renew, although several have renewal terms to extend the lease for one five-year term, and one lease contains two five-year renewal options. None of the renewal options are included in determining the term of the lease, used for calculating the associated lease liabilities. None of the Company's leases include variable payments, residual value guarantees or restrictive covenants. A number of the Company's leases for office and manufacturing space include provision for common area maintenance ("CAM"). The Company accounts for CAM separately from lease payments, and therefore costs for CAM are not included in the determination of lease liabilities. The Company is a party to one arrangement as the lessor, for its facility located in Sunnyvale, California, with a third party. The lessee under this lease has one option to renew the lease for a term of five years.

As of December 31, 2020, the balance of ROU assets was approximately $4,449,000, and the balances of short-term and long-term lease liabilities were approximately $1,629,000 and $2,968,000, respectively. For the year ended December 31, 2020, the Company recorded operating lease cost, including short-term lease cost, of approximately $1,943,000 ($1,870,000 in 2019). The ROU assets are included in "Property, plant and equipment, net" in the accompanying Consolidated Balance Sheets.

The maturities of the Company's lease liabilities are as follows (in thousands):

2021	$1,740
2022	1,316
2023	883
2024	663
2025	317
Total lease payments	$4,919
Less: Imputed interest	322
Present value of lease liabilities	$4,597

As of December 31, 2020, the weighted-average remaining lease term was 3.4 years and the weighted-average discount rate was 3.00% for the Company's operating leases. The Company developed the discount rates used based on a London Interbank Offered Rate ("LIBOR") over a term approximating the term of the related lease, plus an additional interest factor, which was generally 1.375%.

For the years ended December 31, 2020 and December 31, 2019, the Company paid approximately $1,930,000 and $1,857,000, respectively, for amounts included in the measurement of lease liabilities through operating cash flows. The Company obtained approximately $2,029,000 and $1,761,000 in ROU assets in exchange for $1,935,000 and $1,758,000 of new operating lease liabilities for the years ended December 31, 2020 and December 31, 2019, respectively.

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The maturities of the lease payments to be received by the Company under the lease agreement for its leased facility in California are as follows (in thousands):

2021	$ 901
2022	928
2023	955
2024	402
Total lease payments to be received	$3,186

The Company recorded net lease income under this lease of approximately $792,000 for each of the years ended December 31, 2020, 2019 and 2018.

14. SEVERANCE AND OTHER CHARGES

In May 2018, the Company's management authorized the closure of its Granite Power Technologies, Inc. ("GPT") subsidiary, which was part of the former Brick Business Unit ("BBU") segment, by the end of 2018. The closure was completed in December 2018. GPT, located in Manchester, N.H., was one of three Vicor Custom Power ("VCP") entities. Certain of GPT's products continue to be manufactured and sold by the two remaining VCP entities. As a result, the Company recorded a pre-tax charge of $350,000 in the second quarter of 2018, for the cost of severance and other employee-related costs involving cash payments based on each employee's respective length of service. This was recorded as "Severance and other charges" in the Consolidated Statement of Operations. Adjustments to reduce the charge were due to certain GPT employees accepting positions with Vicor, and for severance payments made to employees who had left GPT after the authorization of the closure. Adjustments to increase the charge, were due to an early termination fee under GPT's lease and for freight costs to transport GPT inventory and fixed assets to the two remaining VCP entities. The adjustments were recorded in the third and fourth quarters of 2018 for a total expense of $402,000 in 2018, as reported in the Consolidated Statement of Operations.

15. OTHER INCOME (EXPENSE), NET

The major changes in the components of Other income (expense), net for the years ended December 31 were as follows (in thousands):

	2020	2019	2018
Rental income, net	$ 792	$ 792	$ 792
Foreign currency gains (losses), net	181	(108)	(260)
Interest income	95	300	257
Gain on disposal of equipment	13	38	57
Credit gains on available-for-sale securities	4	4	7
Other	8	40	21
	$1,093	$1,066	$ 874

16. INCOME TAXES

The tax provision includes estimated federal, state and foreign income taxes on the Company's pre-tax income. The tax provisions also may include discrete items, generally related to increases or decreases in tax reserves, tax provision vs. tax return differences and accrued interest for potential liabilities.

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The reconciliation of the federal statutory rate on the income (loss) before income taxes to the effective income tax rate for the years ended December 31 is as follows:

	2020	2019	2018
Statutory federal tax rate	21.0%	21.0%	21.0%
State income taxes, net of federal income tax benefit	(0.5)	(8.1)	3.6
Increase (decrease) in valuation allowance	41.2	2.2	(9.1)
Permanent items	(48.7)	(3.9)	(5.9)
Tax credits	(11.2)	(15.6)	(5.5)
Provision vs. tax return differences	0.7	9.0	(1.7)
Foreign rate differential and deferred items	0.1	0.6	0.7
Change in tax reserves	—	—	0.1
Other	0.3	—	0.1
	2.9%	5.2%	3.3%

In 2020, the Company was in a taxable loss position which generated a net operating loss carryforward, primarily due to tax deductions on 2020 exercises of stock-based compensation of approximately $49,500,000.

In 2019, the Company utilized net operating loss carryforwards and tax credits to offset federal income tax expense.

In 2018, the Company utilized net operating loss carryforwards to offset federal income tax expense.

