

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

FORM 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2022

OR

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

For the transition period from _____ to _____

Commission File Number 001-36216

IDEAL POWER INC.

(Exact name of registrant as specified in its charter)

DELAWARE
(State or other jurisdiction of
incorporation or organization)

14-1999058
(I.R.S. Employer Identification No.)

5508 Highway 290 West, Suite 120
Austin, Texas 78735

(Address and zip code of principal executive offices)

(512) 264-1542

(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value \$0.001 per share	IPWR	The Nasdaq Capital Market

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

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

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

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company.

Large accelerated filer
Non-accelerated filer

Accelerated filer
Smaller reporting company
Emerging growth company

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

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

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

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

Indicate by check mark whether the issuer 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 held by non-affiliates of the registrant was approximately \$72,209,660 as of June 30, 2022, the last business day of the registrant's most recently completed second fiscal quarter, based upon the last sales price reported for such date on The Nasdaq Capital Market. For purposes of the foregoing calculation, all directors and executive officers of the registrant and holders of more than 10% of the registrant's common equity are assumed to be affiliates of the registrant. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

As of March 28, 2023, the issuer had 5,924,680 shares of common stock, par value \$0.001, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Certain information required by Part III of this Annual Report on Form 10-K is incorporated herein by reference from the registrant's definitive proxy statement relating to the 2023 annual meeting of stockholders, which shall be filed with the Securities and Exchange Commission within 120 days after the end of the registrant's fiscal year ended December 31, 2022.

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**SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS AND
OTHER INFORMATION CONTAINED IN THIS REPORT**

This report contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 and the provisions of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. Forward-looking statements give our current expectations or forecasts of future events. You can identify these statements by the fact that they do not relate strictly to historical or current facts. You can find many (but not all) of these statements by looking for words such as “approximates,” “believes,” “hopes,” “expects,” “anticipates,” “estimates,” “projects,” “intends,” “plans,” “would,” “should,” “could,” “may” or other similar expressions in this report. In particular, these include statements relating to future actions, prospective products, applications, customers, technologies, future performance or results of anticipated products, expenses, and financial results. These forward-looking statements are subject to certain risks and uncertainties that could cause actual results to differ materially from our historical experience and our present expectations or projections. Factors that could cause actual results to differ from those discussed in the forward-looking statements include, but are not limited to:

- our history of losses;
- our ability to generate revenue;
- our limited operating history;
- the size and growth of markets for our technology;
- regulatory developments that may affect our business;
- our ability to successfully develop new technologies, particularly our bidirectional bipolar junction transistor, or B-TRAN™;
- our expectations regarding the timing of commercial fabrication of B-TRAN™ devices;
- our expectations regarding the performance of our B-TRAN™ and the consistency of that performance with prototypes as well as internal and third-party simulations;
- the expected performance of future products incorporating our B-TRAN™;
- the performance of third-party consultants and service providers whom we have and will continue to rely on to assist us in development and commercialization of our B-TRAN™ and related drive circuitry;
- the rate and degree of market acceptance for our B-TRAN™ and future B-TRAN™ products;
- the time required for third parties to redesign, test and certify their products incorporating our B-TRAN™;
- our ability to successfully commercialize our B-TRAN™ technology;
- our ability to secure strategic partnerships with semiconductor fabricators and others related to our B-TRAN™ technology;
- our ability to obtain, maintain, defend and enforce intellectual property rights protecting our technology;
- the success of our efforts to manage cash spending, particularly prior to the commercialization of our B-TRAN™ technology;
- general economic conditions and events, including inflation, and the impact they may have on us and our potential partners and licensees;

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- our dependence on the global supply chain and the impacts of supply chain disruptions;
- our ability to obtain adequate financing in the future, if and when we need it;
- the impact of the COVID-19 pandemic on our business, financial condition and results of operations;
- our success at managing the risks involved in the foregoing items; and
- other factors discussed in this report.

The forward-looking statements are based upon management's beliefs and assumptions and are made as of the date of this report. We undertake no obligation to publicly update or revise any forward-looking statements included in this report, except as required by applicable law. You should not place undue reliance on these forward-looking statements.

PART I

ITEM 1: BUSINESS

Our Company

Ideal Power Inc. was formed in Texas on May 17, 2007 and converted to a Delaware corporation on July 15, 2013. Unless otherwise stated or the context otherwise requires, the terms “Ideal Power,” “we,” “us,” “our” and the “Company” refer to Ideal Power Inc.

We are solely focused on the further development and commercialization of our Bidirectional bipolar junction TRANSistor (B-TRAN™) solid-state switch technology.

To date, operations have been funded primarily through the sale of common stock and we have generated \$3.7 million in grant revenue for bidirectional power switch development. Grant revenue was \$203,269 and \$576,399 in the years ended December 31, 2022 and 2021, respectively. We may pursue additional research and development grants, if and when available, to further develop and/or improve our technology. We are in the process of commercializing our B-TRAN™ technology.

Product Launch

In January 2023, we launched our first commercial product, the SymCool™ Power Module. This multi-die B-TRAN™ module is designed to meet the very low conduction loss needs of the solid-state circuit breaker (SSCB) market. We expect fabrication and initial sales of this product later in 2023.

Development Agreement

During the fourth quarter of 2022, we announced, and began Phase 1 of, a product development agreement with a top 10 global automaker for a custom B-TRAN™ power module for use in the automaker’s electric vehicle (“EV”) drivetrain inverters in its next generation EV platform. In Phase I of the program, we will provide packaged B-TRAN™ devices, drivers and technical data to the top 10 global automaker for their evaluation. Our expectation is that a successful Phase 1 will lead to us securing Phase 2 of the program. Assuming we secure Phase 2 of the program, we will collaborate with a packaging company selected by the automaker that will fabricate the custom B-TRAN™ modules. In Phase 3, the final development phase under the program, the custom B-TRAN™ power module is expected to be tested and certified in accordance with automotive codes and standards. The delivery of production-ready B-TRAN™-based modules is targeted for 2025. We expect to record modest revenue under this agreement in 2023.

Test and Evaluation Agreements

During 2021 and 2022, we announced several test and evaluation agreements with prospective customers, including a second top 10 global automaker, a top 10 global provider of power conversion solutions to the solar industry, a global diverse power management market leader, a commercial EV manufacturer and an EV charging company. These companies, along with other and future participants in our test and evaluation program, intend to test and evaluate the B-TRAN™ for use in their applications. We expect to incorporate the feedback from these customers into our future commercial products.

Industry Background

A semiconductor material is a substance that is characterized for “conducting” electricity easily, while at the same time, working as an insulator to prevent the flow of electricity. By using semiconductors, it becomes possible to perform rectification for the one-directional flow of electricity, amplification for increasing electrical signals, and switching to open and close the flow of electricity.

Power semiconductors possess a structure that is different from regular semiconductors, enabling them to handle high voltages and large currents without damage. Failures may occur due to a rise in temperatures resulting from heat generated from handling large amounts of power. Therefore, methods have been developed to reduce the amount of power semiconductor loss, which is the cause of the heat generation, while also effectively releasing the generated heat to the outside.

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Power semiconductors are mostly used in power conversion such as in changing voltages and frequencies, as well as changing direct current (“DC”) to alternating current (“AC”) and AC to DC. Power semiconductors play an indispensable role in accurately driving motors from low to high speeds, controlling the voltage and flow of electricity in electric and hybrid electric vehicles, supplying power grids with power generated from solar cells or wind turbines with less power loss, and providing a stable source of electricity to various home appliances and electrical equipment. In recent years, there has been a greater demand for energy-savings and power consumption reductions and growing demand for electric vehicles and, as a result, the need for power semiconductors that minimize power loss has been increasing.

Power semiconductors are solid-state devices that act as a switch without any mechanical movement. Solid-state devices are completely made from a solid material, typically silicon, and their flow of charges is confined within this solid material. The term solid-state is often used to show a difference from the earlier technologies of vacuum and gas-discharge tube devices and also to exclude the conventional electro-mechanical devices such as relays, switches, hard drives and other devices with moving parts. Solid-state devices are typically smaller, lighter and faster acting than electro-mechanical devices.

The global power semiconductor market may be categorized by component, material, end-use and geography. Based on component, the market includes power metal-oxide semiconductor field-effect transistors (“MOSFETs”), thyristors, rectifiers, bipolar junction transistors, insulated gate bipolar transistors (“IGBTs”) and power diodes. With respect to material, the power semiconductor market is split several ways into silicon, germanium, silicon carbide and gallium nitride.

The end-use market is classified into automotive, industrial, renewable energy, telecommunication, consumer electronics, aerospace and defense, healthcare and others. Among these, automotive electronics accounts for significant consumption of power semiconductors. The number of semiconductors in vehicles has surged in recent years with the rising adoption of electric vehicles and hybrid electric vehicles. Further, the advent of drive-by-wire or x-by-wire technologies have led to a rise in number of electric components in vehicles over mechanical vehicle parts. This rise helps reduce vehicle weight which is directly related to improved fuel efficiency and reduced vehicular emissions. The heavy consumption of power semiconductors across several end-use markets such as industrial, automotive, consumer electronics and renewable energy is a key growth driver of the power semiconductor market.

The telecommunications market is also a significant end-user of power semiconductors. This segment displays demand for radio frequency power amplifiers and IGBTs among others. With the launch of 5G, the demand for power semiconductors has increased.

Geographically, Asia Pacific accounts for the leading consumption of power semiconductors among other key regions. The region is also one of the leading exporters of power semiconductors in the world. The growth in the region is mainly attributed to China, which is the leading automotive and passenger vehicle market in the world. China is currently the leading consumer of power semiconductors. Furthermore, demand for power semiconductors is increasing from renewable energy sectors in the region.

Europe and North America are also leading consumers of power semiconductors among others in the global market.

Leading players in the global power semiconductor market include Infineon Technologies AG, Texas Instruments, ON Semiconductor, Fuji Electric Co. Ltd., ST Microelectronics N.V., Mitsubishi Electric Group, Semikron International GmbH, and Toshiba Corporation. While these companies are potential competitors, they are also potential licensees for our B-TRAN™ technology as there is not, to our knowledge, a high-efficiency bidirectional design available in the market. See “—Competition.”

There are a limited number of semiconductor fabrication development facilities in the United States and abroad. Furthermore, in 2021, 2022 and so far in 2023 there has been insufficient fabrication capacity for, and shortages of, certain semiconductor devices and related electronic components due both to the COVID-19 pandemic and increased demand, although this has not materially impacted us to date.

Our Technology

To further improve the performance of bidirectional technologies and products, we identified the need for a true bidirectional power switch and applied for and, in 2012, received a grant from the U.S. Department of Energy's Advanced Research Projects Agency-Energy ("ARPA-E") to develop a bidirectional solid-state power switch. At the outset, our efforts under the ARPA-E grant were focused on the development of, including the manufacturing process development for, a bidirectional insulated gate bipolar transistor ("BD-IGBT"). Although work on BD-IGBTs had previously been done by others in research labs, it was a technology that had not yet been commercialized.

A bidirectional circuit incorporates multiple IGBTs, which are power switches used in the process to convert power from one current form to another. IGBTs switch current in only one direction and require the use of a blocking diode to prevent current from flowing back through the device. To enable a product to perform bidirectional power conversion, for each IGBT and diode used in a circuit, a second IGBT and diode must also be utilized. These additional components add voltage drops that affect the electrical efficiency of end-use products and generate heat that must be dissipated. To eliminate the need to utilize four devices to create one bidirectional switch and to improve the performance of bidirectional switching, a true bidirectional switch is necessary. While we initially focused on the development of a BD-IGBT under the ARPA-E grant, we shifted our focus under the grant to the development of a new, highly efficient power switch called a bidirectional bipolar junction transistor, or B-TRAN™, that we believe will allow product manufacturers to substitute one B-TRAN™ for two pairs of IGBTs and diodes used in bidirectional circuits in their products and, more importantly, be a potential replacement for conventional power switches, such as IGBTs, in the broader power semiconductor market. The B-TRAN™ leverages many of the same processing steps we had developed for the BD-IGBT while also providing certain key advantages including patentability, reduced component count and higher efficiency compared to a BD-IGBT.

Based on third-party device software simulations and prototype testing to date, we believe that the B-TRAN™ can significantly improve electrical efficiency in power converters and many other power conversion applications. Compared to conventional power switches, such as IGBTs, we believe the B-TRAN™ will reduce power losses by 50% or more depending on the application. The higher efficiency would substantially reduce the heat generated by the operation of products utilizing this technology. As a result, products incorporating B-TRANs™ would have lower thermal management requirements. This in turn would require significantly smaller surface area required for heat dissipation which would enable increased power density, or power per pound, and potentially result in smaller original equipment manufacturer, or OEM, products. In addition, B-TRAN™s symmetric bidirectional operation reduces the number of components by 75% as compared to a conventional bidirectional switch utilizing IGBTs and diodes. This highly efficient and, we believe, unique symmetric operation will potentially provide a strong competitive advantage in bidirectional applications which are growing at rapid rates due to the electrification of transportation and the shift to renewable energy coupled with energy storage.

Our testing of B-TRAN™ silicon dies, prototypes and packaged devices to date is consistent with third-party simulations that predict significant performance and efficiency improvements over conventional power switches such as silicon-controlled rectifiers ("SCRs"), IGBTs and MOSFETs. We have also successfully confirmed the proof of concept of double-sided B-TRAN™ prototypes and packaged devices, validating the ability to make B-TRAN™ semiconductor power switches using conventional silicon semiconductor fabrication equipment and processes. Test results on the standard double-sided prototypes measured B-TRAN™ electrical losses at less than 50% that of conventional power switches such as silicon IGBTs.

