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# DELTA REPORT

## 10-K

LTBR - LIGHTBRIDGE CORP

10-K - DECEMBER 31, 2023 COMPARED TO 10-K - DECEMBER 31, 2022

The following comparison report has been automatically generated

| | |
|---|---|
| TOTAL DELTAS | 2277 |
| CHANGES | 179 |
| DELETIONS | 1041 |
| ADDITIONS | 1057 |



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**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 2023**

OR

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

Commission file number: **001-34487**

# LIGHTBRIDGE CORPORATION

(Exact name of registrant as specified in its charter)

| **Nevada** | **91-1975651** |
|---|---|
| (State or other jurisdiction of incorporation or organization) | (I.R.S. Employer Identification No.) |

**11710 Plaza America Drive, Suite 2000 Reston, VA 20190**

(Address of principal executive offices) (Zip Code)

**(571) 730-1200**

(Registrant's telephone number, including area code)

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

| Title of each class | Trading Symbol(s) | Name of each exchange on which registered |
|---|---|---|
| **Common Stock, $0.001 par value** | **LTBR** | **The Nasdaq Capital Market** |



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

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

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

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

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

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

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



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* The registrant is not yet required to have a recovery policy under the applicable exchange listing standard and has left the corresponding check boxes blank as a result. ☐

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

At June 30, 2022 June 30, 2023, the aggregate market value of shares held by non-affiliates of the registrant (based upon the closing sale price of such shares on the Nasdaq Capital Market on June 30, 2022 June 30, 2023) was $49,899,793. $69,561,740.

At March 30, 2023 February 21, 2024 there were 12,126,030 13,941,480 shares of the registrant's common stock issued and outstanding.

Documents Incorporated by Reference

Portions of the registrant's definitive proxy statement to be filed with the Securities and Exchange Commission in connection with its 2023 2024 Annual Meeting of Stockholders are incorporated by reference into Part III of this Form 10-K.

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**LIGHTBRIDGE CORPORATION**

**FORM 10-K**

**FOR THE FISCAL YEAR ENDED DECEMBER 31, 2022 2023**

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## FORWARD-LOOKING STATEMENTS

In addition to historical information, this Annual Report on Form 10-K, including, but not limited to, the sections entitled “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and “Business,” contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. All statements other than statements of historical fact are statements that could be deemed forward-looking statements. We use words such as “believe”, “expect”, “anticipate”, “project”, “target”, “plan”, “optimistic”, “intend”, “aim”, “will”, “believe,” “expect,” “anticipate,” “project,” “target,” “plan,” “optimistic,” “intend,” “aim,” “will,” “may,” or similar expressions, which are intended to identify forward-looking statements. Such statements include, among others:

- those concerning market and business segment growth, demand, and acceptance of our nuclear fuel technology and other steps to toward the commercialization of Lightbridge Fuel™;
- any projections of sales, earnings, revenue, margins, or other financial items;
- any statements of the plans, strategies, and objectives of management for future operations and the timing and outcome of the development of our nuclear fuel technology;
- any statements regarding future economic conditions or performance;
- any statements about future financings and liquidity;
- the Company’s anticipated financial resources and position; and
- all assumptions, expectations, predictions, intentions, or beliefs about future events and other statements that are not historical facts.

You are cautioned that any such forward-looking statements are not guarantees of future performance and involve risks and uncertainties, as well as assumptions that if they were to ever materialize or prove incorrect, could cause the results of the Company to differ materially from those expressed or implied by such forward-looking statements. Such risks and uncertainties, among others, include:

- our ability to commercialize our nuclear fuel technology, including risks related to the design and testing of nuclear fuel incorporating our technology and the degree of market adoption of the Company’s product and service offerings;



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- dependence on strategic partners;
- any adverse changes to our agreements or relationship with the U.S. government and its national laboratories;
- our ability to fund our future operations, including general corporate overhead and outside research and development costs, expenses, and continue as a going concern;
- the future market and demand for our fuel for nuclear reactors and our ability to attract customers;
- our ability to manage the business effectively in a rapidly evolving market;
- our ability to employ and retain qualified employees and consultants that have experience in the nuclear industry;
- competition and competitive factors in the markets in which we compete, including from accident tolerant fuels;
- the availability of nuclear test reactors and the risks associated with unexpected changes in our nuclear fuel development timeline;
- the increased costs associated with metallization of our nuclear fuel;
- uncertainties related to conducting business in foreign countries;
- public perception of nuclear energy generally;



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- public perception of nuclear energy generally;
  changes in laws, rules, and regulations governing our business;
- changes in laws, rules, and regulations governing our business;
  the political environment;
- changes in the political environment;
  development and utilization of, and challenges to, our intellectual property domestically and abroad;
- development and utilization of, and challenges to, our intellectual property domestically and abroad;



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- the trading price of our securities is likely to be volatile, and purchasers of our securities could incur substantial losses and; losses; and

- the other risks and uncertainties identified in Item 1A. Risk Factors included herein.