For financial reporting purposes, income before income taxes for the years ended December 31 include the following components (in thousands):

	2020	2019	2018
Domestic	$17,688	$13,493	$31,455
Foreign	773	1,394	1,478
	$18,461	$14,887	$32,933

Significant components of the provision (benefit) for income taxes for the years ended December 31 are as follows (in thousands):

	2020	2019	2018
Current:			
Federal	$215	$ —	$ —
State	93	268	231
Foreign	252	450	911
	560	718	1,142
Deferred:			
Foreign	(21)	60	(55)
	(21)	60	(55)
	$539	$778	$1,087

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The Tax Cuts and Jobs Act of 2017 (the "Tax Act") eliminated the deferral of U.S. income tax on accumulated foreign earnings by imposing a one-time mandatory transition tax on such earnings. As a result, a provisional amount of approximately $122,000 was recorded in 2017 as additional tax expense related to approximately $813,000 of untaxed accumulated unremitted foreign earnings. As noted above, the additional tax of $122,000 was fully offset by existing net operating losses in the U.S. Effective for the Company's 2018 tax year, foreign earnings were taxed in the U.S. under GILTI and FDII provisions of the Tax Act. As of December 31, 2020 and 2019, unremitted foreign earnings, which were not significant, were permanently re-invested in the Company's foreign subsidiaries. Upon repatriation of those earnings, in the form of dividends or otherwise, the Company could be subject to immaterial withholding taxes payable to the various foreign countries.

Significant components of the Company's deferred tax assets and liabilities as of December 31 were as follows (in thousands):

	2020	2019
Deferred tax assets:		
Research and development tax credit carryforwards	$ 29,046	$ 27,607
Net operating loss carryforwards	5,923	328
Inventory reserves	2,282	1,522
Investment tax credit carryforwards	1,927	2,102
Stock-based compensation	1,796	1,587
Vacation accrual	1,349	1,280
UNICAP	1,336	351
Accrued payroll tax deferral	764	—
Lease liabilities	518	679
Other	1,197	1,708
Total deferred tax assets	46,138	37,164
Less: Valuation allowance for deferred tax assets	(37,856)	(30,363)
Net deferred tax assets	8,282	6,801
Deferred tax liabilities:		
Depreciation	(6,809)	(5,296)
Prepaid expenses	(616)	(552)
ROU assets	(490)	(653)
Other	(141)	(95)
Total deferred tax liabilities	(8,056)	(6,596)
Net deferred tax assets (liabilities)	$ 226	$ 205

As of December 31, 2020, the Company has a valuation allowance of approximately $37,856,000 against all net domestic deferred tax assets, for which realization cannot be considered more likely than not at this time. Management assesses the need for the valuation allowance on a quarterly basis. In assessing the need for a valuation allowance, the Company considers all positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies, and past financial performance. While recent positive operating results, as a result of increases in bookings, caused the Company to be in a cumulative income position as of December 31, 2020, the Company faces uncertainties in forecasting its operating results due to the continued impact of the COVID-19 pandemic on the Company's supply chain, certain process issues with the production of Advanced Products and the unpredictability in certain markets. This operating uncertainty also makes it difficult to predict the availability and utilization of tax benefits over the next

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

several years. As a result, management has concluded, at this time, is more likely than not the Company's net domestic deferred tax assets will not be realized, and a full valuation allowance against all net domestic deferred tax assets is still warranted as of December 31, 2020. The valuation allowance against these deferred tax assets may require adjustment in the future based on changes in the mix of temporary differences, changes in tax laws, and operating performance. If the positive quarterly earnings and increases in bookings continue, and the Company's concerns about industry uncertainty and world events, including the impact of the COVID-19 pandemic on the Company's supply chain, and process issues with the production of Advanced Products are resolved, and the amount of tax benefits the Company is able to utilize to the point that the Company believes future taxable income can be more reliably forecasted, the Company may release all or a portion of the valuation allowance in the near-term. Certain state tax credits, though, will likely never be released by the valuation allowance. If and when the Company determines the valuation allowance should be released (i.e., reduced), the adjustment would result in a tax benefit reported in that period's Consolidated Statements of Operations, the effect of which would be an increase in reported net income.

The state and federal research and development tax credit carryforwards of approximately $11,344,000 and $19,423,000, respectively, expire beginning in 2020 for state purposes and in 2025 for federal purposes. The Company has federal net operating loss carryforwards generated after 2017 of approximately $24,990,000, which have an indefinite carryforward period and certain state operating loss carryforwards of approximately $10,241,000, which expire beginning in 2024.

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows (in thousands):

	2020	2019	2018
Balance on January 1	$2,070	$1,462	$1,104
Additions based on tax positions related to the current year	244	571	245
(Reductions) additions for tax positions of prior years	(13)	43	120
Lapse of statute	(4)	(6)	(7)
Balance on December 31	$2,297	$2,070	$1,462

The Company has reviewed the tax positions taken, or to be taken, in its tax returns for all tax years currently open to examination by a taxing authority. The total amount of unrecognized tax benefits, that is the aggregate tax effect of differences between tax return positions and the benefits recognized in the Company's financial statements, as of December 31, 2020, 2019, and 2018 of $2,297,000, $2,070,000, and $1,462,000, respectively, if recognized, may decrease the Company's income tax provision and effective tax rate. None of the unrecognized tax benefits as of December 31, 2020, are expected to significantly change during the next twelve months.

The Company recognizes accrued interest and penalties, if any, related to unrecognized tax benefits as a component of income tax expense. During the years ended December 31, 2020, 2019, and 2018, the Company recognized approximately $17,000, $7,000, and $7,000, respectively, in net interest expense. As of December 31, 2020 and 2019, the Company had accrued approximately $58,000 and $41,000, respectively, for the potential payment of interest.

The Company files income tax returns in the United States and various foreign tax jurisdictions. These tax returns are generally open to examination by the relevant tax authorities from three to seven years from the date they are filed. The tax filings relating to the Company's federal and state taxes are currently open to examination for tax years 2017 through 2019 and 2011 through 2019, respectively. In addition, the Company generated federal research and development credits in tax years 2005 through 2015. These years may also be subject to examination when the credits are carried forward and utilized in future years.

There are no income tax examinations or audits currently in process.