As part of the B-TRAN™ development process and in partnership with our semiconductor fabrication partners, we continue with additional B-TRAN™ wafer runs, incorporating the results of prior runs and subsequent testing into the B-TRAN™ wafer fabrication. With the double-sided transistor behavior and low conduction losses measured and upgrades and improvements in the manufacturing process implemented, the next goal is to deliver packaged, prototype engineering samples for testing and evaluation by potential customers and partners. These samples will include a packaging design, incorporating input from a design for manufacturability review from a commercial packaging house. The samples will also include a second-generation prototype driver. Initial samples will be packaged B-TRAN™ dies with a driver and test boards in a safety enclosure. Feedback from potential customers in the test and evaluation program will be incorporated into future B-TRAN™ products.

The primary raw material used in the fabrication of B-TRAN™ devices is silicon wafers. Silicon is abundant and the production of silicon wafers is a large, global business with most manufacturers in Europe and Asia.

Business Strategy and Target Markets

Once we have delivered engineering sample kits to potential customers and partners for testing and evaluation for use in their applications, we intend to engage these potential customers and partners for B-TRAN™ utilizing a strategic partnership model.

Potential target markets for B-TRAN™ devices include, but are not limited to, electric and hybrid electric vehicles, electric vehicle charging, renewable energy and energy storage system power converters, uninterruptible power supplies (“UPS”) for data centers, industrial motor drives, solid-state circuit breakers, distribution and transmission switches and controls and other industrial and military markets. These markets typically utilize IGBTs for power switching in their applications. According to Mordor Intelligence, the IGBT market is already several billion dollars and is projected to be valued at \$11 billion by 2026. We expect to initially target large and growing segments of the IGBT market, such as electric vehicles, electric vehicle charging, renewable energy, data center UPS systems and solid-state circuit breakers. We expect the B-TRAN™ to provide a competitive advantage in several IGBT markets due to its higher expected efficiency and inherent bidirectionality, the growth in bidirectional applications such as electric vehicles and energy storage, and as it seems the IGBT has almost reached its technological limit. We began to commercialize our B-TRAN™ technology in 2021 as we reached agreements with several potential customers and partners to participate in our B-TRAN™ test and evaluation program. See “Test and Evaluation Agreements” above. More recently, we entered into our first product development agreement and launched our first commercial product. See “Development Agreement” and “Product Launch” above.

Intellectual Property

We rely on a combination of patents, trade secrets, laws that protect intellectual property, confidentiality procedures and contractual restrictions with our employees and others to establish and protect our intellectual property rights. As of December 31, 2022, we had 41 U.S. and 31 foreign issued patents as well as 24 additional pending U.S. and international patent applications on our B-TRAN™ technology. Our first B-TRAN™ patent issued in 2015 and our patents generally have a 20-year life from the date of initial filing prior to expiration. We expect to continue to build our patent estate for our B-TRAN™ technology and other technological developments that broaden the scope of our technology platform.

License Agreements

In 2015, we entered into licensing agreements which expire on February 7, 2033. Per the agreements, we have an exclusive royalty-free license associated with semiconductor power switches which enhances our intellectual property portfolio. The agreements include both fixed payments, all of which were paid prior to 2017, and ongoing variable payments. The variable payments are a function of the number of associated patent filings pending and patents issued under the agreements. We will pay \$10,000 for each patent filing pending and \$20,000 for each patent issued each year of the agreements, up to a maximum of \$100,000 each year (i.e. five issued patents). All five patents associated with the agreements were issued.

At December 31, 2022 and 2021, the corresponding long-term liability for the estimated present value of future payments under the licensing agreements was \$838,458 and \$917,100, respectively.

Competition

We will compete against well-established incumbent power semiconductor device suppliers, including companies that already operate at a large scale in the single-sided (unidirectional) power switch market with IGBTs and MOSFETs, including silicon carbide MOSFETs. We expect that these power semiconductor device providers will base their products on current technologies serving the unidirectional power switch market, although we continue to monitor the competitive landscape for offerings or potential offerings based on new technologies. Many, if not all of our competitors, have greater financial resources, more comprehensive product offerings, broader market presence, longer standing relationships with business partners, longer operating histories, greater manufacturing capabilities, stronger brand recognition, and greater marketing resources than we have. To date, we are not aware of any offerings or potential offerings based on a true high efficiency bidirectional design other than potential products based on our B-TRAN™ technology.

Power semiconductor device providers typically compete based on voltage, current and frequency capabilities with the larger providers offering a broad range of standard products, including discrete devices and modules. Smaller providers generally take a niche approach focused on a unique or customized device capability. Customers for these devices are typically looking for demonstrable product or system level improvements in efficiency and/or power density for their applications. Power semiconductor device providers utilize direct and indirect sales teams focused on capturing customer design wins.

Government Approval and Regulation

Government approval is not required for us to license our B-TRAN™ technology or sell B-TRAN™ devices. However, government support for semiconductors and certain of our potential target markets including electric and hybrid electric vehicles, electric vehicle charging infrastructure, renewable energy, grid storage and improved grid resiliency may impact the size and growth rate of semiconductors and these potential target markets. There has been a trend in both the United States and abroad to support the adoption of electric vehicles and renewable energy due to increased concern regarding the effects of climate change. For example, the Biden administration has announced several initiatives related to EVs. The Bipartisan Infrastructure Law will invest \$7.5 billion to build a national network of 500,000 EV chargers so that charging EVs is predictable, reliable and accessible; more than \$7 billion to ensure domestic manufacturers have the critical minerals and other components necessary to make batteries; and over \$10 billion for clean transit and school buses. In addition, the Inflation Reduction Act provides incentives for buyers of new and used EVs, credits to help manufacturers retool existing facilities and build new manufacturing in the United States, and grants to deploy zero emission heavy-duty vehicles. The CHIPS and Science Act will make critical investments in building domestic capacity for the semiconductors necessary for electric vehicles and will establish a technology, innovation, and partnerships directorate at the National Science Foundation to focus on fields like semiconductors and advanced computing, advanced communications technology, advanced energy technologies, quantum information technologies, and biotechnology. Government support for semiconductors and our potential target markets could have a material and positive impact on our business if our B-TRAN™ technology is successfully commercialized, particularly in these markets.

Employees

As of February 28, 2023, we had 8 full-time employees. None of these employees are covered by a collective bargaining agreement, and we believe our relationship with our employees is good.

Available Information

Our Internet address is www.idealpower.com and our investor relations website is located at ir.idealpower.com. We make available free of charge on our investor relations website under the heading “SEC Filings” our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports and our Proxy Statement as soon as reasonably practicable after such materials are electronically filed with (or furnished to) the SEC. These reports are also available free of charge via EDGAR through the SEC website (www.sec.gov) as soon as reasonably practicable after such materials are electronically filed with (or furnished to) the SEC. We also make available on our website, our corporate governance documents, including our code of conduct and ethics. Information contained on our website (or any other website referred to in this Annual Report on Form 10-K) is not incorporated by reference into this Annual Report on Form 10-K.

ITEM 1A: RISK FACTORS

We are subject to various risks that may materially harm our business, prospects, financial condition and results of operations. An investment in our common stock is speculative and involves a high degree of risk. In evaluating an investment in shares of our common stock, you should carefully consider the risks described below, together with the other information included in this report.

The risks described below are not the only risks we face. If any of the events described in the following risk factors actually occurs, or if additional risks and uncertainties later materialize that are not currently known to us or that we currently deem immaterial, then our business, prospects, results of operations and financial condition could be materially adversely affected. In that event, the trading price of our common stock could decline, and you may lose all or part of your investment in our shares. The risks discussed below include forward-looking statements, and our actual results may differ substantially from those discussed herein.

Risks Related to the Company

We lack an established operating history on which to evaluate our business and determine if we will be able to execute our business plan. We have also incurred losses in prior periods, expect to incur losses in the future, currently generate no product revenue and we may not achieve or maintain profitability in the future.

We have a limited operating history that makes it difficult to evaluate our business. Our focus is on the development and commercialization of our B-TRAN™ technology. We cannot say with certainty when we will successfully commercialize our B-TRAN™ technology, if ever, and thus we may not generate any product revenue in the near future, or ever.

Since inception, we have sustained approximately \$87.1 million in net losses and we had net losses for the years ended December 31, 2022 and 2021 of approximately \$7.2 million and \$4.8 million, respectively. We expect to incur losses and negative cash flows from operating activities at least until such time as we have commercialized our B-TRAN™ technology and developed a substantial and stable revenue base. We cannot assure you that we can develop a substantial and stable revenue base or achieve or sustain profitability in the future.

We have been funding operations primarily through the sale of common stock. We currently generate no product revenue, although we expect initial modest product revenue in late 2023, and, in order to fund our operations until we are profitable, we may need to raise additional funds and such funds may not be available on commercially acceptable terms, if at all. If we are unable to raise funds on acceptable terms if and as needed, we may not be able to execute our business plan and generate sustainable revenue. This may seriously harm our business, financial condition and results of operations. In the event we are not able to continue operations, you will likely suffer a complete loss of your investment in our securities.

Product development is an inherently uncertain process, and we may encounter unanticipated development challenges and may not be able to meet our product design and commercialization milestones.

Prototype and other pre-commercial, as well as product, development and testing may be subject to unanticipated and significant delays, expenses and technical or other problems. We cannot guarantee that we will successfully achieve our milestones within our planned timeframe or ever. We have developed and tested prototypes of B-TRAN™ devices. We cannot predict whether future prototypes of the B-TRAN™ and B-TRAN™ products will achieve results consistent with our prototype testing to date, expectations, third-party simulations or the expectations of our potential customers and/or licensees. A prototype or product could cost significantly more than expected or the prototype or product design fabrication process could uncover problems that are not consistent with our expectations. Prototypes of B-TRAN™ devices are a material part of our business plan, and if they are not proven to be successful, our business and prospects would be harmed. In addition, for both testing and commercialization purposes, the B-TRAN™ will need to be packaged and paired with an efficient double-sided driver. The driver development is subject to similar risks as the B-TRAN™ prototype and product development including being subject to unanticipated and significant delays, expenses and technical or other problems.

More generally, the future commercialization of products using our technology and designs may also be adversely affected by many factors not within our control, including:

- the willingness of market participants to try new products incorporating our technology and the perceptions of these market participants of the safety, reliability, functionality and cost effectiveness of these products;
- the emergence of newer, possibly more effective technologies;
- the future cost and availability of the raw materials and components needed to manufacture and use products incorporating our technology; and
- the adoption of new regulatory or industry standards that may adversely affect the use or cost of products incorporating our technology.

Accordingly, we cannot predict that products incorporating our technology will be accepted on a scale sufficient to support development of mass markets for them.

Our semiconductor fabrication partners may be unable to successfully and cost-effectively develop and implement new process steps necessary for bidirectional semiconductor device development at scale.

While the manufacturing of B-TRAN™ devices uses conventional equipment and process steps, there is heightened risk in the fabrication process due to the handling and processing of both sides of the wafer and achieving the required front to back alignment of the features. Two-sided wafer processing and handling is necessary as the B-TRAN™, unlike conventional power semiconductor devices, is a two-sided bidirectional device. In addition, the cost to manufacture a B-TRAN™ will be impacted by the number of process steps, the processing time and the size of the wafer. To date, B-TRAN™ prototypes under development have utilized smaller 4-inch and 5-inch diameter wafers resulting in fewer die per wafer. As a result, the cost per die is higher than if larger diameter wafers were utilized. For example, if an 8-inch wafer was used it would have four times the area and thus could produce four times as many die as a 4-inch wafer, or almost two and one half times the area and produce almost two and one half times as many die as a 6-inch wafer, resulting in a lower cost per die. If our semiconductor fabrication partners are unable to successfully and cost-effectively develop and implement new process steps necessary for bidirectional semiconductor device development at the prototype stage or at scale, our business, financial condition and results of operations would be materially and adversely affected.

There are a limited number of semiconductor fabrication development facilities in the United States and abroad. Furthermore, in 2021, 2022 and thus far in 2023 there has been insufficient fabrication capacity for, and shortages of, certain semiconductor devices and related electronic components, although this has not materially impacted us to date. Continued or further disruptions to the supply chain for semiconductors and related electronic components could delay our critical development and commercialization activities and/or result in significantly higher costs for us for semiconductor components and/or semiconductor foundry and related services. This risk is magnified for us as a small company as we are at a disadvantage relative to larger, more established companies in securing semiconductor fabrication capacity as we do not have longstanding relationships with semiconductor foundries and, as a new technology, it will take time to scale to the volume necessary to attract and retain certain semiconductor foundries. There are also a limited number of well-capitalized semiconductor fabricators working with the small diameter wafers necessary for our current development. Our inability to engage such partners in a cost-effective manner, the loss of any fabrication development partner once engaged or industry supply chain disruptions may materially delay our development efforts and may have a materially adverse effect on our business, financial condition and results of operations.

We, or our potential future licensees, must achieve design wins to obtain customers, although design wins achieved may not necessarily result in substantial sales or licensing revenue to us.

We anticipate that our future designs will typically be integrated into systems by our potential customers. This may result in the need to customize our designs, generally the packaging and/or driver rather than the B-TRAN™ die, for certain applications or customers. We will need to work with semiconductor partners and/or manufacturers early in their design cycles to ensure that our designs will meet the requirements of their systems. Manufacturers typically choose one or two vendors to provide the components for use in their systems. Selection as one of these vendors is called a design win. It is critical that we, or our licensees, achieve these design wins in order to obtain customers and generate sales and/or licensing revenue. We currently have a test and evaluation program whereby certain potential customers will be testing our B-TRAN™ technology for use in their applications. We can provide no assurance that participation by a potential customer in our test and evaluation program will result in a design win.

We believe that equipment manufacturers often select their suppliers based on factors including long-term relationships and end user demand. Accordingly, we may have difficulty achieving design wins from equipment manufacturers as our products will be new entrants into the market. Our efforts to achieve design wins or assist our potential future licensees in achieving design wins may be time consuming and expensive and may not be successful. If we or our potential future licensees are not successful in achieving design wins, or if we or our potential future licensees do achieve design wins but the customers' systems that utilize our designs are not successful, our business, financial condition, and results of operations could be materially and adversely impacted.