Most of these factors are beyond our ability to predict or control and you should not put undue reliance on any forward-looking statement. Future events and actual results could differ materially from those set forth in, contemplated by or underlying the forward-looking statements. Forward-looking statements speak only as of the date on which they are made. The Company assumes no obligation and does not intend to update these forward-looking statements for any reason after the date of the filing of this report, to conform these statements to actual results or to changes in our expectations, except as required by law.



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## PART I

### ITEM 1. BUSINESS

When used in this Annual Report on Form 10-K, the terms “Lightbridge”, the “Company”, “we”, “our”, and “us” refer to Lightbridge Corporation together with its wholly-owned subsidiaries Lightbridge International Holding LLC and Thorium Power Inc. Lightbridge’s principal executive offices are located at 11710 Plaza America Drive, Suite 2000, Reston, Virginia 20190 USA.

#### Overview

At Lightbridge, we are developing the next generation of nuclear fuel to impact, in a meaningful way, the world’s climate and energy security problems. Our nuclear fuel for water-cooled reactors that could significantly improve the economics and safety of existing and new nuclear power plants, large and small, and enhance proliferation resistance of spent nuclear fuel and have a meaningful impact on addressing climate change and air pollution, all while benefiting national security. supplying clean energy to the electric grid. We project that the world’s energy and climate needs can only be met if nuclear power’s share of the energy-generating mix grows substantially in the coming decades. We believe Lightbridge will can benefit from a growing nuclear power industry, and we are developing that our nuclear fuel to can help enable that growth to happen.

We believe our metallic fuel will offer significant economic and safety benefits over traditional nuclear fuel, primarily because of the superior heat transfer properties and the resulting lower operating temperature of all-metal fuel. We also believe that uprating a reactor with Lightbridge Fuel™ will add incremental electricity at a lower levelized cost than any other means of generating baseload electric power, including any renewable, fossil, or hydroelectric energy source, or any traditional nuclear fuel.



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Emerging nuclear technologies that many in the nuclear power industry believe have the potential to help drive growth in nuclear power include small modular reactors (SMRs), which are now in the development and licensing phases. We expect that Lightbridge Fuel™ can provide water-cooled SMRs with all the same benefits our technology brings to large reactors, with such benefits being even more meaningful to the economic case for deployment of SMRs, including potential load following capability when included on a low-carbon virtually zero-carbon electric grid with renewable energy sources. We expect Lightbridge Fuel™ to generate more power in SMRs than traditional nuclear fuels, which will help decarbonize sectors that are now powered by fossil fuels. We expect that our ongoing research and development (R&D) initiatives will lead to Lightbridge Fuel™ powering SMRs for multiple purposes. The first SMRs are expected to begin operations as early as 2029.

We have built a significant portfolio of patents, reflecting years of R&D, and we anticipate testing our nuclear fuel through third party third-party vendors and others, including the United States Department of Energy's (DOE) national laboratories. Currently, we are performing the majority of our R&D research and development (R&D) activities within and in collaboration with the DOE's national laboratories.

**Our Nuclear Fuel**

Since 2008, we have been engaged in the design and development of proprietary, innovative nuclear fuels to improve the cost competitiveness, cost-competitiveness, safety, proliferation resistance and performance of nuclear power generation. In 2010, we announced the concept of all-metal fuel (i.e., non-oxide fuel) for use in currently operating and new-build reactors. We have reimagined nuclear fuel from scratch, using advanced science and engineering. Our focus on metallic fuel was inspired by listening to the voices anticipated needs of prospective customers, as nuclear utilities have expressed interest in the improved economics and enhanced safety that we believe metallic fuel will provide.

The fuel in a nuclear reactor generates energy in the form of heat. That heat is then converted through steam into electricity that is delivered to the transmission and distribution grid. We have designed our innovative, proprietary metallic fuels to be capable of significantly higher burnup and power density compared to conventional oxide nuclear fuels. Burnup is the total amount of electricity generated per unit mass of nuclear fuel consumed and is a function of the power density of a nuclear fuel and the amount of time the fuel operates in the reactor. Power density is the amount of heat power generated per unit volume mass of nuclear fuel. Conventional oxide fuel used in existing commercial reactors is nearing the limit of its design and licensed burnup and power density capability. As a result, further optimization is needed to (i) increase power output from the same core size to improve the reactor economics, and (ii) enhance the safety fuel performance of nuclear power generation where using conventional oxide fuel technologies is limited. generation. A new fuel is needed to bring enhanced performance to reactors large and small. We are working to develop Lightbridge Fuel™ to meet that goal.



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As the nuclear power industry prepares to meet the increasing global demand for electricity production, nuclear utilities are seeking longer operating cycles and higher reactor power outputs for current and future reactor fleets. We believe our proprietary nuclear fuel designs have the potential to improve the nuclear power industry's economics by:



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- enabling increased reactor power output via a power uprate (potentially up to a 30% increase) or a longer operating cycle without changing the core size in new build pressurized water reactors (PWRs), including future SMRs; or

- providing an increase in power output of potentially up to 10% while simultaneously extending the operating cycle length from 18 to 24 months in existing PWRs, including in Westinghouse-type four-loop PWR plants, which are currently constrained to an 18-month operating cycle by oxide fuel enriched up to 5% in the isotope uranium-235, or increasing the power potentially up to 17% while retaining an 18-month operating cycle.