17. COMMITMENTS AND CONTINGENCIES

The Company is the defendant in a patent infringement lawsuit originally filed on January 28, 2011 by SynQor, Inc. ("SynQor") in the U.S. District Court for the Eastern District of Texas (the "Texas Action"). The complaint, as amended, alleges that the Company's products, including but not limited to, unregulated bus converters used in intermediate bus architecture power supply systems, infringe SynQor's U.S. patent numbers 7,072,190, 7,272,021, 7,564,702, and 8,023,290 ("the '190 patent", "the '021 patent", "the '702 patent", and "the '290 patent", respectively). SynQor's complaint sought an injunction against further infringement and an award of unspecified compensatory and enhanced damages, interest, costs and attorney fees. The Company has denied that its products infringe any of the SynQor patents, and has asserted that the SynQor patents are invalid and/or unenforceable. The Company has also asserted counterclaims seeking damages from SynQor for deceptive trade practices and tortious interference with prospective economic advantage arising from SynQor's attempted enforcement of its patents against the Company.

On May 23, 2016, after extensive discovery, the Texas Action was stayed by the court pending completion of certain inter partes reexamination ("IPRx") proceedings at the United States Patent and Trademark Office ("USPTO") (including any appeals from such proceedings to the Federal Circuit (as defined below)) concerning the SynQor patents, which are described below. That stay remains in force.

In 2011, in response to the filing of the Texas Action, the Company initiated IPRx proceedings at the USPTO challenging the validity of all claims that were asserted against the Company by SynQor. The current status of these proceedings is as follows. Regarding the '190 patent IPRx, the United States Court of Appeals for the Federal Circuit (the "Federal Circuit") issued a decision on March 13, 2015, determining that certain claims were invalid and remanding the matter to the Patent Trial and Appeal Board ("PTAB") of the USPTO for further proceedings. On February 20, 2019, the PTAB issued a decision finding that all of the remaining challenged claims were unpatentable. SynQor appealed that decision. On February 22, 2021, the Federal Circuit issued a decision in that appeal. In a 2-1 ruling, the Federal Circuit vacated and remanded the PTAB's decision, finding that the reasoning the PTAB had relied on in reaching its decision was precluded by certain prior PTAB rulings regarding the '290 and '702 patents.

On August 30, 2017, the Federal Circuit issued rulings with regard to the IPRx proceedings for the '021, '702 and '290 patents. With respect to the '021 patent, the Federal Circuit affirmed the PTAB's determination that all of the challenged claims of the '021 patent were invalid. The Federal Circuit remanded the case to the PTAB for further consideration of the patentability of certain claims that had been added by amendment during the reexamination. On February 20, 2019, the PTAB issued a decision affirming the examiner's rejections of all challenged claims. SynQor has filed an appeal of that decision in the Federal Circuit. That appeal has been stayed pending resolution of the pending appeal regarding the '190 patent IPRx. With respect to the '702 patent, the Federal Circuit affirmed the PTAB's determination that all of the challenged claims of the '702 patent were patentable. With respect to the '290 patent, the Federal Circuit vacated the PTAB's decision upholding the patentability of the '290 patent claims, and remanded the case to the PTAB for further consideration. On February 20, 2019, the PTAB issued a decision reversing its prior affirmance of the examiner's non-adoption of rejections with respect to the '290 patent, and entering rejections of all of the claims of the '290 patent. On May 20, 2019, as permitted by USPTO rules, SynQor requested the USPTO to reopen prosecution of this proceeding to address the new rejections made by the PTAB. On September 28, 2020, the examiner issued a decision reaffirming the PTAB's rejection of all of the claims of the '290 patent. The Company expects that SynQor will appeal this decision.

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

On October 31, 2017, the Company filed a request with the USPTO for ex parte reexamination ("EPRx") of the asserted claims of the '702 patent, based on different prior art references than had been at issue in the previous IPRx of the '702 patent. On August 6, 2018, the Company filed a similar request with the USPTO for EPRx of the asserted claims of the '190 patent, based on different prior art references than had been at issue in the previous IPRx of the '190 patent. On December 18, 2020, the PTAB issued rulings upholding the validity of the asserted claims in the EPRx proceedings for both the '702 and '190 patents. Accordingly, both of those proceedings are now terminated.

On January 23, 2018, the 20-year terms of the '190 patent, the '021 patent, the '702 patent and the '290 patent expired. As a consequence of these expirations, the Company cannot be liable under any of the SynQor patents for allegedly infringing activities occurring after that date. In addition, any amended claims that may issue as a result of any of the still-pending reexamination proceedings will have no effective term and cannot be the basis for any liability by the Company.

The Company continues to believe none of its products, including its unregulated bus converters, infringe any valid claim of the asserted SynQor patents, either alone or when used in an intermediate bus architecture implementation. The Company believes SynQor's claims lack merit and, therefore, it continues to vigorously defend itself against SynQor's patent infringement allegations. The Company does not believe a loss is probable for this matter. If a loss were to be incurred, however, the Company cannot estimate the amount of possible loss or range of possible loss at this time.

In addition to the SynQor matter, the Company is involved in certain other litigation and claims incidental to the conduct of its business. While the outcome of lawsuits and claims against the Company cannot be predicted with certainty, management does not expect any current litigation or claims will have a material adverse impact on the Company's financial position or results of operations.

18. VI CHIP AND PICOR MERGERS

On June 28, 2019, the Company's Board of Directors unanimously approved the merger of VI Chip, a subsidiary of Vicor that was fully consolidated for financial reporting purposes, with and into the Company. The merger was completed as of June 28, 2019, at which time the separate corporate existence of VI Chip ceased. To effect the merger, holders of VI Chip common stock and VI Chip stock options received an equivalent value of Vicor Common Stock and Vicor stock options, respectively, pursuant (with respect to the stock options) to the assumption of the 2007 VI Chip Plan, and options outstanding thereunder, by the Company.