Even if we, or our potential future licensees, achieve design wins, the timing of generation of sales and/or licensing revenue will be dependent on the customer's product design cycle. There may be significant time between when we, or our potential future licensees, achieve design wins and when we generate initial sales and/or licensing revenue from these design wins. Significant delays in our customers' product design cycles, or long product design cycles by these customers, could materially and adversely affect our business, financial condition and result of operations.

Once a manufacturer chooses a component for use in a particular system, it is likely to retain that component for the life of that system. In addition, the sales cycle into certain potential target markets such as the automotive market are typically very long. Our future growth could experience material and prolonged adverse effects if we fail to achieve design wins or if the design wins do not result in substantial revenue for us within a reasonable timeframe.

We previously received grant funds from the United States for the development of a bidirectional switch. In certain instances, the United States may obtain title to inventions related to this effort. If we were to lose title to those inventions, we may have to pay to license them from the United States in order to manufacture the inventions. If we were unable to license those inventions from the United States, it could slow down our product development.

In conjunction with the ARPA-E grant we received from the Department of Energy, we granted to the United States a non-exclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States inventions related to a bidirectional switch and made within the scope of the grant. If we failed to disclose to the Department of Energy an invention made with grant funds that we disclosed to patent counsel or for publication, or if we elect not to retain title to the invention, the United States may request that title to the subject invention be transferred to it.

We also granted “march-in-rights” to the United States in connection with any bidirectional switch inventions in which we choose not to retain title, if those inventions were made under the ARPA-E grant. Pursuant to the march-in-rights, the United States has the right to require us, any person to whom we have assigned our rights, or any exclusive licensee to grant a non-exclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant upon terms that are reasonable. If the license is not granted as requested, the United States has the right to grant the license if it determines that we have not achieved practical application of the invention in the field of use, the action is necessary to alleviate health or safety needs, the action is necessary to meet requirements for public use specified by Federal regulations and such requirements have not been satisfied, or the action is necessary because an agreement to manufacture the invention in the United States has not been obtained or waived or because any such agreement has been breached.

If we lost title to the United States as a result of any of these events, we would have to pay to license the inventions, if needed, from the United States to manufacture the applicable bidirectional switch. If we were unable to license those inventions from the United States, it could materially and adversely impact our business, financial condition and results of operations.

As we continue to grow and to develop our intellectual property, we could attract threats from patent monetization firms or competitors alleging infringement or competitors could infringe upon our intellectual property. We may incur substantial costs as a result of litigation or other proceedings relating to patent and other intellectual property rights.

As we continue to grow and to develop our intellectual property, we could attract threats from patent monetization firms or competitors alleging infringement of intellectual property rights. In that event, we may incur significant costs to defend against such a claim even if the claim proves to have no merit. In addition, some of our future competitors will be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. If we do not prevail in this type of litigation, we may be required to: pay monetary damages; stop commercial activities relating to our technology; obtain one or more licenses in order to secure the rights to manufacturing or marketing certain future products incorporating our technology; or attempt to compete in the market with substantially similar products. Uncertainties resulting from the initiation and continuation of any litigation could limit our ability to continue some or all of our operations. We may face significant expenses and liability in connection with the protection of our intellectual property and, if we are unable to successfully protect our rights or resolve intellectual property conflicts with others, our business or financial condition could be adversely affected.

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Our success depends in large part on our proprietary technology for which we seek protection under patent, copyright, trademark and trade secret laws in the United States and abroad. Such protection is also maintained in part using proprietary information and inventions agreements and non-disclosure agreements. The agreements we use in an effort to protect our intellectual property, confidential information, and other unpatented proprietary information may be ineffective or insufficient to prevent unauthorized use or disclosure of such trade secrets and information. A party to one of these agreements may breach the agreement and we may not have adequate remedies for such breach. As a result, our trade secrets, confidential information, and other unpatented proprietary rights and information may become known to others, including our competitors. Using third-party manufacturers, both domestically and abroad, may increase the risk of misappropriation of our trade secrets, confidential information and other unpatented proprietary information. Protection of our technology is important to us so that we may offer our future customers proprietary products unavailable from our competitors, and so that we may prevent our competitors from using technology that we have developed or exclusively licensed. If we are unable to effectively protect our intellectual property, our business and competitive position may be adversely affected.

We may license our technology in the future; however the terms of any such agreements may not prove to be advantageous to us. If the license agreements we may enter into do not prove to be advantageous to us, our business and results of operations will be adversely affected.

Although we intend to initially employ a product sales strategy for products incorporating our B-TRAN™ technology, we also expect to employ a licensing strategy for the production and potentially the sale of our future B-TRAN™ products in certain instances. However, we may not be able to secure license agreements with semiconductor fabrication partners or other strategic partners at all or on terms that are advantageous to us. Furthermore, the timing and volume of revenue earned from license agreements will be outside of our control. If the license agreements we may enter into in the future do not prove to be advantageous to us, our business and results of operations will be adversely affected.

Future revenue may rely on the marketing and sales efforts of third parties whom we do not control.

The marketing and sale of our future products to end user customers may be conducted by us, future licensees of our technology or a combination thereof. Consequently, commercial success of our products may depend, to a great extent, on the efforts of others. We may not be able to identify, maintain or establish appropriate relationships in the future. We can give no assurance that any such third parties will focus adequate resources on selling our products or will be successful in selling them. In addition, these third parties may require customization of our designs or other concessions that could reduce the potential profitability of these relationships. Failure to develop favorable licensing relationships in our target markets may adversely affect our commercialization schedule and, to the extent we enter into such relationships, the failure of our licensees to focus adequate resources on selling our products or be successful in selling them or to meet their monetary obligations to us may adversely affect our financial condition and results of operations.

A material part of our success depends on our ability to manage third-party resources. Our failure to properly select, manage and retain qualified third-party resources could materially and adversely affect our results of operations and relations with our partners and future customers.

Our development efforts are highly dependent on third-party resources for semiconductor expertise and manufacturing. These third-party resources include experts in power semiconductor switches and drivers, semiconductor fabrication suppliers, and other resources within the power switch ecosystem. The loss of one or more of our third-party resources could have a material adverse effect on the timing of our development efforts which could, in turn, result in our business and results of operations being adversely affected. We also rely on our semiconductor fabrication partners and packaging firms to develop prototype and, in the future, commercial devices and modules. There can be no assurance that these manufacturing partners will provide devices and/or modules in a timely and cost-efficient manner, provide quality devices and/or modules or otherwise meet our needs and expectations. Our ability to manage such relationships and timely replace such partners, if necessary, is critical to our success. The loss of and our failure to timely replace third-party resources, fabrication partners and other suppliers within the power switch ecosystem, should that become necessary, could materially and adversely affect our results of operations and relations with our partners and future customers. See also “—Our semiconductor fabrication partners may be unable to successfully and cost-effectively develop and implement new process steps necessary for bidirectional semiconductor device development at scale.”

Supply chain disruptions could interrupt product manufacturing and global logistics and increase product costs.

We currently rely upon the facilities of our semiconductor fabricator partners in the western United States, including California, to support our business as well as vendors throughout the United States and abroad to supply silicon wafers and other materials and processing and engineering capabilities and expertise. In 2021, 2022 and thus far in 2023, there have been global industry-wide logistics challenges, including those caused by COVID-19 outbreaks. While these logistics challenges have caused some disruption in our business, these disruptions have been manageable and their impact on us has not been significant to us to date. Future facility closures and/or disruptions may occur if additional COVID-19 breakouts occur in areas where we rely on third parties.

We and certain of our suppliers also rely on international shipping to transport wafers, circuit boards and other electronic components to us and our other suppliers. During the years ended December 31, 2021 and 2022, international shipping to the U.S. was disrupted and delayed due to congestion in west coast ports and other causes. Continued or additional delays in shipping may cause us or our suppliers to have to use more expensive air freight or other more costly methods. In addition, global inflation has contributed to already higher incremental freight and component costs and such inflation may continue to result in higher costs. Logistics delays could result in delays to critical development activities. Further, failure to adequately fabricate and timely ship our prototypes and, when commercially available, products to potential customers could lead to delays in their testing and evaluation and/or adoption of our technology, lost potential revenue, failure to meet customer demand and strained relationships with customers.

Despite our actions to mitigate these impacts, we may be impacted by global logistics challenges in 2023.

Our business, including our supply chain, liquidity, financial condition and financial results may be materially adversely disrupted and impacted due to the COVID-19 pandemic.

In 2020, 2021 and 2022, the COVID-19 pandemic drove global uncertainty and disruption and spread throughout the geographic region in which we operate our business and the geographic regions where our suppliers, business partners and potential customers are located. While the COVID-19 pandemic caused some disruption to our business in 2020, the COVID-19 pandemic has not had a material adverse impact on our operations to date. Potential financial impacts associated with the COVID-19 pandemic include, but are not limited to, delays in critical development and commercialization activities, including delays due to supply chain disruptions, and temporary and potential incremental costs associated with mitigating the effects of the COVID-19 pandemic, including increased freight and logistics costs and other expenses. The COVID-19 pandemic is ongoing, and its dynamic nature, including uncertainties relating to the ultimate spread of the virus and its related variants, the duration of the pandemic, the timing, scope and efficacy of vaccination efforts and additional actions that may be taken by governmental authorities in response to the pandemic, makes it difficult to forecast any effects on our results of operations for 2023 and thereafter.

Furthermore, we rely upon the facilities of our semiconductor fabricator partners in the western United States, including California, to support our business as well as vendors throughout the United States and abroad to supply silicon wafers and other materials and processing and engineering capabilities and expertise. Accordingly, a significant portion of our supply chain is located in California and other locations domestically and abroad where the COVID-19 impacts have been in the past, and in the future may be, significant. We may also increasingly utilize partners abroad and the impact of the COVID-19 pandemic on these partners, and thereby to us, cannot be predicted at this time. The COVID-19 pandemic has resulted in significant governmental measures being implemented to control the spread of the virus and its related variants, including, among others, restrictions on manufacturing and the movement of employees in many states or regions of these countries. As a result of COVID-19 and the measures designed to contain the spread of the virus and its related variants, our suppliers may not have the materials, capacity, or capability to supply us the components needed to continue our development efforts according to our schedule. Any reduction in manufacturing or supply capacity may reduce or even halt the supply of necessary components needed for us to continue these activities. Further, there may be logistics issues, including our ability and our supply chain's ability to operate, and transportation demands that may cause further delays. See also "*Supply chain disruptions could interrupt product manufacturing and global logistics and increase product costs.*" If our suppliers' operations are curtailed, we may need to seek alternate sources of supply, which may be more expensive. Alternate sources may not be available or may result in delays in shipments to us from our supply chain, each of which would affect our results of operations. While disruptions and restrictions on our operations, including temporary closures of the facilities of our suppliers, as well as general limitations on movement in the region have occurred and may occur in the future, the duration of any potential production and supply chain disruption, and related financial impact, cannot be estimated at this time. Should production and distribution closures occur, the impact on our supply chain could have a material adverse effect on our results of operations, financial condition and cash flows. See "*Risks Related to the Company—Our semiconductor fabrication partners may be unable to successfully and cost-*

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effectively develop and implement new process steps necessary for bidirectional semiconductor device development at scale.” The COVID-19 pandemic may also delay the commercialization of our B-TRAN™ technology, which would materially and adversely affect our business and operating results.

We may need additional financing to execute our business plan and fund operations, which additional financing may not be available on commercially reasonable terms or at all.

We have and, prior to profitable commercialization at scale, may continue to rely on raising funds from investors and/or other sources to support our research and development activities and execute our business plan. Macro-economic conditions in the United States and abroad may result in a tightening of the credit markets and/or less capital available for small public companies, which may make it more difficult for us to raise capital on commercially reasonable terms or at all. Also, the COVID-19 pandemic has caused significant volatility in the global financial markets, which could increase the cost of capital and adversely impact our ability to raise additional capital, which could negatively affect our liquidity in the future. If we are unable to raise funds on acceptable terms if and as needed, we may be forced to curtail our operations or even cease operating altogether. Therefore, unfavorable macroeconomic conditions, particularly in the United States, including as a result of COVID-19 or inflation, and any resulting recession or slowed economic growth, could have an outsized negative impact on us. This may seriously harm our business, financial condition and results of operations.

A failure to obtain additional government grants could have a material adverse effect on our development efforts and our ability to fund operations and execute on our business plan.

We expect to fund a portion of our development efforts with funds received under government grants. However, we may not be awarded any such grants in the future, any such grant awards may be insufficient to fund a meaningful portion of our development spending and/or the timing of the receipt of any such award or awards may not coincide with the planned timing of our development efforts. Grants are subject to long procurement cycles, typically 6 to 12 months, and there may not be open grant solicitations for topics relevant to our B-TRAN™ technology. Grant topics are typically identified 1 to 2 years prior to the opening of the grant solicitation and the windows to submit proposals are discrete time periods. Further, the award of grants is a subjective process and government agencies often do not provide detailed feedback on why a grant was not received.

A factor that could negatively impact our ability to obtain government grants is that our technology is not yet commercialized. If, in the future, grant agencies determine that our technological readiness is not sufficiently advanced for a funded demonstration incorporating B-TRAN™ or potential partners determine that our technological readiness is not sufficient to partner with us on grant proposals, we may be unable to obtain additional government grants. Overall, there is a high degree of uncertainty in obtaining grants, particularly for technologies that have not been demonstrated with commercial devices, and we can provide no assurance that we will be able to obtain additional government grants to offset a significant, or any, portion of our development spending. If we do not obtain additional grants or our efforts to obtain additional grants take longer than expected to be successful, we will need to rely on other means to fund our development.

We are highly dependent on the services of key members of our management and technical teams. Our inability to retain these individuals could impede our business plan and growth strategies, which could have a negative impact on our business and the value of your investment.