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We believe our fuel designs will allow current and new build new-build nuclear reactors to safely increase power production and reduce operations and maintenance costs on a per kilowatt-hour basis. New build New-build nuclear reactors could also benefit from the reduced upfront capital investment per kilowatt of generating capacity in the case of new-build reactors implementing a power uprate. In addition to projected electricity production cost savings, we believe our technology may allow utilities or countries to deploy fewer new reactors to generate the same amount of electricity (in the case of a power uprate), resulting in significant capital cost savings. For utilities or countries that already have operating reactors, we expect that our nuclear fuel could be utilized to both increase the power output of those reactors as well as enable them to load follow with electric grid demands, which demands have become increasingly variable with large additions of intermittent renewable energy generation.

**Nuclear Industry and Addressable Market**

***Overview of the Nuclear Power Industry***

Nuclear power provides a non-fossil fuel, low-carbon energy solution that can meet baseload electricity needs. According to the U.S. Energy Information Administration, nuclear power provided approximately 4.6% 4.3% of the world's total energy from all sources in 2020, 2022, including approximately 10.5% 9% of global electricity generation. According to the World Nuclear Association (WNA), as of January 2022 2024, there were 438 437 operable nuclear power reactors worldwide, mostly light water reactors, with the most common types being PWRs, including Russian-designed water-cooled, water-moderated energetic reactors (VVERs), and boiling-water reactors (BWRs). Nuclear power provides a non-fossil fuel, low-carbon energy solution that can meet baseload electricity needs.

Of the world's reactors currently in operation, PWRs account for approximately 70% of the net operating capacity, with BWRs being the second most prevalent and accounting for approximately 14%. Of of net operating capacity. According to the WNA, as of January 2024, there are approximately 60 nuclear reactors under construction. Most reactors currently under construction approximately 70% are PWRs with a rated electric power output of 1,000 megawatts or greater.
Almost all the new build reactors currently under planned for future construction are either Generation III or Generation III+ type reactors. The primary difference from second-generation designs is that many Generation III or Generation III+ reactors



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incorporate passive or inherent safety features, which require no active controls or operational intervention to avoid accidents located in the event of malfunction. Many of these passive systems rely on a combination of gravity, natural convection, and/or resistance to high temperatures. Asia.

We are developing our fuel technology for application expect Lightbridge Fuel™ to be able to operate in various types of water-cooled reactors, including existing or future light water reactors, which include water-cooled small modular reactors, SMRs, as well as for Canada Deuterium Uranium (CANDU)-type pressurized heavy water reactors. The existing U.S. fleet of nuclear reactors represents a large market segment for which Lightbridge Fuel™ could provide significant economic and safety benefits through a power uprate up to 10%, along with an anticipated operating cycle extension from 18 to 24 months, or a power uprate of 17%, as described below, without extending the cycle length.

We believe that Lightbridge Fuel's™ most significant economic benefit may be its ability to provide a 30% power uprate. However, the existing large reactors cannot realize that benefit because their systems are not designed to handle that much of an increase in power. The most additional power existing large PWRs could take from Lightbridge Fuel™ is estimated at approximately 17%. Only newly designed large reactors may benefit from the full 30% greater power available from Lightbridge Fuel™. While we believe that only a limited number of new, large reactors will be built, we expect that much larger numbers of SMRs that can utilize our fuel will be deployed in the future.

***Target Market for Lightbridge Fuel™***

Our target market segments include water-cooled commercial power reactors, such as PWRs, BWRs, VVERs, CANDUs CANDU heavy water reactors, water-cooled SMRs, as well as water-cooled research reactors.



We believe that most significant economic benefit of Lightbridge Fuel™ may be its potential to provide a 30% power uprate in new-build water-cooled reactors, as existing large reactors cannot realize that benefit because their systems are not designed to handle that much of an increase in power. Accordingly, the highest power uprate existing large PWRs could take from Lightbridge Fuel™ is estimated to be approximately 17%.

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***Nuclear Power as Clean and Low Carbon Emissions Energy Source***

Nuclear power provides clean, reliable baseload electricity. According to the WNA, nuclear reactors produce no greenhouse gas emissions during operation, and over the course of their lifecycles, nuclear power plants produce about the same amount of CO2 equivalent emissions per unit of electricity generated as wind. wind power. The WNA further notes that almost all proposed pathways to achieving significant decarbonization suggest an increased role for nuclear power, including those published by the International Energy Agency, Massachusetts Institute of Technology Energy Initiative, U.S. Energy Information Administration, and World Energy Council.



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We believe that deep cuts to CO2 emissions are only possible with electrification of most of the transportation and industrial sectors globally and powering them, such sectors, and the other current global electricity needs, of the world, with non-emitting or low-emitting power energy sources or no-carbon liquid fuels. We believe this can be done only with a large increase in nuclear power, several times the amount that is generated globally today. We believe that our nuclear fuel technology will be could play an essential element of important role toward reaching this goal, for electricity generation and potentially to produce hydrogen for zero-carbon liquid fuels. goal.