On May 25, 2018, the Company's Board of Directors unanimously approved the merger of Picor, a subsidiary of Vicor that was fully consolidated for financial reporting purposes, with and into the Company. The merger was completed as of May 30, 2018, at which time the separate corporate existence of Picor ceased. To effect the merger, holders of Picor Common Stock and Picor stock options received an equivalent value of Vicor Common Stock and Vicor stock options, respectively, pursuant (with respect to the stock options) to the assumption of the 2001 Picor Plan, and options outstanding thereunder, by the Company.

There was no net impact on the Company's consolidated financial statements for the years ended December 31, 2019 and 2018 as a result of the mergers.

19. SEGMENT INFORMATION

In the second quarter of 2019, management determined, with the approval of the Company's Board of Directors and Chief Operating Decision Maker ("CODM"), Dr. Vinciarelli, the Company would report as one

VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

segment, rather than under the three segment approach previously employed since 2007. The Company's strategy had evolved with a transition in organizational focus, emphasizing investment in Advanced Products, targeting high growth market segments with a low-mix, high-volume operational model, while maintaining a profitable business in mature market segments the Company serves with Brick Products with a high-mix, low-volume operational model. Dr. Vinciarelli and management began to make incremental changes in management practices and organizational structure based on a management plan established in 2018 for the definitive reconfiguration of the three business units into one business focused on the Advanced Products and Brick Products product line categorizations, including three significant changes: the merger of Picor with and into Vicor, which was completed on May 25, 2018; the reconfiguration of the Company's internal reporting systems, which was completed on December 31, 2018; and the merger of VI Chip with and into Vicor, which was completed on June 28, 2019. Our CODM now determines the allocation of resources of the Company based upon the two product groupings, which constitute one segment. Both product lines are built in the Company's manufacturing facility in Andover, Massachusetts employing similar processing and production techniques, and are supported by the same sales and marketing organizations. As such, the Company has conformed the segment reporting to the new reporting structure utilized by the CODM. Accordingly, three-segment information for prior periods has not been presented, to conform with the new presentation.

20. QUARTERLY RESULTS OF OPERATIONS (Unaudited)

The following table sets forth certain unaudited quarterly financial data for the years ended December 31 (in thousands, except per share amounts):

	First	Second	Third	Fourth	Total
2020:					
Net revenues	$ 63,401	$70,761	$ 78,112	$ 84,302	$ 296,576
Gross margin	27,331	30,318	33,347	40,451	131,447
Consolidated net (loss) income	(1,731)	2,672	5,786	11,195	17,922
Net income attributable to noncontrolling interest	4	5	1	2	12
Net (loss) income attributable to Vicor Corporation	(1,735)	2,667	5,785	11,193	17,910
Net (loss) income per share attributable to Vicor Corporation:					
Basic	(0.04)	0.06	0.13	0.26	0.42
Diluted	(0.04)	0.06	0.13	0.25	0.41

	First	Second	Third	Fourth	Total
2019:					
Net revenues	$ 65,725	$63,355	$ 70,772	$ 63,125	$ 262,977
Gross margin	31,086	29,117	33,002	29,761	122,966
Consolidated net income	4,306	2,556	5,932	1,315	14,109
Net income (loss) attributable to noncontrolling interest	20	(7)	(5)	3	11
Net income attributable to Vicor Corporation	4,286	2,563	5,937	1,312	14,098
Net income per share attributable to Vicor Corporation:					
Basic	0.11	0.06	0.15	0.03	0.35
Diluted	0.10	0.06	0.14	0.03	0.34

ITEM 9. ***CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE***

None.

ITEM 9A. ***CONTROLS AND PROCEDURES***

Attached as exhibits to this Annual Report on Form 10-K are certifications of our CEO and Chief Financial Officer ("CFO"), which are required in accordance with Rule 13a-14 of the Exchange Act. This "Controls and Procedures" section includes information concerning the controls and controls evaluation referred to in the certifications.

(a) Evaluation of disclosure controls and procedures

As required by Rule 13a-15 under the Exchange Act, management, with the participation of our CEO and CFO, conducted an evaluation regarding the effectiveness of our disclosure controls and procedures, as of the end of the last fiscal year. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Securities and Exchange Commission's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the Company's management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. We recognize any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and we necessarily apply our judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of the Company's disclosure controls and procedures as of December 31, 2020, the CEO and CFO concluded, as of such date, the Company's disclosure controls and procedures were effective at the reasonable assurance level.

(b) Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Internal control over financial reporting includes those policies and procedures: (a) pertaining to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of our assets; (b) providing 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 are being made only in accordance with authorizations of our management and Board of Directors; and (c) providing reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of our assets that could have a material effect on our financial statements.

Management assessed our internal control over financial reporting as of December 31, 2020, the end of our fiscal year. Management based its assessment on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Management's assessment included evaluation of such elements as the design and operating effectiveness of key financial reporting controls, process documentation, accounting policies, and our overall control environment.

Based on our assessment, management has concluded that our internal control over financial reporting was effective as of December 31, 2020.

The effectiveness of our internal control over financial reporting as of December 31, 2020 has been audited by KPMG LLP, our independent registered public accounting firm, as stated in their report which is included immediately below.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and Board of Directors
Vicor Corporation:

Opinion on Internal Control Over Financial Reporting

We have audited Vicor Corporation and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2020, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2020 and 2019, the related consolidated statements of operations, comprehensive income, cash flows, and equity for each of the years in the three-year period ended December 31, 2020, and the related notes and financial statement schedule listed in Item 15(a)(2) (collectively, the consolidated financial statements), and our report dated March 1, 2021 expressed an unqualified opinion on those consolidated 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 of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included 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/ KPMG LLP

Boston, Massachusetts
March 1, 2021

(c) Inherent Limitations on Effectiveness of Controls

The Company's management, including the CEO and CFO, does not expect that our disclosure controls or our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. The design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Further, because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, within the Company have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of simple error or mistake. Controls can also be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls is based in part on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Projections of any evaluation of controls effectiveness to future periods are subject to risks. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures.