Our ability to implement our business plan depends, to a critical extent, on the continued efforts and services of key members of our management and technical teams. If we unexpectedly lose the services of any of these persons during this important time in the development and commercialization of our B-TRAN™ technology, the loss may result in a delay in the implementation of our business plan and plan of operations. We can give no assurance that we could find satisfactory replacements for these individuals on terms that would not be unduly expensive or burdensome to us. We do not currently carry a key-man life insurance policy that would assist us in recouping our costs in the event of the death or disability of any of these persons.

In addition, as a small team we will need additional commercial and semiconductor expertise to successfully develop products and commercialize our technology. We can give no assurance that we will be able to identify and secure the necessary expertise at the appropriate time or at all.

Our operating results for any quarterly reporting period may fluctuate significantly depending on the timing and pace of our development spending and costs to commercialize our technology.

Our research and development costs may vary significantly from quarter to quarter depending on the current phase of development and commercialization of our technology and the timing of pre-commercial semiconductor fabrication, commercial production and revenue generation and negotiations with potential strategic partners. We also may intentionally accelerate our development costs or may be faced with unexpected delays or challenges with development that could significantly impact our operating results. Significant adverse fluctuations in our research and development spending and other operating costs from period to period could adversely affect the market price for our common stock.

New technologies in the power semiconductor switch industry may supplant our technology in this market, which would harm our business and operations, and we may not be able to compete effectively in this industry and with any such new technologies.

The power semiconductor switch industry is subject to significant technological change. Our future success will depend on the cutting-edge relevance of our technology, and thereafter on our ability to appropriately respond to changing technologies and changes in function of products and product quality. If new technologies supplant our technology, our business would be adversely affected and we will have to revise our plan of operation.

We or our potential licensees could be competing against large power semiconductor device suppliers with substantially greater resources than us, financial and otherwise. These competitors may also have more comprehensive product lines, broader market presence, longer standing relationships with customers, longer operating histories, greater manufacturing and/or product development capabilities, stronger brand recognition, and greater marketing resources than we and/or our licensees have. If any of these competitors develop products to compete with our technology, we may not be able to commercialize our technology and our technology may not result in sufficient, or any, product and/or licensing revenue.

We may not be able to use some or all of our net operating loss carryforwards to offset future income.

We have net operating loss carryforwards due to prior period losses generated before January 1, 2023 which if not utilized will begin to expire in 2031 for net operating loss carryforwards prior to 2018 and which do not expire for net operating loss carryforwards for 2018 and thereafter. If we are unable to generate sufficient taxable income to utilize our net operating loss carryforwards, pre-2018 carryforwards could expire unused and be unavailable to offset future income tax liabilities.

In addition, under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, a corporation that undergoes an “ownership change” (generally defined as a greater than 50% change (by value) in its equity ownership over a three-year period) is subject to limitation on its ability to utilize its pre-change net operating loss and credit carry-forwards, or net operating losses, to offset future taxable income. We may have experienced one or more ownership changes under these Sections in connection with our initial public offering and one or more subsequent financings. However, we do not anticipate performing a complete analysis of the limitation on the annual use of the net operating loss and tax credit carryforwards until such time we project we will be able to utilize these tax attributes. In addition, future changes in our stock ownership, which may be outside of our control, may trigger an ownership change, as may future equity offerings or acquisitions that have equity as a component of the purchase price. If an ownership change has occurred or does occur in the future, our ability to utilize our net operating losses to offset income if we attain profitability may be limited.

Risks Related to Owning Our Common Stock

The public market for our common stock may be volatile. This may affect the ability of our investors to sell their shares as well as the price at which they sell their shares.

The market price for our shares has experienced significant price and volume fluctuations. We cannot predict whether the price of our common stock will rise or fall. Our stock price may be significantly affected by factors such as, among others:

- variations in the volume of trading activity;
- actual or anticipated fluctuations in our liquidity, financial condition and operating results;

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- quarterly and yearly operating results compared to market expectations;
- quarterly and yearly operating results of other companies in our industry compared to market expectations;
- general trends in markets we expect to serve;
- competition from existing products or new products that may emerge;
- future announcements concerning our business or our competitors' businesses;
- additions or departures of key management or other technical personnel;
- the public's reaction to our press releases, other public announcements and filings with the Securities and Exchange Commission (the "SEC");
- issuances or sales, or expected issuances or sales, of our capital stock;
- disputes or other developments related to proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our technologies;
- litigation involving us, our general industry or both; and
- changes in state or federal regulations affecting us and our industry.

Furthermore, in recent years the stock market has experienced extreme price and volume fluctuations that are unrelated or disproportionate to the operating performance of the affected companies. Such broad market fluctuations may adversely affect the market price of our common stock. In addition, price volatility may be greater if the public float and trading volume of our common stock is low. As a result, you may suffer a loss on your investment.

We have the right to issue, and have in the past issued, shares of preferred stock. If we were to issue additional preferred stock, it may have rights, preferences and privileges that may adversely affect the common stock.

We are authorized to issue 10,000,000 shares of "blank check" preferred stock, with such rights, preferences and privileges as may be determined from time-to-time by our Board of Directors ("Board"). Our Board is empowered, without stockholder approval, to issue preferred stock in one or more series, and to fix for any series the dividend rights, dissolution or liquidation preferences, redemption prices, conversion rights, voting rights, and other rights, preferences and privileges for the preferred stock. The issuance of shares of preferred stock, depending on the rights, preferences and privileges attributable to the preferred stock, could reduce the voting rights and powers of our common stock and the portion of our assets allocated for distribution to common stockholders in a liquidation event, and could also result in dilution in the book value per share of our common stock. The preferred stock could also be utilized, under certain circumstances, as a method for raising additional capital or discouraging, delaying or preventing a change in control of the Company, to the detriment of the investors in our common stock. We cannot assure you that we will not, under certain circumstances, issue shares of our preferred stock. At December 31, 2022, we had no shares of preferred stock outstanding.

We have not paid dividends in the past and have no immediate plans to pay dividends.

We plan to reinvest all of our earnings, to the extent we have earnings, in order to market our products and to cover operating costs and to otherwise become and remain competitive. We do not plan to pay any cash dividends with respect to our securities in the foreseeable future. As a result, only appreciation in the price of our common stock, which may never occur, will provide a return to stockholders. We cannot assure you that we would, at any time, generate sufficient surplus cash that would be available for distribution to the holders of our common stock as a dividend. Therefore, you should not expect to receive cash dividends on our common stock.

Shares eligible for future sale, including warrants and options exercisable into shares of our common stock, may cause dilution to our existing stockholders and may adversely affect the market for our common stock.

Sales of substantial amounts of our common stock in the public market, or the perception that these sales could occur, could cause the market price of our common stock to decline. These sales could also make it more difficult for us to sell equity or equity-related securities in the future at a time and price that we deem appropriate.

At February 28, 2023, we had 5,924,680 shares of common stock outstanding and 253,828 pre-funded warrants with an exercise price of \$0.001 that are included in our computation of basic earnings per share. Shares beneficially owned by our affiliates, if any, and employees are subject to volume and other restrictions under Rules 144 and 701 under the Securities Act, various vesting agreements, our insider trading policy and/or any applicable 10b5-1 trading plan. Shares that are not beneficially owned by our affiliates and employees generally can be freely sold in the public market, potentially subject in some cases to restrictions under Rule 144.

At February 28, 2023, we had 1,637,584 potentially dilutive shares outstanding, exclusive of pre-funded warrants to purchase shares of common stock that are considered outstanding common shares and included in our computation of basic earnings per share, and we may grant additional options, restricted stock units, performance stock units, other stock-based awards and/or warrants in the future. The holders of vested options or warrants, including pre-funded warrants, may exercise their options and/or warrants and sell a large number of shares. Any sale of a substantial number of shares of our common stock may have a material adverse effect on the market price of our common stock.

Raising additional capital, if necessary, may cause dilution to our existing stockholders, restrict our operations or require us to relinquish rights to our technologies.

We may seek additional capital through a combination of public and private equity offerings, debt financings, strategic partnerships and licensing arrangements. To the extent that we raise additional capital through the sale or issuance of equity, warrants or convertible debt securities, the ownership interest of our existing stockholders will be diluted, and the terms of such securities may include liquidation or other preferences that adversely affect your rights as a stockholder. If we raise capital through debt financing, it may involve agreements that include covenants limiting or restricting our ability to take certain actions, such as incurring additional debt, making capital expenditures or declaring dividends. If we raise additional funds through strategic partnerships or licensing agreements with third parties, we may have to relinquish valuable rights to our technologies, or grant licenses on terms that are not favorable to us. If we are unable to raise additional funds if and when needed, we may be required to delay, limit, reduce or terminate our development and commercialization efforts.

Our ability to raise capital is limited by the Securities Act and SEC rules and regulations.

Under current SEC rules and regulations, because the aggregate market value of our common stock held by non-affiliates, or public float, was less than \$75 million (calculated as set forth in Form S-3 and SEC rules and regulations) at the time of filing of this Annual Report on Form 10-K, the amount we can raise through primary public offerings of our securities in any 12-month period using a registration statement on Form S-3 will be limited to one-third of our public float. Alternative means of raising capital through sales of our securities, including through the use of a “long form” registration statement on a Form S-1 or in private placements of equity or debt securities, may be more costly and time-consuming and more difficult to market to potential investors, which may have a material adverse effect on our ability to raise capital, our liquidity position and strategy.

Our charter documents and Delaware law may inhibit a takeover that stockholders consider favorable.

Our certificate of incorporation (as amended and restated to date, our “certificate”) and our bylaws (as amended and restated to date, our “bylaws”) and applicable provisions of Delaware law may delay or discourage transactions involving an actual or potential change in control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares, or transactions that our stockholders might otherwise deem to be in their best interests. The provisions in our certificate and bylaws:

- authorize our Board to issue preferred stock without stockholder approval and to designate the rights, preferences and privileges of each class; if issued, such preferred stock would increase the number of outstanding shares of our capital stock and could include terms that may deter an acquisition of us;
- limit who may call stockholder meetings;
- do not permit stockholders to act by written consent;
- do not provide for cumulative voting rights; and
- provide that all vacancies may be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum.

In addition, Section 203 of the Delaware General Corporation Law may limit our ability to engage in any business combination with a person who beneficially owns 15% or more of our outstanding voting stock unless certain conditions are satisfied. This restriction lasts for a period of three years following the share acquisition. These provisions may have the effect of entrenching our management team and may deprive you of the opportunity to sell your shares to potential acquirers at a premium over prevailing prices. This potential inability to obtain a control premium could reduce the price of our common stock.

If securities or industry analysts do not publish or do not continue to publish research or reports about our business, or if they issue an adverse or misleading opinion regarding our stock, our stock price and trading volume could decline.

The trading market for our common stock may be influenced by the research and reports that industry or securities analysts publish about us or our business. In 2022, one securities analyst published reports on us. If this analyst ceases coverage of our company or fails to publish reports on us regularly and/or one or more other analysts do not initiate coverage on us, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline. In addition, if one or more analysts issues an adverse opinion regarding our stock, our stock price would likely decline.

ITEM 1B: UNRESOLVED STAFF COMMENTS

None.

ITEM 2: PROPERTIES

Our principal office is located at 5508 Highway 290 West, Suite 120, Austin, Texas 78735. We lease 4,070 square feet of office and laboratory space. The lease commenced on June 1, 2021 and, as of December 31, 2022, the remaining term of the lease is 44 months.

ITEM 3: LEGAL PROCEEDINGS

We may be subject to litigation from time to time in the ordinary course of business. We are not currently party to any legal proceedings that we believe would reasonably have a material adverse impact on its business, financial results, and cash flows.

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 Capital Market under the symbol "IPWR." As of March 24, 2023, we had 23 shareholders of record.

Dividends

We have not paid any cash dividends on our common stock since our inception and do not anticipate paying any cash dividends in the foreseeable future. We plan to retain our earnings, if any, to provide funds for the expansion of our business. The payment of future dividends, if any, will be at the discretion of our Board and will depend on our financial condition, results of operations, capital requirements, restrictions contained in future financing agreements, provisions of applicable law and any other factors our Board deems relevant.

Performance Graph

As a smaller reporting company, we are not required to provide this information.

Purchases of Equity Securities by the Issuer

None.

ITEM 6: [Reserved]

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with the audited financial statements and related notes included elsewhere in this Annual Report on Form 10-K. In addition to historical information, this discussion and analysis here and throughout this Form 10-K contains forward-looking statements that involve risks, uncertainties and assumptions. Our actual results may differ materially from those anticipated in these forward-looking statements.

Overview

Ideal Power is located in Austin, Texas.

We are solely focused on the further development and commercialization of our B-TRAN™ solid-state switch technology.

To date, operations have been funded primarily through the sale of common stock and we have generated \$3.7 million in grant revenue for bidirectional power switch development. Grant revenue was \$203,269 and \$576,399, respectively, in the years ended December 31, 2022 and 2021, respectively. We may pursue additional research and development grants, if and when available, to further develop and/or improve our technology. We are in the process of commercializing our B-TRAN™ technology and launched our first commercial product, the SymCool™ Power Module, in January 2023. We expect initial sales of this product later in 2023.

Trends, Events and Uncertainties

Research and Development

Research and development of new technologies is, by its nature, unpredictable. We cannot assure you that our research and development will be successful, our technology will be adopted, that we will ever earn revenues sufficient to support our operations or that we will ever be profitable. Furthermore, since we have no committed source of financing, we cannot assure you that we will be able to raise additional capital if and when we need it to continue our operations. If we cannot raise funds if and when we need them, we may be required to severely curtail, or even to cease, our operations.

Public Offering

In February 2021, we received net proceeds from the Public Offering, as defined and discussed in more detail below, of \$21.2 million.

Critical Accounting Estimates

The following discussion and analysis of our financial condition and results of operations is based upon our financial statements, which have been prepared in conformity with accounting principles generally accepted in the United States of America. Certain accounting estimates are particularly important to the understanding of our financial position and results of operations and require the application of significant judgment by our management. As a result, they are subject to an inherent degree of uncertainty. In applying these policies, we use our judgment to determine the appropriate assumptions to be used in the determination of certain estimates. Those estimates may be based on our historical operations, our future business plans and projected financial results, the terms of existing contracts, our observance of trends in the industry, information provided by our customers and/or information available from other outside sources, as appropriate. Please see Footnote 2 to our financial statements for a summary of our significant accounting policies.