***Influence of the Accident at Fukushima, Japan and New International Nuclear Build***

The accident at the Fukushima Daiichi nuclear power plant in Japan following the strong earthquake and destructive tsunami that occurred on March 11, 2011, increased public concerns related to nuclear power, resulting in a slowdown in, or in some cases, a complete halt to, new construction of nuclear power plants as well as the early shut down of existing power plants in certain countries. As a result, some countries that were considering launching new domestic nuclear power programs before the Fukushima accident have delayed or cancelled preparatory activities they were planning to undertake as part of such programs. The Fukushima accident appears to have shrunk the projected size of the global nuclear power market in 2025-2030 as reflected in the most recent reference case projections published by the WNA. At the same time, the event has brought a greater emphasis on safety to the forefront that may be beneficial to us because our metallic fuel provides improved safety and fuel performance during normal operation and design-basis accidents.

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***Growing Importance of Energy Security***

We believe that Russia's invasion of Ukraine has made clear the need for countries to diversify their energy production and wean off dependency on fossil fuels from provided by countries that can may threaten their national security. Oil As a result of this military conflict, oil and natural gas prices have increased significantly since Russia commenced its invasion surged in early 2022, and many countries have imposed sanctions upon Russia in response. European countries are responding have responded by rethinking reconsidering their plans for domestically produced nuclear energy by either keeping existing nuclear power plants running or moving ahead with plans for new plants or both. The For example, the United Kingdom is and France are deploying new nuclear power plants. plants, Belgium has decided to reverse its decision to close all of its nuclear plants in the wake of Russia's invasion of Ukraine. Ukraine and Canada, Sweden, Romania, Ghana, and several other countries have announced plans to deploy new nuclear power plants. It has become clear that a stable domestic energy supply ensures energy security and provides the strongest protection against energy price volatility. Increasingly, policymakers view nuclear energy as critical to a secure energy future.

***Anticipated Safety Benefits of Lightbridge Fuel™***

The expected anticipated safety benefits of Lightbridge Fuel™ are as follows:



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- Lightbridge Fuel™ operates at lower operating temperatures than current conventional nuclear fuel, contributing to lower stored thermal energy in the fuel rods; it is therefore not expected to generate explosive hydrogen gas under design-basis accidents when there is a loss of coolant in the reactor;

- enhances structural integrity of the nuclear fuel rods; and

- has lighter and stiffer fuel assembly, which may contribute to improved seismic performance; performance.

Due to the significantly lower fuel operating temperature and higher thermal conductivity, our metallic nuclear fuel rods are expected to provide major improvements to safety margins during certain off-normal events. The US Nuclear Regulatory Commission (NRC) licensing processes require engineering analysis of a large break loss-of-coolant accident (LOCA), as well as other scenarios. The LOCA scenario assumes failure of a large water pipe in the reactor coolant system. Under LOCA conditions, the fuel and cladding temperatures rise due to reduced cooling capacity. Preliminary analytical modeling shows that under a design-basis LOCA scenario in a VVER-1000 reactor, unlike conventional uranium dioxide fuel, the cladding of the Lightbridge-designed metallic fuel rods would stay at least approximately 200 degrees below cooler than the 850-900 degrees Celsius temperature at which steam begins to react with the zirconium cladding to generate hydrogen gas. Build-up of hydrogen gas in a nuclear power plant can lead to a hydrogen explosion, which contributed to the damage at the Fukushima Daiichi nuclear power plant. Lightbridge Fuel™ is designed expected to mitigate hydrogen gas generation in design-basis LOCA situations. This is a major safety benefit.



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**Lightbridge Spent Fuel - Proliferation Resistance**

The April 2018 issue of Nuclear Engineering and Design, a technical journal affiliated with the European Nuclear Society, included a peer-reviewed article stating that after analyzing Lightbridge's fuel, the authors concluded that any plutonium extracted from Lightbridge's spent fuel would not be useable for weapon purposes. We anticipate the following proliferation resistance advantages for our metallic fuel:

- one-half of the amount of plutonium produced and remaining in the spent fuel as compared to conventional uranium dioxide fuels; and

- lower Plutonium-239 fraction compared to uranium dioxide fuel; therefore, our spent fuel would be unsuitable as a source for weapon purposes.

Our A modified variant of Lightbridge Fuel™ incorporating plutonium instead of, or in addition to, uranium in the metallic fuel rods could potentially could be used to dispose of plutonium from reprocessed used reactor fuel, utilizing the plutonium to



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generate electricity. Our fuel potentially also could has the potential to be used to dispose of excess plutonium from nuclear weapons.

**Development of Lightbridge Fuel™**

We believe our metallic fuel could be able to operate in different types of water-cooled commercial power reactors, such as pressurized water reactors (including VVERs), boiling-water reactors, heavy water pressurized reactors, such as CANDUs, water-cooled SMRs, and water-cooled research reactors.



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We have obtained patent protection in a number of countries and will continue to seek patent validation in countries that either currently operate or are expected to build and operate a large number of nuclear power reactors compatible with our fuel technology.