(d) Changes in Internal Control Over Financial Reporting

There was no change in our internal control over financial reporting that occurred during the fiscal quarter ended December 31, 2020, that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

ITEM 9B. ***OTHER INFORMATION***

None.

PART III

ITEM 10. ***DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE***

Incorporated by reference from the Company's Definitive Proxy Statement for its 2021 annual meeting of stockholders.

ITEM 11. ***EXECUTIVE COMPENSATION***

Incorporated by reference from the Company's Definitive Proxy Statement for its 2021 annual meeting of stockholders.

ITEM 12. ***SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS***

Incorporated by reference from the Company's Definitive Proxy Statement for its 2021 annual meeting of stockholders.

ITEM 13. ***CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE***

Incorporated by reference from the Company's Definitive Proxy Statement for its 2021 annual meeting of stockholders.

ITEM 14. ***PRINCIPAL ACCOUNTANT FEES AND SERVICES***

Incorporated by reference from the Company's Definitive Proxy Statement for its 2021 annual meeting of stockholders.

PART IV

ITEM 15. ***EXHIBITS AND FINANCIAL STATEMENT SCHEDULES***

(a) (1) *Financial Statements*

See index in Item 8.

(a) (2) *Schedules*

Schedule II Valuation and Qualifying Accounts

All other schedules for which provision is made in the applicable accounting regulation of the Securities and Exchange Commission are not required under the related instructions or are inapplicable, and therefore have been omitted.

(b) *Exhibits*

Exhibits	Description of Document
3.1	Restated Certificate of Incorporation, dated February 28, 1990 (1)
3.2	Certificate of Ownership and Merger Merging Westcor Corporation, a Delaware Corporation, into Vicor Corporation, a Delaware Corporation, dated December 3, 1990 (1)
3.3	Certificate of Amendment of Restated Certificate of Incorporation, dated May 10, 1991 (1)
3.4	Certificate of Amendment of Restated Certificate of Incorporation, dated June 23, 1992 (1)
3.5	Bylaws, as amended (8)
4.1	Specimen Common Stock Certificate (2)
4.2	Description of Securities Registered under Section 12 of the Exchange Act (16)
10.1*	1998 Stock Option and Incentive Plan (3)
10.2*	Vicor Corporation Amended and Restated 2000 Stock Option and Incentive Plan, as amended and restated (4)
10.3*	Form of Non-Qualified Stock Option under the Vicor Corporation Amended and Restated 2000 Stock Option and Incentive Plan (5)
10.4*	Sales Incentive Plan (6)
10.5*	Picor Corporation Amended and Restated 2001 Stock Option and Incentive Plan, dated May 30, 2018 (14)
10.6*	Form of Non-Qualified Stock Option under the Picor Corporation 2001 Stock Option and Incentive Plan (7)
10.7*	VI Chip Corporation Amended and Restated 2007 Stock Option and Incentive Plan (11)
10.8*	Form of Non-Qualified Stock Option Agreement under the VI Chip Corporation Amended 2007 Stock Option and Incentive Plan (9)
10.9*	Form of Incentive Stock Option Agreement under the VI Chip Corporation Amended 2007 Stock Option and Incentive Plan (10)
10.10*	Form of Stock Restriction Agreement under the VI Chip Corporation Amended 2007 Stock Option and Incentive Plan (10)
10.11*	Vicor Corporation 2017 Employee Stock Purchase Plan (13)
10.12*	VI Chip Corporation Amended and Restated 2007 Stock Option and Incentive Plan, as Amended and Restated (15)
10.13*	Summary of Compensation Agreement between Vicor Corporation and Andrew D'Amico (16)
21.1	Subsidiaries of the Company (16)
23.1	Consent of KPMG LLP (16)
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a) of the Exchange Act (16)
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a) of the Exchange Act (16)
32.1	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (16)
32.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (16)
101.INS**	Inline XBRL Instance Document — the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH**	Inline XBRL Taxonomy Extension Schema Document.
101.CAL**	Inline XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF**	Inline XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB**	Inline XBRL Taxonomy Extension Label Linkbase Document.
101.PRE**	Inline XBRL Taxonomy Extension Presentation Linkbase Document.
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

* Indicates a management contract or compensatory plan or arrangement required to be filled pursuant to Item 15(b) of Form 10-K.

** Filed with this Annual Report on Form 10-K for the year ended December 31, 2020 are the following documents formatted in iXBRL (Inline Extensible Business Reporting Language): (i) the Consolidated

Balance Sheets for the years ended December 31, 2020 and 2019; (ii) the Consolidated Statements of Operations for the years ended December 31, 2020, 2019 and 2018; (iii) the Consolidated Statements of Comprehensive Income for the years ended December 31, 2020, 2019 and 2018; (iv) the Consolidated Statements of Cash Flows for the years ended December 31, 2020, 2019 and 2018; (v) the Consolidated Statements of Equity for the years ended December 31, 2020, 2019 and 2018; and (vi) the Notes to Consolidated Financial Statements.