Stock-Based Compensation. We apply FASB ASC 718, “Stock Compensation,” when recording stock-based compensation. Grants to non-employees are also accounted for under ASC 718. The fair value of each stock option award is estimated on the date of grant using the commonly used Black-Scholes option valuation model. The assumptions used in the Black-Scholes model are as follows:

Grant Price — The grant price is determined based on the closing share price on the date of grant.

Risk-free interest rate — The risk-free interest rate is based on the implied yield available on US Treasury securities at the time of grant with an equivalent term of the expected life of the award.

Expected lives — As permitted by SAB 107, due to our insufficient history of option activity, we utilize the simplified approach to estimate the options’ expected term, calculated as the midpoint between the vesting period and the contractual life of the award.

Expected volatility — Volatility is estimated based on the historical volatilities of comparable companies.

Expected dividend yield — Dividend yield is based on current yield at the grant date or the average dividend yield over the historical period. We have never declared or paid dividends and have no plans to do so in the foreseeable future.

The fair value for performance stock units, which contain market conditions, is estimated on the date of grant using a Monte Carlo analysis utilizing the same expected volatility assumption as utilized in the Black-Scholes model for stock options.

Intangible Assets. Our intangible assets are composed of patents, which are recorded at cost, and other intangible assets, which are recorded at cost plus the estimated present value of all future payments associated with the other intangible assets. We capitalize third-party legal costs and filing fees, if any, associated with obtaining patents or other intangible assets. Once the patent asset has been placed in service, we amortize these costs over the shorter of the asset’s legal life, generally 20 years from the initial filing date, or its estimated economic life using the straight-line method. For the other intangible assets, we amortize the asset over the 17-year term of the underlying agreements.

Impairment of Long-Lived Assets. The long-lived assets, consisting of property and equipment and intangible assets, held and used by us are reviewed for impairment no less frequently than annually or whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. In the event that facts and circumstances indicate that the cost of any long-lived assets may be impaired, an evaluation of recoverability is performed. We determined that there were immaterial impairments in the value of long-lived assets during the years ended December 31, 2022 and 2021.

Income Taxes. We account for income taxes using an asset and liability approach which allows for the recognition and measurement of deferred tax assets based upon the likelihood of realization of tax benefits in future years. Under the asset and liability approach, deferred taxes are provided for the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. A valuation allowance is provided for deferred tax assets if it is more likely than not these items will either expire before we are able to realize their benefits, or that future deductibility is uncertain. Tax benefits from an uncertain tax position are recognized only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities based on the technical merits of the position.

We have concluded that it is more likely than not that we will not have sufficient foreseeable taxable income within the carryforward period as applicable and permitted by current law to allow for the utilization of certain of the deductible amounts generating the deferred tax assets; therefore, a full valuation allowance has been established to reduce the net deferred tax assets to zero at December 31, 2022 and 2021.

Results of Operations

Comparison of the year ended December 31, 2022 to the year ended December 31, 2021

Grant Revenues. Grant revenues decreased by \$373,130 to \$203,269 for the year ended December 31, 2022 from \$576,399 in the year ended December 31, 2021 due to the timing of milestones under the program. The grant revenues related primarily to a \$1.2 million subcontract with Diversified Technologies, Inc. (“DTI”) to supply B-TRAN™ devices as part of a two-year contract awarded to DTI by the United States Naval Sea Systems Command (“NAVSEA”) for the development and demonstration of a B-TRAN™ enabled high efficiency direct current solid-state circuit breaker (“SSCB”). The program started in late June 2020. In 2022, NAVSEA approved two 6-month extensions to the program. No additional grant revenue was associated with these extensions. In September 2021, we entered into and began work under a \$50,000 subcontract with DTI under a Phase I Small Business Innovation Research grant from the Department of Energy to develop a B-TRAN™-driven low loss alternating current SSCB. We completed this work in the first quarter of 2022. We expect the remaining grant revenue of \$37,388 related to the NAVSEA program to be recognized in the first half of 2023. We also expect to pursue additional government funding that may result in additional grant revenues in the future.

We entered into a development agreement in late 2022 and launched our first commercial product in January 2023. As a result, we expect to generate initial commercial revenue later in 2023.

Cost of Grant Revenues. Cost of grant revenues decreased by \$373,130 to \$203,269 for the year ended December 31, 2022 from \$576,399 for the year ended December 31, 2021. The cost of grant revenues relates to the subcontracts discussed above and are equal to the associated grant revenues resulting in no gross profit. We expect no gross profit under the subcontract with DTI related to the NAVSEA program or other grants that we are pursuing, or may pursue, in 2023.

Research and Development Expenses. Research and development expenses increased by \$1,439,033, or 75%, to \$3,366,776 in the year ended December 31, 2022 from \$1,927,743 in the year ended December 31, 2021. The increase was due to higher self-funded wafer fabrication runs of \$649,044, stock-based compensation expense of \$335,227, materials and supplies, primarily wafers, of \$218,394, personnel costs of \$215,584 and other B-TRAN™ spending of \$20,784. We expect higher research and development expenses in 2023 as we continue development of our B-TRAN™ technology and self-fund, at least in the short term, development previously partially funded through government grants.

General and Administrative Expenses. General and administrative expenses increased by \$715,427, or 30%, to \$3,123,852 in the year ended December 31, 2022 from \$2,408,425 in the year ended December 31, 2021. The increase was due primarily to higher stock-based compensation expense of \$219,017, professional fees of \$185,067, Board fees and expenses of \$122,037, personnel costs of \$77,927 and other costs of \$111,379, including items such as insurance and franchise taxes. We expect relatively flat general and administrative expenses, exclusive of stock-based compensation, in 2023.

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Sales and Marketing Expenses. Sales and marketing expenses increased by \$339,524, or 66%, to \$852,331 in the year ended December 31, 2022 from \$512,807 in the year ended December 31, 2021. The increase was due primarily to the higher personnel costs of \$172,005, stock-based compensation expense of \$69,243, travel costs of \$32,873, professional fees of \$26,342 and other spending of \$39,061 as we work towards commercializing our B-TRAN™ technology. We expect higher sales and marketing expenses in 2023 as we engage more broadly with prospective customers and launch our first two commercial products.

Loss from Operations. Our loss from operations for the year ended December 31, 2022 was \$7,342,959 or 51% higher than the \$4,848,975 loss from operations for the year ended December 31, 2021, driven by the factors discussed above.

Other Income. Other income increased by \$74,903 to \$153,609 for the year ended December 31, 2022 from \$78,706 for the year ended December 31, 2021. Other income for the year ended December 31, 2022 related to interest income as a result of the impact of higher interest rates on our money market account. Other income for the year ended December 31, 2021 was due to a \$91,407 gain on the forgiveness of our PPP Loan (as defined below) partly offset by interest expense of \$12,701.

Net Loss. Our net loss increased by \$2,419,081, or 51%, to \$7,189,350 for the year ended December 31, 2022 from a net loss of \$4,770,269 for the year ended December 31, 2021 for the reasons discussed above.

Liquidity and Capital Resources

In 2022, we generated grant revenue only. In 2023, we expect to generate grant revenue as well as initial commercial revenue. We have incurred losses since inception. We have funded our operations to date primarily through the sale of common stock.

As of December 31, 2022 and 2021, we had cash and cash equivalents of \$16,345,623 and \$23,170,149, respectively. Our net working capital and long-term debt at December 31, 2022 were \$16,453,606 and \$0, respectively.

We believe that our cash and cash equivalents on hand will be sufficient to meet our ongoing liquidity needs for at least the next 12 months. Additional future financing may be necessary to fund our operations and there can be no assurance that, if needed, we will be able to secure additional debt or equity financing on terms acceptable to us or at all. Although we believe we have adequate sources of liquidity over the long term, the success of our operations, the global economic outlook, and the pace of sustainable growth in our markets could each impact our business and liquidity.

Operating activities in the year ended December 31, 2022 resulted in cash outflows of \$6,383,914, which were due to the net loss for the period of \$7,189,350 and unfavorable balance sheet timing of \$458,479, partly offset by non-cash items including stock-based compensation of \$975,801, depreciation and amortization of \$187,077, stock issued for services of \$100,100 and the write-off of long-lived assets of \$937.

Operating activities in the year ended December 31, 2021 resulted in cash outflows of \$4,280,864, which were due to the net loss for the period of \$4,770,269, unfavorable balance sheet timing of \$137,573 and a non-cash gain on the forgiveness of our PPP Loan of \$91,407, partly offset by other non-cash items including stock-based compensation of \$352,313, stock issued for services of \$207,980, depreciation and amortization of \$157,564 and patent impairment charges of \$528.

We expect an increase in cash outflows from operating activities in 2023 as we commercialize our B-TRAN™ technology, including the launch of our first two commercial products.

Investing activities in the years ended December 31, 2022 and 2021 resulted in cash outflows of \$312,740 and \$236,935, respectively. For the year ended December 31, 2022, cash outflows for the acquisition of intangible assets were \$130,089 and capital expenditures were \$182,651, primarily for lab testing equipment. For the year ended December 31, 2021, cash outflows for the acquisition of intangible assets were \$192,668 and capital expenditures were \$44,267.

Financing activities in the year ended December 31, 2022 resulted in cash outflows of \$127,872 for the payment of withholding taxes on the vesting of restricted stock units. Financing activities in the year ended December 31, 2021 resulted in cash inflows of \$21,204,609 from the net proceeds from our Public Offering and \$3,326,083 from the exercise of warrants and stock options.

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Public Offering

In February 2021, we issued and sold 1,352,975 shares of our common stock, including 176,475 additional shares of common stock pursuant to the exercise of the underwriter’s option to purchase additional shares in full, at a price of \$17.00 per share (the “Public Offering”). The net proceeds to us from the Public Offering were \$21.2 million. We are utilizing, and intend to continue to utilize, the net proceeds from the Public Offering to fund commercialization and development of our B-TRAN™ technology and general corporate and working capital purposes.

PPP Loan

In May 2020, we entered into a Loan Agreement and Promissory Note (collectively the “PPP Loan”) with BBVA USA pursuant to the Paycheck Protection Program (the “PPP”) under the Coronavirus Aid, Relief, and Economic Security Act (“CARES Act”) administered by the U.S. Small Business Administration (“SBA”). We received total proceeds of \$91,407 from the unsecured PPP Loan. The PPP Loan was scheduled to mature in May 2022 and had an interest rate of 1.00% per annum and was subject to the terms and conditions applicable to loans administered by the SBA under the CARES Act. In accordance with the requirements of the CARES Act and the PPP, we used the proceeds from the PPP Loan primarily for payroll costs. We applied for forgiveness of the PPP Loan during the first quarter of 2021. In May 2021, the SBA approved forgiveness of our PPP Loan.

Contractual Obligations and Commitments

Lease

In March 2021, we entered into a lease agreement for 4,070 square feet of office and laboratory space located in Austin, Texas. The commencement of the lease occurred on June 1, 2021 and the initial term of the lease was 63 months. The actual base rent in the first year of the lease was \$56,471 and was net of \$18,824 in abated rent over the first three months of the lease term. The annual base rent in the second year of the lease is \$77,330 and increases by \$2,035 in each succeeding year of the lease. In addition, we are required to pay our proportionate share of operating costs for the building under this triple net lease. The lease contains a 5-year fair market renewal option. It does not contain a termination option. We recognized a right of use asset of \$339,882 and a corresponding lease liability for this lease upon lease commencement.

Future minimum payments under the lease are as follows:

For the Year Ended December 31,	
2023	\$ 78,517
2024	80,552
2025	82,587
2026	56,132
Total lease payments	297,788
Less: imputed interest	(30,204)
Total lease liability	<u>\$ 267,584</u>

Licensing Agreements

In 2015, we entered into licensing agreements which expire in February 2033. Per the agreements, we have an exclusive royalty-free license associated with semiconductor power switches which enhances our intellectual property portfolio. The agreements include both fixed payments, all of which were paid prior to 2017, and ongoing variable payments. The variable payments are a function of the number of associated patent filings pending and patents issued under the agreements. We will pay \$10,000 for each patent filing pending and \$20,000 for each patent issued annually with one-half of the annual payment due within 20 days of December 21st of each year and one-half of the annual payment due within 20 days of June 21st of each year of the agreements, up to a maximum of \$100,000 each year (i.e. five issued patents).

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In March 2021, two patents associated with these agreements were issued and we recorded, as a non-cash activity, an intangible asset and a corresponding other long-term liability of \$426,937, representing the estimated present value of future payments under the licensing agreements for these two issued patents. As of March 2021, all five patents associated with the agreements were issued and, as a result, the annual payment amount through expiration of the licensing agreements is \$100,000. At December 31, 2022, the corresponding long-term liability for the estimated present value of future payments under the licensing agreement was \$838,458. We are accruing interest for future payments related to the issued patents associated with the agreement.

ITEM 7A: QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

As a smaller reporting company, we are not required to provide this information.

ITEM 8: FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of
Ideal Power, Inc.

Opinion on the Financial Statements

We have audited the accompanying balance sheets of Ideal Power, Inc. (the “Company”) as of December 31, 2022 and 2021, and the related statements of operations, stockholders’ equity and cash flows for each of the two years in the period ended December 31, 2022, and the related notes (collectively referred to as the “financial statements”). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2022, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s financial statements based on our audit. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (“PCAOB”) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our 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 the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform an audit of its internal control over financial reporting. As part of our audit, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company’s internal control over financial reporting. Accordingly, we express no such opinion.