***Recent Developments***

FEED Study with Centrus Energy for a Lightbridge Pilot Fuel Fabrication Facility

On December 5, 2023, we entered into an agreement with Centrus Energy Corp. (Centrus Energy) to conduct a front-end engineering and design (FEED) study to construct a Lightbridge Pilot Fuel Fabrication Facility (LPFFF) to manufacture Lightbridge Fuel™ using high-assay low-enriched uranium (HALEU) at the American Centrifuge Plant in Piketon, Ohio, the only HALEU production plant in the world outside of Russia. The FEED study will identify infrastructure and licensing requirements as well as the estimated cost and construction schedule for the LPFFF. Centrus Energy's wholly-owned subsidiary, American Centrifuge Operating, LLC, will lead the study. The work is expected to be completed in 2024 at a fixed price of approximately $0.5 million.

Engineering Study of Lightbridge Fuel™ for use in CANDU reactors

On October 16, 2023, we engaged Institutul de Cercetări Nucleare Pitești, a subsidiary of Regia Autonoma Tehnologii pentru Energia Nucleara in Romania to perform an engineering study to assess the compatibility and suitability of Lightbridge Fuel™ for use in CANDU reactors. This assessment will cover key areas including mechanical design, neutronics analysis, and thermal and thermal-hydraulic evaluations. The findings from this engineering study will play an important role in guiding future economic evaluations and navigating potential regulatory licensing-related issues for potential use of Lightbridge Fuel™ in CANDU reactors. The work is expected to be completed in 2024 at a fixed price of approximately $0.2 million.

HALEU Consortium Membership

To support establishment of domestic high-assay low-enriched uranium ("HALEU") HALEU infrastructure, the DOE announced on December 7, 2022 the creation of a HALEU Consortium. According to the DOE, the purposes of the HALEU Consortium include: (i) Provide providing the Secretary of Energy HALEU demand estimates for domestic commercial use, (ii) Purchase purchasing HALEU made available to members for commercial use under the Program, program, (iii) Carry carrying out demonstration projects using HALEU under the Program, program, and (iv) Identify identifying actionable opportunities to improve the reliability of the HALEU supply chain. On December 15, 2022, the Company submitted a formal request to the DOE to join the HALEU Consortium to mitigate HALEU supply risk. On January 12, 2023, the Company received written confirmation



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from the DOE of Lightbridge's membership in the HALEU Consortium. HALEU is a key component necessary for the fabrication and operation of Lightbridge Fuel™ in light water reactors.

Idaho National Laboratory Agreements

In the second half of December 2022, Lightbridge entered into agreements with Battelle Energy Alliance, LLC (BEA), the DOE's operating contractor for Idaho National Laboratory (INL), in collaboration with the DOE, to support the development of Lightbridge Fuel™. The framework agreements use an innovative structure and consist that consists of an "umbrella" Strategic Partnership Project Agreement (SPP) and an "umbrella" Cooperative Research and Development Agreement (CRADA), each with Battelle Energy Alliance, LLC (BEA), the DOE's operating contractor for INL, BEA, with an initial duration of seven years.

We anticipate that the initial phase of work under the two agreements that has been released will culminate in casting and extrusion of unclad fuel material samples using enriched uranium supplied by the DOE that will subsequently be inserted for irradiation testing in the Advanced Test Reactor (ATR) of our fuel material samples, known as fuel material coupons, using enriched uranium supplied by the DOE. at INL. The initial phase of work aims to generate irradiation performance data for Lightbridge's delta-phase uranium-zirconium alloy relating to various thermophysical properties. The data will support fuel performance modeling and regulatory licensing efforts for commercial deployment of Lightbridge Fuel™.

We anticipate that subsequent phases of work under the two umbrella agreements that have not yet been released may include post-irradiation examination of the irradiated fuel material coupons, loop irradiation testing in the ATR, and post-irradiation examination of one or more uranium-zirconium fuel rodlets, as well as transient experiments in the Transient Reactor Test Facility (TREAT) at INL.

MIT Study - Lightbridge Fuel™

In June 2022, 2023, we worked with INL to complete and issue a Quality Implementation Plan (QIP) for our collaborative project at INL which was an essential first step to ensure all future work performed at INL on the DOE selected Lightbridge Fuel™ project would meet the U.S. nuclear industry quality assurance requirements. Additionally, we worked with INL to participate in a study led by the Massachusetts Institute demonstrate casting of Technology (MIT) to investigate the performance delta-phase uranium-zirconium ingots with depleted uranium using existing INL equipment. As part of that effort, we cast several laboratory-scale ingots using depleted uranium and economics of accident tolerant fuels for light water cooled SMRs. Amongst other objectives, one of the objectives of this project zirconium alloy materials. Our next step is to simulate cast additional ingots using depleted uranium and zirconium alloy materials and conduct initial extrusions from those ingots in the fuel and safety performance of Lightbridge Fuel™ in an SMR designed by NuScale Power and provide a scoping analysis of longer-term advanced fuel forms to improve the safety and economics of SMRs. The DOE's Nuclear Energy University Program awarded $800,000 to MIT with the goal of bringing collaborative teams together to solve complex problems to advance nuclear technology and understanding. The duration of this work is expected to be approximately 3 years. The amount of financial benefit to Lightbridge from this DOE grant to MIT cannot be quantified. next several months.