(1) Filed as an exhibit to the Company’s Annual Report on Form 10-K filed on March 29, 2001 and incorporated herein by reference.
(2) Filed as an exhibit to the Company’s Registration Statement on Form 10, as amended, under the Securities Exchange Act of 1934 (File No. 0-18277), and incorporated herein by reference. (P)
(3) Filed as an exhibit to the Company’s Registration Statement on Form S-8, as amended, under the Securities Act of 1933 (No. 333-61177), and incorporated herein by reference.
(4) Filed as Appendix A to the Company’s Definitive Proxy Statement on Schedule 14A filed with the SEC on May 1, 2017 (File No. 000-18277), and incorporated herein by reference.
(5) Filed as an exhibit to the Company’s Quarterly Report on Form 10-Q filed on November 4, 2004 (File No. 0-18277) and incorporated herein by reference.
(6) Filed as an exhibit to the Company’s Annual Report on Form 10-K filed on March 16, 2005 (File No. 0-18277) and incorporated herein by reference.
(7) Filed as an exhibit to the Company’s Annual Report on Form 10-K filed on March 14, 2006 (File No. 0-18277) and incorporated herein by reference.
(8) Filed as an exhibit to the Company’s Current Report on Form 8-K filed on June 4, 2020 (File No. 0-18277) and incorporated herein by reference.
(9) Filed as an exhibit to the Company’s Current Report on Form 8-K, dated June 6, 2007 (File No. 0-18277) and incorporated herein by reference.
(10) Filed as an exhibit to the Company’s Current Report and Form 8-K, dated March 6, 2008 (File No. 0-18277) incorporated herein by reference.
(11) Filed as Appendix B to the Company’s Definitive Proxy Statement on Schedule 14A filed with the SEC on May 1, 2017 (File No. 000-18277), and incorporated herein by reference.
(12) Filed as Appendix C to the Company’s Definitive Proxy Statement on Schedule 14A filed with the SEC on May 1, 2017 (File No. 000-18277), and incorporated herein by reference.
(13) Filed as Appendix D to the Company’s Definitive Proxy Statement on Schedule 14A filed with the SEC on May 1, 2017 (File No. 000-18277), and incorporated herein by reference.
(14) Filed as Exhibit 10.1 to the Company’s Current Report on Form 8-K filed with the SEC on June 5, 2018 (File No. 000-18277), and incorporated herein by reference.
(15) Filed as Exhibit 10.1 to the Company’s Registration Statement on Form S-8, under the Securities Act of 1933 (No. 333-232864), and incorporated herein by reference.
(16) Filed herewith.

ITEM 16. FORM 10-K SUMMARY

None.

Table of Contents

VICOR CORPORATION

SCHEDULE II
VALUATION AND QUALIFYING ACCOUNTS
Years ended December 31, 2020, 2019 and 2018

Description	Balance at Beginning of Period	Charge (Recovery)to Costs and Expenses	Other Charges, Deductions (1)	Balance at End of Period
Allowance for doubtful accounts:				
Year ended:				
December 31, 2020	$ 59,000	$ 23,000	$ —	$ 82,000
December 31, 2019	224,000	(144,000)	(21,000)	59,000
December 31, 2018	159,000	65,000	—	224,000

(1) Reflects uncollectible accounts written off, net of recoveries.

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.

Vicor Corporation

By: /s/ James A. Simms
James A. Simms
Vice President, Chief Financial Officer

Date: March 1, 2021

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

Signature	Title	Date
/s/ Patrizio Vinciarelli Patrizio Vinciarelli	President, Chief Executive Officer and Chairman of the Board (Principal Executive Officer)	March 1, 2021
/s/ James A. Simms James A. Simms	Chief Financial Officer and Vice President (Principal Financial Officer and Principal Accounting Officer)	March 1, 2021
/s/ Estia J. Eichten Estia J. Eichten	Director	March 1, 2021
/s/ Michael S. McNamara Michael S. McNamara	Director	March 1, 2021
/s/ Samuel J. Anderson Samuel J. Anderson	Director	March 1, 2021
/s/ Claudio Tuozzolo Claudio Tuozzolo	Director	March 1, 2021
/s/ Jason L. Carlson Jason L. Carlson	Director	March 1, 2021
/s/ Philip D. Davies Philip D. Davies	Director	March 1, 2021
/s/ Andrew T. D’Amico Andrew T. D’Amico	Director	March 1, 2021

EXHIBIT 4.2

**DESCRIPTION OF THE REGISTRANT'S SECURITIES
REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES
EXCHANGE ACT OF 1934**

Vicor Corporation ("Vicor" or the "Company") has two classes of common stock outstanding: shares of Common Stock, par value $0.01 per share ("Common Stock"), which are registered pursuant to Section 12(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and listed on The NASDAQ Stock Market LLC under the ticker symbol "VICR", and shares of our Class B Common Stock, par value $0.01 per share ("Class B Common Stock"), which are not subject to registration pursuant to Section 12 of the Exchange Act and are not listed on any exchange.

Description of Capital Stock

The following description of our capital stock is a summary and does not purport to be complete. It is subject to, and qualified in its entirety by reference to, our Restated Certificate of Incorporation, as amended (the "Certificate of Incorporation"), and our By-Laws, as amended (the "By-Laws"), each of which are incorporated by reference as an exhibit to the Annual Report on Form 10-K of which this Exhibit 4.2 is a part. We encourage you to read our Certificate of Incorporation, our By-Laws and the applicable provisions of the Delaware General Corporation Law for additional information.

Authorized Shares of Capital Stock

Our authorized capital stock consists of 77,000,000 shares, of which 62,000,000 are designated as Common Stock, 14,000,000 are designated as Class B Common Stock, and 1,000,000 are designated as Preferred Stock, par value $0.01 per share ("Preferred Stock"). Of the Preferred Stock, 175,000 shares were designated as Series A Convertible Preferred Stock (the "Series A Preferred"), 110,000 shares were designated as Series B Convertible Preferred Stock (the "Series B Preferred") and 75,001 shares were designated as Series C Convertible Preferred Stock (the "Series C Preferred" and, together with the Series A Preferred and the Series B Preferred, collectively, the "Designated Preferred Stock").

Common Stock

Voting Rights. Each holder of Common Stock is entitled to one vote for each share held on matters submitted to a vote of stockholders. Holders of shares of Common Stock and holders of shares of Class B Common Stock vote together as a single class on all matters lawfully submitted to a vote of stockholders, except as otherwise required by law and except as otherwise provided in our Certificate of Incorporation. See "Class B Common Stock" and "Preferred Stock" below for a discussion of certain circumstances under which holders of shares of Common Stock and holders of shares of Class B Common Stock do not vote together as a single class.