Our audit included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audit provides 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 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 financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Carrying Value of Intangible Assets

As described in Note 2 to the financial statements, the Company’s intangible asset, net balance was \$2.0 million as of December 31, 2022. The Company capitalizes third-party legal costs and filing fees, if any, associated with obtaining patents or other intangible assets. Once the patent asset has been placed in service, the Company amortizes these costs over the shorter of the asset’s legal or estimated economic life using the straight-line method. The Company also evaluates for potential impairment of long-lived assets, including intangible assets composed of patents, no less frequently than annually or whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable.

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The principal considerations for our determination that performing procedures relating to the carrying value of intangible assets is a critical audit matter are the significant amount of judgment by management in developing the assumptions of future economic benefit in an impairment analysis, which in turn led to significant auditor judgment, subjectivity and effort in performing audit procedures and evaluating audit evidence relating to the analysis.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the financial statements. These procedures included, among others, reviewing current and forecasted operating conditions for indication of impairment. We also reviewed board minutes, news, and industry reports for indications of impairment. Last, we obtained an understanding of potential future customers indicating future recoverability.

/s/ BPM LLP

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

San Jose, California

March 30, 2023

IDEAL POWER INC.

Balance Sheets

	December 31,	
	2022	2021
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 16,345,623	\$ 23,170,149
Accounts receivable, net	65,936	233,262
Prepayments and other current assets	491,365	43,900
Total current assets	<u>16,902,924</u>	<u>23,447,311</u>
Property and equipment, net	200,103	56,158
Intangible assets, net	2,036,431	2,055,650
Right of use asset	248,720	307,172
Other assets	11,189	11,189
Total assets	<u>\$ 19,399,367</u>	<u>\$ 25,877,480</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 130,503	\$ 130,500
Accrued expenses	254,218	353,507
Current portion of lease liability	64,597	58,864
Total current liabilities	<u>449,318</u>	<u>542,871</u>
Long-term lease liability	202,987	267,584
Other long-term liabilities	838,458	917,100
Total liabilities	<u>1,490,763</u>	<u>1,727,555</u>
Commitments and contingencies (Note 9)		
Stockholders' equity:		
Preferred stock, \$0.001 par value; 10,000,000 shares authorized; 0 shares issued and outstanding at December 31, 2022 and 2021	—	—
Common stock, \$0.001 par value; 50,000,000 shares authorized; 5,926,001 shares issued and 5,924,680 shares outstanding at December 31, 2022 and 5,893,767 shares issued and 5,892,446 shares outstanding at December 31, 2021	5,926	5,894
Additional paid-in capital	105,011,318	104,063,321
Treasury stock, at cost; 1,321 shares at December 31, 2022 and 2021, respectively	(13,210)	(13,210)
Accumulated deficit	<u>(87,095,430)</u>	<u>(79,906,080)</u>
Total stockholders' equity	<u>17,908,604</u>	<u>24,149,925</u>
Total liabilities and stockholders' equity	<u>\$ 19,399,367</u>	<u>\$ 25,877,480</u>

The accompanying notes are an integral part of these financial statements.

IDEAL POWER INC.
Statements of Operations

	For the Year Ended	
	December 31,	
	2022	2021
Grant revenue	\$ 203,269	\$ 576,399
Cost of grant revenue	203,269	576,399
Gross profit	<u>—</u>	<u>—</u>
Operating expenses:		
Research and development	3,366,776	1,927,743
General and administrative	3,123,852	2,408,425
Sales and marketing	852,331	512,807
Total operating expenses	<u>7,342,959</u>	<u>4,848,975</u>
Loss from operations	(7,342,959)	(4,848,975)
Other income:		
Interest income (expense), net	153,609	(12,701)
Gain on forgiveness of long-term debt	—	91,407
Total other income	<u>153,609</u>	<u>78,706</u>
Net loss	<u>\$ (7,189,350)</u>	<u>\$ (4,770,269)</u>
Net loss per share – basic and diluted	<u>\$ (1.17)</u>	<u>\$ (0.80)</u>
Weighted average number of shares outstanding – basic and diluted	<u>6,157,866</u>	<u>5,937,520</u>

The accompanying notes are an integral part of these financial statements.

IDEAL POWER INC.

**Statement of Stockholders' Equity
For the Years Ended December 31, 2022 and 2021**

	Common Stock		Additional Paid-In Capital	Treasury Stock		Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount		Shares	Amount		
Balances at December 31, 2020	3,265,740	\$ 3,266	\$ 78,974,964	1,321	\$ (13,210)	\$ (75,135,811)	\$ 3,829,209
Issuance of shares of common stock in public offering	1,352,975	1,353	21,203,256	—	—	—	21,204,609
Exercise of options and warrants	1,261,052	1,261	3,324,822	—	—	—	3,326,083
Stock issued for services	14,000	14	207,966	—	—	—	207,980
Stock-based compensation	—	—	352,313	—	—	—	352,313
Net loss for the year ended December 31, 2021	—	—	—	—	—	(4,770,269)	(4,770,269)
Balances at December 31, 2021	5,893,767	5,894	104,063,321	1,321	(13,210)	(79,906,080)	24,149,925
Exercise of options	1,351	1	(1)	—	—	—	—
Stock issued for services	10,000	10	100,090	—	—	—	100,100
Vesting of restricted stock units	20,883	21	(127,893)	—	—	—	(127,872)
Stock-based compensation	—	—	975,801	—	—	—	975,801
Net loss for the year ended December 31, 2022	—	—	—	—	—	(7,189,350)	(7,189,350)
Balances at December 31, 2022	5,926,001	\$ 5,926	\$ 105,011,318	1,321	\$ (13,210)	\$ (87,095,430)	\$ 17,908,604

The accompanying notes are an integral part of these financial statements.

IDEAL POWER INC.
Statements of Cash Flows

	For the Year Ended December 31,	
	2022	2021
Cash flows from operating activities:		
Net loss	\$ (7,189,350)	\$ (4,770,269)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	187,077	157,564
Write-off of long-lived assets	937	528
Stock-based compensation	975,801	352,313
Stock issued for services	100,100	207,980
Gain on forgiveness of long-term debt	—	(91,407)
Decrease (increase) in operating assets:		
Accounts receivable	167,326	(62,975)
Prepaid expenses and other assets	(389,013)	176,223
Increase (decrease) in operating liabilities:		
Accounts payable	3	28,516
Accrued expenses and other liabilities	(236,795)	(279,337)
Net cash used in operating activities	<u>(6,383,914)</u>	<u>(4,280,864)</u>
Cash flows from investing activities:		
Purchase of property and equipment	(182,651)	(44,267)
Acquisition of intangible assets	(130,089)	(192,668)
Net cash used in investing activities	<u>(312,740)</u>	<u>(236,935)</u>
Cash flows from financing activities:		
Net proceeds from issuance of common stock	—	21,204,609
Exercise of options and warrants	—	3,326,083
Payment of taxes on vesting of restricted stock units	(127,872)	—
Net cash (used in) provided by financing activities	<u>(127,872)</u>	<u>24,530,692</u>
Net (decrease) increase in cash and cash equivalents	<u>(6,824,526)</u>	<u>20,012,893</u>
Cash and cash equivalents at beginning of year	23,170,149	3,157,256
Cash and cash equivalents at end of year	<u>\$ 16,345,623</u>	<u>\$ 23,170,149</u>

The accompanying notes are an integral part of these financial statements.

Ideal Power Inc.

Notes to Financial Statements

Note 1 — Organization and Description of Business

Ideal Power Inc. (the “Company”) was incorporated in Texas on May 17, 2007 under the name Ideal Power Converters, Inc. The Company changed its name to Ideal Power Inc. on July 8, 2013 and re-incorporated in Delaware on July 15, 2013. With headquarters in Austin, Texas, the Company is focused on the further development and commercialization of its Bidirectional bipolar junction TRANsistor (B-TRAN™) solid-state switch technology.

Since its inception, the Company has financed its research and development efforts and operations primarily through the sale of common stock. The Company’s continued operations are dependent upon, among other things, its ability to obtain adequate sources of funding through future revenues, follow-on stock offerings, issuances of warrants, debt financing, co-development agreements, government grants, sale or licensing of developed intellectual property or other alternatives.

Note 2 — Summary of Significant Accounting Policies

Basis of Presentation

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make certain estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Cash and Cash Equivalents

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

Accounts Receivable

Trade accounts receivable are stated net of an allowance for doubtful accounts. Management estimates the allowance for doubtful accounts based on review and analysis of specific customer balances that may not be collectible, customer payment history and any other customer-specific information that may impact the evaluation of the specific customer’s credit.

Trade accounts receivable at December 31, 2022 relate to a \$1.2 million subcontract with Diversified Technologies, Inc. (“DTI”), signed in June 2020, to supply B-TRAN™ devices as part of a two-year contract awarded to DTI by the United States Naval Sea Systems Command for the development and demonstration of a B-TRAN™ enabled high efficiency direct current solid-state circuit breaker (“SSCB”). In 2022, two 6-month extensions were approved under this contract. At December 31, 2022, unbilled grant receivables with DTI, which are included in accounts receivable, net, were \$17,857 and the allowance for doubtful accounts was \$0.

Property and Equipment

Property and equipment are stated at historical cost less accumulated depreciation and amortization. Major additions and improvements are capitalized while maintenance and repairs that do not improve or extend the useful life of the respective asset are expensed. Depreciation and amortization of property and equipment is computed using the straight-line method over their estimated useful lives. Leasehold improvements are amortized over the shorter of the life of the asset or the related leases. Estimated useful lives of the principal classes of assets are as follows:

Leasehold improvements	Shorter of lease term or useful life
Machinery and equipment	5 years
Furniture, fixtures and IT equipment	3 – 5 years

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Intangible Assets

The Company's intangible assets are composed of patents, which are recorded at cost, and other intangible assets, which are recorded at cost plus the estimated present value of all future payments associated with the other intangible assets. The Company capitalizes third-party legal costs and filing fees, if any, associated with obtaining patents or other intangible assets. Once the patent asset has been placed in service, the Company amortizes these costs over the shorter of the asset's legal life, generally 20 years from the initial filing date, or its estimated economic life using the straight-line method. For the other intangible assets, the Company amortizes the asset over the 17-year term of the underlying agreements.

Impairment of Long-Lived Assets

The long-lived assets, consisting of property and equipment and intangible assets, held and used by the Company are reviewed for impairment no less frequently than annually or whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. In the event that facts and circumstances indicate that the cost of any long-lived assets may be impaired, an evaluation of recoverability is performed. Management has determined that there was an impairment in the value of long-lived assets in the amount of \$937 and \$528 during the years ended December 31, 2022 and 2021, respectively.

Fair Value

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Assets and liabilities measured at fair value are categorized based on whether or not the inputs are observable in the market and the degree that the inputs are observable. The categorization of financial assets and liabilities within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement. The three levels of inputs used to establish fair value are the following:

- Level 1 — Quoted prices in active markets for identical assets or liabilities;
- Level 2 — Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; and
- Level 3 — Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities

The Company's financial instruments primarily consist of cash and cash equivalents, accounts payable and long-term liabilities. As of the balance sheet dates, the estimated fair values of the financial instruments were not materially different from their carrying values as presented on the balance sheets. This is primarily attributed to the short-term nature of these instruments.

In 2015, the Company recorded a long-term liability for the estimated present value of future payments under licensing agreements. In 2021, the Company recorded an adjustment to increase the long-term liability due to an increase in the future payments due under these licensing agreements. The Company determined the discount rate to estimate the present value of the future payments based on the applicable treasury rates. The Company's long-term liability is classified within Level 3. See Note 5 and Note 9 for more details regarding the licensing agreements. The Company did not identify any other assets and liabilities that are required to be presented in the balance sheets at fair value.

Revenue Recognition

The Company recognizes revenue and related cost of revenue in accordance with Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") 606, "Revenue from Contracts with Customers" and, as applicable, with the guidance issued by the FASB in June 2018 for the recipients of grants.

Currently, the Company recognizes grant revenue and cost of grant revenue only. Government contracts, including grants, are agreements that generally provide the Company with cost reimbursement for certain types of development activities over a contractually defined period. Grant revenue is recognized in the period during which the Company incurs the related costs, provided

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that the Company has incurred the cost in accordance with the specifications and work plans determined between the Company and the government entity.

For the years ended December 31, 2022 and 2021, the Company recognized \$203,269 and \$576,399, respectively, of grant revenue and cost of grant revenue. The grant revenue and cost of grant revenue relate primarily to the subcontract with DTI discussed above. The Company accounts for this subcontract as an exchange transaction under applicable guidance.

Research and Development

Research and development costs are presented as a line item under operating expenses and are expensed as incurred. Research and development costs include costs to further develop the Company's B-TRAN™ technology and include, but are not limited to, the cost of engineering personnel, wafer fabrication, contract labor, driver design and fabrication, device packaging, product development, testing and other engineering services, stock-based compensation for engineering personnel, consulting and materials and supplies.

Income Taxes

The Company accounts for income taxes using an asset and liability approach which allows for the recognition and measurement of deferred tax assets based upon the likelihood of realization of tax benefits in future years. Under the asset and liability approach, deferred taxes are provided for the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. A valuation allowance is provided for deferred tax assets if it is more likely than not these items will either expire before the Company is able to realize their benefits, or that future deductibility is uncertain. At December 31, 2022 and 2021, the Company has established a full reserve against all deferred tax assets.

Tax benefits from an uncertain tax position are recognized only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities based on the technical merits of the position. The tax benefits recognized in the financial statements from such a position are measured based on the largest benefit that has a greater than 50 percent likelihood of being realized upon ultimate resolution.

Net Loss Per Share

The Company applies FASB ASC 260, "Earnings per Share." Basic earnings (loss) per share is computed by dividing earnings (loss) available to common stockholders by the weighted-average number of common shares outstanding. Diluted earnings (loss) per share is computed similar to basic earnings (loss) per share except that the denominator is increased to include additional common shares available upon exercise of equity awards and warrants using the treasury stock method. In periods with a net loss, no common share equivalents are included because their effect would be anti-dilutive.