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Second DOE Award from the Gateway for Accelerated Innovation in Nuclear Energy University Program Awards

Texas A&M University (TAMU), NuScale Power, and Structural Integrity Associates are working on a 3-year study of our nuclear fuel, led by TAMU. In mid-2023, TAMU was awarded $1 million by the DOE's Nuclear Energy University Program (NEUP) R&D Awards to conduct this study. The project entails a characterization of the performance of the Lightbridge Fuel™ Helical Cruciform advanced fuel design, which will generate sets of experimental data on friction factor, flow, and heat transfer behavior under NuScale's SMR simulated normal and off-normal conditions.

We previously announced the ongoing NEUP project with the Massachusetts Institute of Technology (MIT). The study led by MIT and funded by DOE awarded us a second voucher from relates to evaluation of accident tolerant fuels in various SMRs. The project aims to simulate the Gateway for Accelerated Innovation in Nuclear (GAIN) program to support development fuel and safety performance of Lightbridge Fuel™ in collaboration with Pacific Northwest National Laboratory (PNNL). The scope for the NuScale SMR and provide scoping analysis to improve the safety and economics of the project was to demonstrate Lightbridge's nuclear fuel casting process using depleted uranium, a key step in the manufacture of Lightbridge Fuel™. On July 14, 2021, the Company executed a CRADA water-cooled SMRs.

We do not have any contractual obligations with the Battelle Memorial Institute, Pacific Northwest Division, the operating contractor of the PNNL, in collaboration with the DOE. The project commenced in the third quarter of 2021. In December 2022, PNNL signed a one-month contract extension with the Company to complete the final report related to this PNNL GAIN voucher, which extended the period of performance to January 31, 2023. The work under this contract was completed in 2022, and a final report was issued by PNNL on January 31, 2023. The total project value was $0.7 million, with three-quarters of this amount provided by the DOE for the scope performed by PNNL.

Under this GAIN Voucher, we worked with PNNL to develop a casting process utilizing its existing equipment. As part of the scope, several castings were performed and the cast ingots analyzed. In an iterative process, the casting methodology was modified based teams working on the characterization results as part of process demonstration to achieve acceptable results with PNNL's existing equipment. The results of this work above-mentioned projects and will help to inform a final process suitable to produce fuel material coupons for our upcoming irradiation tests. not receive any revenue or record any benefits from these awards.

***Future Steps Toward Our Fuel Development and Timeline For The Commercialization of Our Nuclear Fuel Assemblies***

We anticipate fuel development milestones for Lightbridge Fuel™ over the next 2-3 years will consist of the following:

- kick off continue to execute SPP/CRADA work at INL leading to casting and extrusion of unclad fuel material samples using enriched uranium and their subsequent insertion for irradiation testing in the ATR of our fuel material coupons using enriched uranium supplied by INL. ATR.

- conduct complete a feasibility study for the use of our nuclear fuel in CANDU heavy water reactors.



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- conduct complete a front-end engineering and design (FEED) FEED study for a Lightbridge pilot-scale fuel fabrication facility. LPFFF in collaboration with Centrus Energy.

- demonstrate extrusion with our uranium-zirconium fuel alloy and produce fuel material coupons commence manufacturing efforts relating to co-extrusion of cladded rodlets for loop irradiation testing.

The long-term milestones towards development and commercialization of nuclear fuel assemblies include, among other things, irradiating nuclear material samples and prototype fuel rods with enriched uranium in test reactors, conducting post-irradiation examination of irradiated material samples and/or prototype fuel rods, performing thermal-hydraulic experiments, performing seismic and other out-of-reactor experiments, performing advanced computer modeling and simulations to support fuel qualification, designing a lead test assembly (LTA), entering into a lead test rod/assembly agreement(s) with a host reactor(s), demonstrating the production of lead test rods and/or lead test assemblies at a pilot-scale fuel fabrication facility and demonstrating the operation of lead test rods and/or lead test assemblies in commercial reactors.

There are inherent uncertainties in the cost and outcomes of the many steps needed for successful deployment of our fuel in commercial nuclear reactors, which makes it difficult to accurately predict the timing of the commercialization of our nuclear fuel technology. However, based on our best estimate and assuming adequate R&D funding levels, we expect to begin demonstration of lead test rods (LTRs) and/or possibly LTAs with our metallic fuel in commercial reactors in the 2030s and begin receiving purchase orders for initial fuel reload batches from utilities 15-20 years from now, with deployment of our nuclear fuel in the first reload batch in a commercial reactor taking place approximately two years thereafter. We are exploring ways of shortening this timeframe that may include securing access to expanded irradiation test loop capacity in existing or new research reactor facilities.