The provisions of Articles Fourth and Ninth of our Certificate of Incorporation (which address the rights of the Company's capital stock and amendments to the Certificate of Incorporation) may not be modified, revised, altered, amended, repealed or rescinded, except by the affirmative vote of the holders of a majority in interest of each class of the Company's outstanding capital stock entitled to vote generally in the election of the directors, voting as separate classes.

Our Certificate of Incorporation does not provide for cumulative voting for the election of directors.

Dividends. Subject to preferences that may apply to any outstanding shares of Preferred Stock, dividends may be declared by the Board of Directors upon and paid to the holders of Common Stock and Class B Common Stock out of funds legally available therefor. Such dividends, when, as and if declared and paid, shall be so declared and paid to such holders pro rata according to the number of shares of Common Stock and Class B Common Stock held by each such holder (with the number of shares of outstanding Common Stock and Class B Common Stock being aggregated and considered a single class for this purpose). No dividend or other distribution may be declared upon the Common Stock, whether payable in cash or in shares of Common Stock or otherwise, unless a comparable dividend shall be declared upon the Class B Common Stock and vice versa. If the dividend declared upon the Common Stock is payable in shares of Common Stock, the comparable dividend declared upon the Class B Common Stock shall be payable in shares of Class B Common Stock, and vice versa.

Liquidation Rights. In the event of the liquidation, dissolution, or winding up of the Company, after payment or provision for payment of the debts and liabilities of the Company and the amounts to which holders of Preferred Stock, if any, may be entitled, holders of shares of Common Stock will be entitled to share ratably as one class with the holders of shares of Class B Common Stock in the remaining assets of the Company.

Preemptive, Conversion, or Redemption Rights. Holders of Common Stock have no preemptive rights and no right to convert their Common Stock into other securities. There are no redemption or sinking fund provisions applicable to our Common Stock.

A share of Class B Common Stock is convertible into one share of Common Stock in certain circumstances, as described below under “Class B Common Stock.”

Listing. Our Common Stock is listed on The NASDAQ Global Select Market under the symbol “VICR.”

Transfer Agent and Registrar. The Transfer Agent and Registrar for our Common Stock is Computershare Trust Company, N.A., located at College Station, Texas.

A discussion of the rights of the Class B Common Stock and the Preferred Stock, which affect or may affect the rights of the Common Stock, follows.

Class B Common Stock

Increases in Authorized and Outstanding Shares. Under our Certificate of Incorporation, we may not increase the authorized number of shares of Class B Common Stock without the affirmative vote of a majority of all votes entitled to be cast by the holders of the Common Stock and Class B Common Stock, voting as separate classes. We also may not issue any shares of Class B Common Stock, other than in connection with stock dividends and similar transactions, unless that issuance is approved by the affirmative vote of at least two-thirds in interest of the holders of our Common Stock and Class B Common Stock, voting as separate classes.

Voting Rights. Each holder of Class B Common Stock is entitled to 10 votes for each such share held on matters submitted to a vote of stockholders. Holders of shares of Common Stock and holders of shares of Class B Common Stock vote together as a single class on all matters lawfully submitted to a vote of stockholders, except as otherwise required by law and except as otherwise provided in our Certificate of Incorporation.

Dividends. See “Common Stock – *Dividends*” above.

Liquidation Rights. In the event of the liquidation, dissolution, or winding up of the Company, after payment or provision for payment of the debts and liabilities of the Company and the amounts to which holders of Preferred Stock, if any, may be entitled, holders of shares of Class B Common Stock will be entitled to share ratably as one class with the holders of shares of Common Stock in the remaining assets of the Company.

Preemptive, Conversion, or Redemption Rights. Holders of Class B Common Stock have no preemptive rights, and there are no redemption or sinking fund provisions applicable to Class B Common Stock.

Each share of Class B Common Stock may, at any time, at the option of the holder, be converted into one share of Common Stock. Each outstanding share of Class B Common Stock will be converted into one share of

Common Stock at such time as the total number of outstanding shares of Class B Common Stock represents less than 10% of the aggregate number of outstanding shares of Common Stock and Class B Common Stock. All shares of Class B Common Stock converted into Common Stock as described in this paragraph will be retired and revert to the status of authorized and unissued shares of Class B Common Stock.

Restrictions on Transfer. While certain transfers of shares of Class B Common Stock to certain "permitted transferees" for tax and estate planning purposes are authorized in our Certificate of Incorporation, shares of Class B Common Stock are generally subject to restrictions on sale or other transfers. Any transfer of shares of Class B Common Stock not permitted under the Certificate of Incorporation will result in the automatic conversion of those shares of Class B Common Stock into an equal number of shares of Common Stock.

Preferred Stock

Our authorized capital stock includes 1,000,000 shares designated as Preferred Stock, of which 175,000 were designated as Series A Preferred, 110,000 were designated as Series B Preferred, and 75,001 were designated as Series C Preferred. Currently, no shares of Preferred Stock are issued and outstanding. All previously issued and outstanding shares of Designated Preferred Stock have been converted into shares of our Common Stock and are not available for reissuance.

In the future, our Board of Directors may, without further action by holders of our capital stock, fix the rights, preferences, and restrictions of up to the remaining 639,999 authorized shares of Preferred Stock in one or more series and authorize their issuance; provided, however, that the issuance of any shares of Preferred Stock carrying in excess of one vote per share or convertible into shares of Class B Common Stock will require the prior approval of at least two-thirds in interest of the holders of the Common Stock and Class B Common Stock, voting as separate classes.

The rights and preferences of the Preferred Stock issued could include voting rights, dividend rights, conversion rights, redemption rights, liquidation preferences, and sinking fund terms, any or all of which may be greater than or superior to the rights of our Common Stock or Class B Common Stock. Accordingly, the issuance of Preferred Stock could adversely affect the voting power of holders of Common Stock or Class B Common Stock and the likelihood that such holders will receive dividend payments and payments upon liquidation, dissolution, or winding up of the Company. In addition, the issuance of Preferred Stock could have the effect of delaying, deferring, or preventing a change of control or other corporate action.