In accordance with ASC 260, shares issuable for little or no cash consideration are considered outstanding common shares and included in the computation of basic earnings per share. As such, the Company includes pre-funded warrants to purchase shares of common stock in its computation of earnings per share. The pre-funded warrants were issued in November 2019 with an exercise price of \$0.001. See Note 12.

At December 31, 2022 and 2021, potentially dilutive shares outstanding amounted to 1,598,034 and 1,379,306 shares, respectively, and exclude pre-funded warrants to purchase shares of common stock.

Stock Based Compensation

The Company applies FASB ASC 718, "Stock Compensation," when recording stock-based compensation. Grants to non-employees are also accounted for under ASC 718. The fair value of each stock option award is estimated on the date of grant using the Black-Scholes option valuation model. The fair value of each performance stock unit award is estimated on the date of grant using a Monte Carlo simulation.

The Company issues common stock upon exercise of equity awards and warrants.

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Concentration of Credit Risk

Financial instruments that potentially subject the Company to concentrations of credit risk consist primarily of cash and cash equivalents. The Company maintains its cash with a major financial institution located in the United States. Balances are insured by the Federal Deposit Insurance Corporation up to \$250,000. The Company maintains balances in excess of federally insured limits. The Company has not experienced losses in such accounts and believes it is not exposed to significant credit risk regarding its cash and cash equivalents.

Recent Accounting Pronouncements

Management does not believe that any recently issued, but not yet effective, accounting standards, if adopted, would have a material impact on the Company's financial statements.

Note 3 — Prepayments and Other Current Assets

Prepayments and other current assets consisted of the following:

	December 31,	
	2022	2021
Prepaid insurance	\$ 213,357	\$ 22,307
Prepaid semiconductor fabrication costs	110,319	—
Prepaid software	71,141	4,374
Prepaid consulting	32,000	—
Prepaid engineering services	26,000	—
Other	38,548	17,219
	<u>\$ 491,365</u>	<u>\$ 43,900</u>

Note 4 — Property and Equipment

Property and equipment, net consisted of the following:

	December 31,	
	2022	2021
Machinery and equipment	\$ 233,431	\$ 93,811
Building leasehold improvements	10,245	10,245
Furniture, fixtures, software and IT equipment	98,793	62,884
	342,469	166,940
Accumulated depreciation and amortization	(142,366)	(110,782)
	<u>\$ 200,103</u>	<u>\$ 56,158</u>

Depreciation expense amounted to \$37,769 and \$25,234 for the years ended December 31, 2022 and 2021, respectively. During the year ended December 31, 2022, the Company wrote-off \$937 in property and equipment.

Note 5 — Intangible Assets

Intangible assets, net consisted of the following:

	December 31,	
	2022	2021
Patents	\$ 1,263,930	\$ 1,133,841
Other intangible assets	1,391,479	1,391,479
	<u>2,655,409</u>	<u>2,525,320</u>
Accumulated amortization - patents	(211,078)	(158,516)
Accumulated amortization – other intangible assets	(407,900)	(311,154)
	<u>\$ 2,036,431</u>	<u>\$ 2,055,650</u>

At December 31, 2022 and 2021, the Company had capitalized \$341,610 and \$306,640, respectively, for costs related to patents that have not been awarded. Costs related to patents that have not been awarded are not amortized until patent issuance. During the years ended December 31, 2022 and 2021, the Company wrote-off \$0 and \$528, respectively, in previously capitalized patent costs.

Amortization expense amounted to \$149,308 and \$132,330 for the years ended December 31, 2022 and 2021, respectively. Amortization expense for the succeeding five years and thereafter is \$152,904 (2023-2027) and \$930,301 (thereafter).

Note 6 — Accrued Expenses

Accrued expenses consisted of the following:

	December 31,	
	2022	2021
Accrued compensation	\$ 70,261	\$ 147,756
Accrued Board fees	62,500	30,000
Accrued professional fees	53,300	44,000
Accrued licensing fees	50,000	50,000
Accrued taxes	—	75,200
Other	18,157	6,551
	<u>\$ 254,218</u>	<u>\$ 353,507</u>

Note 7 – Loans

In May 2020, the Company entered into a Loan Agreement and Promissory Note (collectively the “PPP Loan”) with BBVA USA pursuant to the Paycheck Protection Program (the “PPP”) under the Coronavirus Aid, Relief, and Economic Security Act (“CARES Act”) administered by the U.S. Small Business Administration (“SBA”). The Company received total proceeds of \$91,407 from the unsecured PPP Loan. The PPP Loan was scheduled to mature in May 2022 and had an interest rate of 1.00% per annum and was subject to the terms and conditions applicable to loans administered by the SBA under the CARES Act. In accordance with the requirements of the CARES Act and the PPP, the Company used the proceeds from the PPP Loan primarily for payroll costs. The Company applied for forgiveness of the PPP Loan during the first quarter of 2021. In May 2021, the SBA approved forgiveness of the Company’s PPP Loan in the principal amount of \$91,407, including accrued interest. The \$91,407 gain on forgiveness of the PPP Loan is shown in other income (expenses) in the financial statements for the year ended December 31, 2021 and represents a non-cash financing activity.

Note 8 — Lease

The Company leased 14,782 square feet of office and laboratory space located in Austin, Texas and subleased approximately seventy-five percent (75%) of this space to a third party. This lease and sublease expired concurrently on May 31, 2021.

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In March 2021, the Company entered into a lease agreement for 4,070 square feet of office and laboratory space located in Austin, Texas. The commencement of the lease occurred on June 1, 2021 and the initial term of the lease was 63 months. The actual base rent in the first year of the lease was \$56,471 and was net of \$18,824 in abated rent over the first three months of the lease term. The annual base rent in the second year of the lease is \$77,330 and increases by \$2,035 in each succeeding year of the lease. In addition, the Company is required to pay its proportionate share of operating costs for the building under this triple net lease. The lease contains a 5-year fair market renewal option. It does not contain a termination option. The Company recognized a right of use asset of \$339,882 and a corresponding lease liability for this lease upon lease commencement.

For purposes of calculating the right of use asset and lease liability included in the Company's financial statements, the Company estimated its incremental borrowing rate at 6% per annum.

Future minimum payments under the lease are as follows:

For the Year Ended December 31,	
2023	\$ 78,517
2024	80,552
2025	82,587
2026	56,132
Total lease payments	297,788
Less: imputed interest	(30,204)
Total lease liability	267,584
Less: current portion of lease liability	(64,597)
Long-term lease liability	\$ 202,987

For the year ended December 31, 2022, operating cash outflows for lease payments totaled \$76,482 and the operating lease cost, recognized on a straight-line basis, totaled \$76,070. For the year ended December 31, 2021, operating cash outflows for lease payments totaled \$108,247 and the operating lease cost, recognized on a straight-line basis, totaled \$125,187. At December 31, 2022, the remaining lease term was 44 months.

Note 9 — Commitments and Contingencies

Licensing Agreements

In 2015, the Company entered into licensing agreements which expire in February 2033. Per the agreements, the Company has an exclusive royalty-free license associated with semiconductor power switches which enhances its intellectual property portfolio. The agreements include both fixed payments, all of which were paid prior to 2017, and ongoing variable payments. The variable payments are a function of the number of associated patent filings pending and patents issued under the agreements. The Company will pay \$10,000 for each patent filing pending and \$20,000 for each patent issued annually with one-half of the annual payment due within 20 days of December 21st of each year and one-half of the annual payment due within 20 days of June 21st of each year of the agreements, up to a maximum of \$100,000 each year (i.e. five issued patents).

In March 2021, two patents associated with these agreements were issued and the Company recorded, as a non-cash activity, an intangible asset and a corresponding other long-term liability of \$426,937, representing the estimated present value of future payments under the licensing agreements for these two issued patents. As of March 2021, all five patents associated with the agreements were issued. At December 31, 2022 and 2021, the corresponding long-term liability for the estimated present value of future payments under the licensing agreement was \$838,458 and \$917,100, respectively. The Company is accruing interest for future payments related to the issued patents associated with the agreement.

Legal Proceedings

The Company may be subject to litigation from time to time in the ordinary course of business. The Company is not currently party to any legal proceedings that it believes would reasonably have a material adverse impact on its business, financial results, and cash flows.

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Indemnification Obligations

The employment agreements of Company executives include an indemnification provision whereby the Company shall indemnify and defend, at the Company's expense, its executives so as long as an executive's actions were taken in good faith and in furtherance of Company's business and within the scope of executive's duties and authority.

Note 10 — Equity

All shares of common stock have a par value of \$0.001. Each holder of common stock is entitled to one vote per share outstanding.

Public Offering

In February 2021, the Company issued and sold 1,352,975 shares of its common stock, including 176,475 additional shares of common stock pursuant to the exercise of the underwriter's option to purchase additional shares in full, in an underwritten public offering at a price of \$17.00 per share (the "Public Offering"). The net proceeds to the Company from the Public Offering were \$21.2 million. The Company is utilizing, and intends to continue utilizing, the net proceeds from the Public Offering to fund commercialization and development of its B-TRAN™ technology and general corporate and working capital purposes.

Stock Issuances

In January 2022, the Company issued 10,000 unregistered shares of common stock, valued at \$100,100 at the time of issuance, to a third-party vendor as compensation for services performed. In October 2021, the Company issued 10,000 unregistered shares of common stock, valued at \$139,300 at the time of issuance, to a third-party vendor as compensation for services performed. In February 2021, the Company issued 4,000 unregistered shares of common stock, valued at \$68,680 at the time of issuance, to a third-party vendor as compensation for services performed.

Note 11 — Equity Incentive Plan

In May 2013, the Company adopted the 2013 Equity Incentive Plan (as amended and restated, the "Plan") and reserved shares of common stock for issuance under the Plan, which was last amended in June 2021. As a result of the last amendment, the number of shares authorized for issuance under the Plan increased by 500,000 shares and the Plan will now terminate in June 2031, unless sooner terminated or extended by the Company's Board of Directors (the "Board"). The Plan is administered by the Compensation Committee of the Board. At December 31, 2022, there were 176,430 shares of common stock available for issuance under the Plan.

During the year ended December 31, 2022, the Company granted 31,062 stock options to Board members, 57,500 restricted stock units and 97,500 performance stock units to executives and 30,000 stock options, 59,500 restricted stock units and 16,500 performance stock units to employees under the Plan. The estimated fair value of these equity grants, calculated using the Black-Scholes option valuation model for the stock options and a Monte Carlo simulation model for the performance stock units, which contain market conditions, was \$2,688,111, of which \$320,722 was recognized in the respective department expenses in the statement of operations for the year ended December 31, 2022.

During the year ended December 31, 2021, the Company granted 31,821 stock options to Board members, 100,000 restricted units to executives and 100,000 stock options to employees under the Plan. The estimated fair value of these equity grants, calculated using the Black-Scholes option valuation model for the stock options, was \$2,078,872, of which \$327,414 was recognized during the year ended December 31, 2021.

As permitted by SAB 107, management utilizes the simplified approach to estimate the expected term of stock options, which represents the period of time that options granted are expected to be outstanding. The risk-free interest rate for periods within the contractual life of the option is based on the U.S. treasury yield in effect at the time of grant. The volatility is estimated based on the historical volatilities of comparable companies. The Company has never declared or paid dividends and has no plans to do so in the foreseeable future.

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The assumptions used in the Black-Scholes model are as follows:

	For the year ended December 31,	
	2022	2021
Average risk-free interest rate	2.67 %	0.97 %
Expected dividend yield	— %	— %
Expected life	5.25 to 6.00 years	5.31 to 6.00 years
Expected volatility	90 %	90 %

The Company utilizes the same expected volatility in the Monte Carlo simulation for performance stock units.

A summary of the Company's stock option activity and related information is as follows:

	2022			2021		
	Stock Options	Weighted Average Exercise Price	Weighted Average Remaining Life (in years)	Stock Options	Weighted Average Exercise Price	Weighted Average Remaining Life (in years)
Outstanding at January 1	492,886	\$ 7.35	7.6	391,650	\$ 5.70	8.1
Granted	61,062	\$ 11.09		131,821	\$ 11.42	
Exercised	(3,750)	\$ 5.36		(27,934)	\$ 3.27	
Forfeited / Expired	(36,250)	\$ 10.45		(2,651)	\$ 8.04	
Outstanding at December 31	513,948	\$ 7.59	6.6	492,886	\$ 7.35	7.6
Exercisable at December 31	443,284	\$ 6.78	6.2	378,470	\$ 6.17	7.1

The following table sets forth additional information about stock options outstanding at December 31, 2022:

Range of Exercise Prices	Options Outstanding	Weighted Average Remaining Life (in years)	Weighted Average Exercise Price	Options Exercisable
\$1.99 – \$2.85	181,557	5.3	\$ 2.52	181,557
\$4.25 – \$9.31	176,736	7.5	\$ 7.33	176,736
\$10.41 – \$17.25	151,302	7.2	\$ 12.82	80,638
\$31.50 – \$79.40	4,353	3.6	\$ 48.50	4,353
	513,948			443,284

Stock options granted under the Plan have ten-year terms and generally vest immediately or annually over a three-year vesting period except for option grants to independent directors that generally vest quarterly over a one-year vesting period.

The estimated aggregate pretax intrinsic value (the difference between the Company's stock price on the last day of the year ended December 31, 2022 and the exercise prices, multiplied by the number of in-the-money options) is \$2.1 million for both outstanding and vested options. This amount changes based on the fair value of the Company's stock.

A summary of the Company's restricted stock unit (RSU) and performance stock unit (PSU) activity is as follows:

	2022		2021	
	RSUs	PSUs	RSUs	PSUs
Outstanding at January 1	100,000	—	—	—
Granted	117,000	114,000	100,000	—
Vested	(33,334)	—	—	—
Outstanding at December 31	183,666	114,000	100,000	\$ —

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In the year ended December 31, 2022, 33,334 restricted stock units vested of which 12,451 restricted stock units were forfeited to cover the executives' payroll tax withholding obligations. The payment of the taxes on the vesting of the restricted stock units is shown as a financing activity on the statement of cash flow.