***Certain Challenges and Uncertainties***

1. U.S. Funding and/or in-kind support from government funding support and/or strategic partners and/or other third-party sources

Presently, our ability to fund our fuel development program at a level necessary to adhere to our projected fuel development timelines is severely limited due to funding constraints. This is in addition to our corporate overhead and other fixed costs, such as in-house project management and project control personnel. As a result, we believe seeking and securing significant U.S. funding and/or in-kind contributions from government funding and/or strategic partners and/or other third-party sources to support our fuel development program is essential for us to be successful in adhere to our expected timelines for our fuel development and commercialization efforts. We expect significant government funding opportunities to go toward SMRs in the coming years, which may help accelerate our projected fuel development timelines by up to a few years for SMR applications.



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2. Availability of suitable test loops in the ATR

After the Halden research reactor located in Halden, Norway, was shut down in 2018, we embarked on a global search for an alternative for loop irradiation testing of our metallic fuel rods. Ultimately, we chose the ATR at INL and applied to the DOE for and in December 2019, won two GAIN Vouchers. Our initial understanding a Gateway for Accelerated Innovation in Nuclear (GAIN) Voucher for an ATR experiment design and this project was that we would have access to a government funded PWR water test loop in completed during the ATR to generate sufficient data to support our LTA testing and potentially eliminate the need for LTR testing in a large commercial reactor. third quarter of 2021.

However, Since the shutdown of the Halden reactor, availability of irradiation test loops for fuel in the ATR has become limited and highly competitive, limiting how much nuclear fuel can be inserted into the reactor as well as its duration in the reactor.

If new test loops are not added to sufficient loop capacity within the ATR loop irradiation testing in the ATR is not available, we may not provide be able to obtain sufficient data to justify regulatory approval for LTA testing demonstration in a large commercial PWR in a commercially feasible timeframe. This would likely necessitate an extra fuel development step of additional loop irradiation testing in another test reactor or LTR testing demonstration in a large commercial PWR in addition to the ATR loop testing before LTA testing demonstration could commence. As a result, our fuel development timelines are 15-20 years before we expect to secure our first orders for fuel batch reloads in large commercial PWRs, unless we can access significantly increased test loop capacity. PWRs. Consequently, the projected fuel development costs and timelines make it unfeasible for Lightbridge to fund this fuel development effort on its own.

3. Partnerships with fuel vendors and nuclear utilities

The ability to design and fabricate the LTAs and engagement with a nuclear utility that is willing to accept our LTAs, is required to demonstrate our nuclear fuel in a commercial reactor. In the U.S., the nuclear fuel fabricator and the nuclear utility will be primarily responsible for securing the necessary regulatory licensing approvals for the LTA operation. We plan to also build relationships with large reactor and/or SMR reactor and fuel vendors, as well as existing nuclear utilities and/or potential SMR utility customers.

4. Supply chain infrastructure for HALEU

Establishment of required supply chain infrastructure to support high-assay low-enriched uranium HALEU metallic fuel is a necessary step in the commercialization of our nuclear fuel. Existing commercial nuclear infrastructure, including conversion facilities, enrichment facilities, de-conversion facilities, fabrication facilities, fuel storage facilities, fuel handling procedures, fuel operation at reactor sites, used fuel storage facilities and shipping containers, were designed and are in most cases currently licensed to handle uranium in oxide form with enrichment up to 5% in the isotope uranium-235. Our fuel designs for light water reactors are expected to use uranium metal with uranium enrichment levels up to 19.75% and would therefore require certain modifications to existing commercial nuclear infrastructure to enable commercial nuclear facilities to receive and handle our fuels. Those nuclear facilities will need to complete a regulatory licensing process and obtain regulatory approvals in order to be



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able to process, handle, or ship uranium metal with enrichment levels up to 19.75% and operate commercial reactors and spent fuel storage facilities using our metallic fuel.

5. Need for experimental data on our metallic fuel

There is a lack of publicly available experimental data on our metallic fuel. We will need to conduct various irradiation experiments to confirm fuel performance under normal and off-normal reactor conditions. Loop irradiation in a test reactor environment prototypic of commercial reactor operating conditions and other experiments on unirradiated and irradiated metallic fuel samples will be essential to demonstrate the performance and advantages of our metallic fuel. We are planning loop irradiation testing of our metallic fuel samples in the ATR at INL as part of this effort.

6. Need for development of new analytical models to support our metallic fuel

Existing analytical models may be inadequate to fully analyze our metallic fuel. New analytical models, capable of accurately predicting the behavior of our metallic fuel during normal operation and off-normal events, may be required. Experimental data measured from our planned irradiation demonstrations will help to identify areas where new analytical models, or modifications to existing ones, may be required.



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7. Need to develop and demonstrate a qualified fabrication process for our metallic fuel rods

Demonstration of a qualified fabrication process both for semi-scale irradiation fuel rod samples and subsequently for full-length (12-14 (approximately 12 to 14 feet) metallic fuel rods for large PWR LTAs and shorter length for SMRs (~ (approximately 6 feet) is required. Past operating experience in icebreaker reactors with differently shaped fuel rods with a similar metallic fuel composition involved fabrication of metallic fuel rods up to 3 feet in length. Fabrication of full-length (approximately 12 to 14 feet) PWR metallic fuel rods for large PWRs has yet to be fully demonstrated. In 2021, we demonstrated the co-extrusion of full-length rods using surrogate materials (i.e., rods which replaced the uranium component with a suitable physical analogue). Coextrusion is the primary forming operation in the manufacturing of our fuel and this demonstration was an important milestone on the path to developing and qualifying the full manufacturing process for actual fuel rods with enriched uranium. We plan to commence a FEED study for a Lightbridge pilot-scale fuel fabrication facility in 2023.