Voting Control and Anti-Takeover Provisions

The ownership of our Common Stock and Class B Common Stock is concentrated primarily between Dr. Vinciarelli, Chairman of the Board, President, and Chief Executive Officer of the Company, and a limited number of institutional investors. Accordingly, Dr. Vinciarelli has significant influence over all matters requiring stockholder approval, including the election of directors and significant corporate transactions, such as a change of control event (e.g., a merger or sale of the Company or its assets) or a liquidation, dissolution, or winding up of the Company.

Section 203 of the Delaware General Corporation Law

We are subject to Section 203 of the Delaware General Corporation Law, which prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, with the following exceptions:

- before such date, the Board of Directors approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the

time the transaction began, excluding for purposes of determining the voting stock outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned (i) by persons who are directors and also corporate officers and (ii) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

- on or after such date, the business combination is approved by the Board of Directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least two-thirds of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 defines business combination to include the following:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge, or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;
- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder; or
- the receipt by the interested stockholder of the benefit of any loss, advances, guarantees, pledges, or other financial benefits by or through the corporation.

In general, Section 203 defines an “interested stockholder” as an entity or person who, together with the person’s affiliates and associates, beneficially owns, or within three years prior to the time of determination of interested stockholder status did own, 15% or more of the outstanding voting stock of the corporation.

Exhibit 10.13

SUMMARY OF COMPENSATION AGREEMENT
BETWEEN VICOR CORPORATION AND ANDREW D’AMICO

The following is a description of the compensation agreement between Vicor Corporation (the “Company”) and Andrew D’Amico, provided pursuant to Item 601(b)(10)(iii)(A) of Regulation S-K promulgated by the Securities and Exchange Commission, which requires a written description of a compensatory agreement when no formal document exists.

Mr. D’Amico has served in the role of general counsel for the Company for intellectual property matters since January 2006. Pursuant to an informal compensation agreement between the Company and Mr. D’Amico (the “Agreement”), in exchange for his services as general counsel, the Company has agreed to pay Mr. D’Amico a fee of $30,000 per month, as well as reimbursement of expenses incurred in connection with his provision of services to the Company. Also pursuant to the Agreement, Mr. D’Amico is entitled to an incentive fee equal to 3% of the royalties received by the Company pursuant to certain license agreements negotiated by Mr. D’Amico on behalf of the Company. The aggregate amount of such incentive fees is limited to $1,000,000, although this amount may be increased by mutual agreement in certain circumstances, including the negotiation of additional license agreements by Mr. D’Amico. As of December 31, 2020, the amount of such incentive fees payable to Mr. D’Amico is immaterial. The Company expects to continue the Agreement, under the same terms and conditions, for the remainder of 2021.

Mr. D’Amico also serves as a non-employee director of the Company and, as such, he is eligible to participate in, and receive cash and equity compensation in accordance with, the Company’s standard non-employee director compensation programs.

EXHIBIT 21.1

SUBSIDIARIES OF THE COMPANY

Name	State or Jurisdiction of Incorporation
Vicor GmbH	Germany
VICR Securities Corporation	Massachusetts, USA
Vicor France SARL	France
Vicor Italy SRL	Italy
Vicor Hong Kong Ltd.	Hong Kong
Vicor U.K. Ltd.	United Kingdom
Vicor Japan Company, Ltd.	Japan
Vicor KK	Japan
Vicor Trading (Shanghai) Limited	China
Vicor Development Corporation	Delaware, USA
Freedom Power Systems, Inc.	Delaware, USA
Northwest Power, Inc.	Delaware, USA
560 Oakmead LLC	California, USA

EXHIBIT 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors
Vicor Corporation:

We consent to the incorporation by reference in the registration statements (Nos. 333-240335, 333-232864, 333-225500, 333-219760, 333-99423, 333-44790) on Forms S-8 and the registration statement (No. 333-239041) on Form S-3 of Vicor Corporation of our reports dated March 1, 2021, with respect to the consolidated balance sheets of Vicor Corporation and subsidiaries as of December 31, 2020 and 2019, the related consolidated statements of operations, comprehensive income, cash flows, and equity for each of the years in the three-year period ended December 31, 2020, and the related notes and financial statement schedule listed in Item 15(a)(2) (collectively, the consolidated financial statements), and the effectiveness of internal control over financial reporting as of December 31, 2020, which reports appear in the December 31, 2020 annual report on Form 10-K of Vicor Corporation.

/s/ KPMG LLP

Boston, Massachusetts
March 1, 2021

Exhibit 31.1

CHIEF EXECUTIVE OFFICER CERTIFICATION

I, Patrizio Vinciarelli, certify that:

1. I have reviewed this report on Form 10-K of Vicor Corporation;
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 officers 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 in the United States;
   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.

Dated: March 1, 2021

/s/ Patrizio Vinciarelli

Patrizio Vinciarelli
Chief Executive Officer

Exhibit 31.2

CHIEF FINANCIAL OFFICER CERTIFICATION

I, James A. Simms, certify that:

1. I have reviewed this report on Form 10-K of Vicor Corporation;
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 officers 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 in the United States;
   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.

Dated: March 1, 2021

/s/ James A. Simms
James A. Simms
Vice President, Chief Financial Officer

Exhibit 32.1

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

In connection with the Annual Report of Vicor Corporation (the “Company”) on Form 10-K for the period ended December 31, 2020 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Patrizio Vinciarelli, Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Patrizio Vinciarelli

Patrizio Vinciarelli
President, Chairman of the Board and
Chief Executive Officer

March 1, 2021

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

Exhibit 32.2

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

In connection with the Annual Report of Vicor Corporation (the “Company”) on Form 10-K for the period ended December 31, 2020 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, James A. Simms, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ James A. Simms

James A. Simms
Vice President, Chief Financial Officer

March 1, 2021

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.