As of December 31, 2022, there was \$3,273,829 of unrecognized compensation cost related to non-vested share-based compensation arrangements. That cost is expected to be recognized over a weighted average period of 1.0 years.

Note 12 — Warrants

A summary of the Company's warrant activity and related information is as follows:

	Warrants		Pre-Funded Warrants	
	Warrants	Weighted Average Exercise Price	Warrants	Weighted Average Exercise Price
Outstanding at December 31, 2020	1,149,868	\$ 6.36	320,201	\$ 0.001
Exercised	(363,448)	\$ 8.90	(66,373)	\$ 0.001
Outstanding at December 31, 2021	786,420	\$ 5.19	253,828	\$ 0.001
Outstanding at December 31, 2022	786,420	\$ 5.19	253,828	\$ 0.001

All warrants were exercisable at December 31, 2022 although warrants may generally be exercised only to the extent that the total number of shares of common stock then beneficially owned by these shareholders does not exceed 4.99% (or, at the investor's election, 9.99%) of the outstanding shares of the Company's stock.

The weighted average remaining life, excluding the 253,828 pre-funded warrants with no expiration date, of the outstanding warrants is 2.2 years.

The estimated aggregate pre-tax intrinsic value (the difference between the Company's stock price on the last day of the year ended December 31, 2022 and the exercise prices, multiplied by the number of in-the-money warrants) is \$7.1 million.

Note 13 — Income Taxes

Income taxes are disproportionate to income due to net operating loss carryforwards, which are fully reserved. As of December 31, 2022, the Company has federal net operating loss carryforwards of approximately \$65 million. The federal net operating loss carryforward for years prior to 2018 expire from 2031 through 2038. Federal net operating loss carryforwards for year 2018 and thereafter do not expire.

Pursuant to Internal Revenue Code Sections 382 and 383, use of the Company's net operating loss and credit carryforwards may be limited if a cumulative change in ownership of more than 50% occurs within any three-year period since the last ownership change. The Company may have had one or more changes in control under these Sections. However, the Company does not anticipate performing a complete analysis of the limitation on the annual use of the net operating loss and tax credit carryforwards until the time that it projects it will be able to utilize these tax attributes.

Management has concluded that it is more likely than not that the Company will not have sufficient foreseeable taxable income within the carryforward period as applicable and permitted by current law to allow for the utilization of certain of the deductible amounts generating the deferred tax assets; therefore, a full valuation allowance has been established to reduce the net deferred tax assets to zero at December 31, 2022 and 2021.

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The following is a summary of the significant components of the Company's net deferred income tax assets and liabilities as of December 31, 2022 and 2021:

	For the Year Ended December 31,	
	2022	2021
Current deferred income tax assets:		
Accrued compensation and other	\$ 11,000	\$ 11,000
Less: valuation allowance	(11,000)	(11,000)
	<u>\$ —</u>	<u>\$ —</u>
Non-current deferred income tax assets and (liabilities):		
Net operating loss	\$ 13,642,000	\$ 13,013,000
Research and development credit	18,000	18,000
Research and experimental costs	595,000	—
Warrants issued for services	45,000	45,000
Depreciation and amortization	135,000	126,000
Exercise of options and warrants	(36,000)	(33,000)
Stock based compensation	1,149,000	1,028,000
Intangibles and other	(633,000)	(606,000)
Less: valuation allowance	(14,915,000)	(13,591,000)
Net non-current deferred tax assets	<u>\$ —</u>	<u>\$ —</u>

The Company has applied the provisions of FASB ASC 740, *Income Tax*, which clarifies the accounting for uncertainty in tax positions. FASB ASC 740 requires the recognition of the impact of a tax position in the financial statements if that position is more likely than not of being sustained on a tax return upon examination by the relevant taxing authority, based on the technical merits of the position. At December 31, 2022 and 2021, the Company had no unrecognized tax benefits.

The Company recognizes interest and penalties related to income tax matters in interest expense and operating expenses, respectively. As of December 31, 2022 and 2021, the Company has no accrued interest and penalties related to uncertain tax positions.

The Company is subject to tax in the United States ("U.S.") and files tax returns in the U.S. federal and certain state jurisdictions. The Company is generally no longer subject to U.S. federal, state and local income tax examinations by tax authorities for all tax years since inception due to the carryover of unused net operating losses and tax credits. The Company currently is not under examination by any tax authority.

The reconciliation between the statutory income tax rate and the effective tax rate is as follows:

	For the Year Ended December 31,	
	2022	2021
Statutory federal income tax rate	(21)%	(21)%
Valuation allowance	21	21
	<u>— %</u>	<u>— %</u>

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

Not applicable.

ITEM 9A: CONTROLS AND PROCEDURES

Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by an issuer in the reports that it files or submits under the Exchange Act is accumulated and communicated to the issuer's management, including its principal executive and principal financial officers, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure.

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We carried out an evaluation, under the supervision and with the participation of our management, including our Chief Executive Officer (“CEO”), our principal executive officer, and our Chief Financial Officer (“CFO”), our principal financial and accounting officer, of the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the period covered by this report. The evaluation was undertaken in consultation with our accounting personnel. Based on that evaluation, our CEO and CFO concluded that, as of December 31, 2022, our disclosure controls and procedures are effective to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms.

Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Internal control over financial reporting is a process designed by, or under the supervision of, our CEO and CFO and effected by our Board, management and other personnel, 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. Our management, under the supervision and with the participation of our CEO and CFO, conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations (COSO). Based on such evaluation, management concluded that our internal control over financial reporting was effective as of December 31, 2022.

This Annual Report does not include an attestation report of our independent registered public accounting firm regarding internal control over financial reporting. Management’s report was not subject to attestation requirements by our independent registered public accounting firm pursuant to rules of the SEC that permit us to provide only management’s report in this Annual Report.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting identified in management’s evaluation pursuant to Rule 13a-15(d) or 15d-15(d) of the Act during the three months ended December 31, 2022 that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Controls

Our management, including our CEO and CFO, do 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, have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of a 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 control 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.

ITEM 9B: OTHER INFORMATION

Not applicable.

ITEM 9C: DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

None.

PART III

ITEM 10: DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this item is incorporated herein by reference from our definitive proxy statement relating to the 2023 annual meeting of stockholders to be filed no later than 120 days after the end of our fiscal year ended December 31, 2022.

ITEM 11: EXECUTIVE COMPENSATION

The information required by this item is incorporated by reference from our definitive proxy statement relating to the 2023 annual meeting of stockholders to be filed no later than 120 days after the end of our fiscal year ended December 31, 2022.

ITEM 12: SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED SHAREHOLDER MATTERS

The information required by this item is incorporated by reference from our definitive proxy statement relating to the 2023 annual meeting of stockholders to be filed no later than 120 days after the end of our fiscal year ended December 31, 2022.

ITEM 13: CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this item is incorporated by reference from our definitive proxy statement relating to the 2023 annual meeting of stockholders to be filed no later than 120 days after the end of our fiscal year ended December 31, 2022.

ITEM 14: PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this item is incorporated by reference from our definitive proxy statement relating to the 2023 annual meeting of stockholders to be filed no later than 120 days after the end of our fiscal year ended December 31, 2022.

PART IV

ITEM 15: EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(a) Documents Filed with Report

(1) *Financial Statements.*

Report of Independent Registered Accounting Firm (PCAOB ID: 207)	26
Balance Sheets as of December 31, 2022 and 2021	28
Statements of Operations for the years ended December 31, 2022 and 2021	29
Statement of Stockholders' Equity for the years ended December 31, 2022 and 2021	30
Statements of Cash Flows for the years ended December 31, 2022 and 2021	31

(2) *Schedules.*

All financial statement schedules have been omitted because they are not required, are not applicable or the information is included in the consolidated financial statements or related notes thereto.

(3) *Exhibits.*

The following exhibits are filed as part of this Annual Report on Form 10-K or incorporated by reference, as indicated:

EXHIBIT INDEX

Exhibit No.	Description of Document
3.1	Delaware Certificate of Conversion including Certificate of Incorporation of Ideal Power Inc. (1)
3.2	Certificate of Amendment of the Certificate of Incorporation of Ideal Power Inc. (2)
3.3	Certificate of Designation of Preferences, Rights and Limitations of Series A Convertible Preferred Stock (3)
3.4	Second Amended and Restated Bylaws of Ideal Power Inc. (4)
4.1	Specimen Common Stock Certificate (5)
4.2	Form of Series A Common Stock Purchase Warrant (6)
4.3	Form of Series B Pre-Funded Common Stock Warrant (7)
4.4	Form of Series C Common Stock Purchase Warrant (8)
4.5	Description of Registrant's Securities (9)
10.1	Ideal Power Inc. Amended and Restated 2013 Equity Incentive Plan (10) +
10.2	Second Revised and Restated Employment Agreement between the Company and R. Daniel Brdar dated April 8, 2020 (11) +
10.3	Employment Agreement between the registrant and Timothy W. Burns dated September 16, 2014 (12) +
10.4	Registration Rights Agreement, dated November 13, 2019, by and between Ideal Power Inc. and each purchaser identified on the signature pages thereto (13)
23.1	Consent of BPM LLP, Independent Registered Public Accounting Firm*
31.1	Certification of Principal Executive Officer, pursuant to Rule 13a-14(a) or 15d-14(a) of the Securities and Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002*
31.2	Certification of Principal Financial and Accounting Officer pursuant to Rule 13a-14(a) or 15d-14(a) of the Securities and Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002*
32.1	Certification of Principal Executive Officer and Principal Financial and Accounting Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002**
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*
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase*
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase*
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase*
101.PRE	XBRL Taxonomy Extension Presentation Linkbase*
104	Cover Page Interactive Data File (embedded within the Inline XBRL document and contained in Exhibit 101).

* Filed herewith

** Furnished herewith

+ Indicates a management contract or compensatory agreement

- (1) Incorporated by reference to Exhibit 3.1 to the registrant's registration statement on Form S-1, file no. 333-190414, originally filed with the Securities and Exchange Commission on August 6, 2013, as amended.
- (2) Incorporated by reference to Exhibit 3.1 to the registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on August 20, 2019.
- (3) Incorporated by reference to Exhibit 3.1 to the registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on February 27, 2017.
- (4) Incorporated by reference to Exhibit 3.1 to the registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on June 17, 2022.
- (5) Incorporated by reference to Exhibit 4.1 to the registrant's Quarterly Report on Form 10-Q, filed with the Securities and Exchange Commission on May 14, 2021.

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- (6) Incorporated by reference to Exhibit 4.1 to the registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on November 13, 2019.
- (7) Incorporated by reference to Exhibit 4.2 to the registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on November 13, 2019.
- (8) Incorporated by reference to Exhibit 4.1 to the registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on August 3, 2020.
- (9) Incorporated by reference to Exhibit 4.5 to the registrant's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 30, 2020.
- (10) Incorporated by reference to Exhibit 10.1 the registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on June 21, 2021.
- (11) Incorporated by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on April 14, 2020.
- (12) Incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on September 19, 2014.
- (13) Incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on November 13, 2019.

ITEM 16: FORM 10-K SUMMARY

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Austin, State of Texas, on this 30th day of March 2023.

IDEAL POWER INC.

By: /s/ R. Daniel Brdar
R. Daniel Brdar,
Chief Executive Officer

By: /s/ Timothy Burns
Timothy Burns,
Chief Financial Officer

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 and in the capacities and on the dates indicated.

Dated: March 30, 2023 /s/ R. Daniel Brdar
R. Daniel Brdar,
Chief Executive Officer
(principal executive officer),
President and Director

Dated: March 30, 2023 /s/ Timothy Burns
Timothy Burns,
Chief Financial Officer
(principal financial and accounting officer),
Secretary and Treasurer

Dated: March 30, 2023 /s/ Michael Turmelle
Michael C. Turmelle, Chairman of the Board

Dated: March 30, 2023 /s/ Drue Freeman
Drue Freeman, Director

Dated: March 30, 2023 /s/ Greg Knight
Greg Knight, Director

Dated: March 30, 2023 /s/ Ted Lesster
Ted Lesster, Director

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in Registration Statements on Form S-8 (Nos. 333-261024, 333-239270, 333-205627 and 333-201337) and Form S-3 (Nos. 333-269060, 333-250844, 333-248466, 333-235500 and 333-217088) of Ideal Power Inc. of our report dated March 30, 2023 relating to the financial statements, which appears in this Annual Report on Form 10-K.

/s/ BPM LLP

March 30, 2023
San Jose, California

**CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO SECTION 302(a) OF THE SARBANES-OXLEY ACT OF 2002**

I, R. Daniel Brdar, certify that:

1. I have reviewed this annual report on Form 10-K of Ideal Power Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15-d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 30, 2023

/s/ R. Daniel Brdar

R. Daniel Brdar

Chief Executive Officer (Principal Executive Officer)

**CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO SECTION 302(a) OF THE SARBANES-OXLEY ACT OF 2002**

I, Timothy W. Burns, certify that:

1. I have reviewed this annual report on Form 10-K of Ideal Power Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15-d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 30, 2023

/s/ Timothy W. Burns

Timothy W. Burns

Chief Financial Officer (Principal Financial and Accounting Officer)

**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 Ideal Power Inc. (the "Company") on Form 10-K for the year ended December 31, 2022 as filed with the Securities and Exchange Commission (the "Report"), we, R. Daniel Brdar, Chief Executive Officer (Principal Executive Officer) and Timothy W. Burns, Chief Financial Officer (Principal Financial and Accounting Officer) of the Company, hereby certify as of the date hereof, solely for purposes of Title 18, Chapter 63, Section 1350 of the United States Code, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of our knowledge:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d), as applicable, 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 at the dates and for the periods indicated.

Date: March 30, 2023

/s/ R. Daniel Brdar
R. Daniel Brdar
Chief Executive Officer (Principal Executive Officer)

/s/ Timothy W. Burns
Timothy W. Burns
Chief Financial Officer (Principal Financial and Accounting Officer)