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Please see Item 1A. *Risk Factors* in this Annual Report on Form 10-K for a discussion of certain risks that may delay or impair such developments including without limitation the availability of financing and the many risks inherent in developing a new type of nuclear fuel.



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***Future Potential Collaborations and Other Opportunities***

In the ordinary course of business, we engage in periodic reviews of opportunities to invest in or acquire companies or units within companies to leverage operational synergies and establish new streams of revenue. We will be opportunistic in this regard and may also partner or contract with entities that could be synergistic to our fuel business or present an attractive stable business and/or growth opportunity in the nuclear space.

***Competition***

Currently, competition with respect to the design of commercially viable nuclear fuel products is limited to conventional uranium dioxide fuels, which are reaching the limits in terms of their capability to provide increased power output or longer fuel cycles. We believe that the industry needs fuel products that can provide these additional benefits. While we believe conventional uranium dioxide fuel may be capable of achieving power up-rates of up to 10% in existing PWRs or extending the fuel cycle length from 18 to 24 months, doing so would require uranium-235 enrichment levels above 5% (as is also the case with our metallic fuel), higher reload batch sizes, or a combination thereof. The alternative route of increasing reload batch sizes while keeping uranium enrichment levels below 5% for power uprates up to 10% using conventional uranium dioxide fuel would raise the cost and reduce the efficiency of each fuel reload, resulting in a significant fuel cycle cost penalty to the nuclear utility. The cost penalty could have a dramatic adverse impact on the economics of existing plants whose original capital cost has already been fully depreciated, which includes most U.S. nuclear power plants.

In addition to conventional uranium dioxide fuel, potential competition to our metallic fuel technology can come from so-called Accident Tolerant Fuels (ATF). We regard ATF as part of a series of relatively small changes to conventional uranium dioxide fuel over time. ATF uses uranium dioxide with added substances and/or changes to the cladding tube. After the accident at the Fukushima Daiichi nuclear power plant in March 2011, the U.S. Congress directed the DOE to investigate every aspect of nuclear plant operation including the existing uranium dioxide fuel pellets contained in zirconium-based alloy tubes (cladding). According to the February 2019 Nuclear Energy Institute technical report on ATF titled “Safety and Economic Benefits of Accident Tolerant Fuel”, Fuel,” advanced fuel design concepts (such as ATF) were accelerated by combining recent operating experience with worldwide research and development. Over the past several years, the ATF program has received significant DOE funding support and initial interest from utility customers seeking ATF demonstration programs in their operating reactors. For example, in January 2022, Southern Nuclear agreed to load four lead test assemblies with a chromia and alumina doped ATF design. Similar ATF concepts are being tested by GE Nuclear, and others.

When the DOE originally launched the ATF program, the program was focused solely on achieving enhanced safety benefits, such as extra “coping time” during severe accidents. Over the past year, we believe many ATF vendors concluded that the unexpectedly small accident tolerance benefits their ATF fuel concepts offered (such as several extra hours of coping time during severe accidents rather than their original goal of approximately 72 hours) were not enough of an incentive for nuclear utilities to adopt ATF designs, which would cost more and have reduced the efficiency relative to conventional uranium dioxide fuels. As a result, ATF vendors have begun exploring opportunities for extending the operating cycle length from 18 to 24 months in existing PWRs light water reactors (LWRs) and/or power uprates in BWRs by going to higher enrichments (i.e., from approximately 5% to 7-8% enrichments) with ATF designs. If they are successful in extending the cycle length to 24 months and



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or achieving power uprates in a cost-effective way, this could give sufficient economic incentive for nuclear utilities to switch to the ATF designs in the coming years. This recent shift in positioning by many ATF vendors represents a competitive threat to Lightbridge for use in existing large PWRs, as ATF vendors are now trying to encroach into a critical element of Lightbridge's value proposition, i.e., the ability of Lightbridge Fuel™ to extend the cycle length from 18 to 24 months in existing large PWRs. PWRs and/or offer power rate uprates opportunities. While it is not certain that the ATF vendors will be successful in this approach, if ATF could provide for two-year longer cycles and/or power uprates, it could severely weaken or undermine our economic value proposition in existing large PWRs. LWRs. That said, we believe Lightbridge Fuel™ remains the only advanced light-water reactor fuel in development that can provide power uprates, cycle length extensions, improved safety, and load following in a single product as desired by the utilities.



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Nuclear power faces competition from other sources of electricity as well, including natural gas, which at times in recent years has been the cheapest option for power generation in the U.S. and has resulted in some utilities abandoning nuclear initiatives. Other sources of electricity, such as renewables like wind and solar, may also be viewed as safer than nuclear power, although we believe that generating nuclear energy with Lightbridge Fuel™ is the safest way to produce baseload electricity. To the extent demand for electricity generated by nuclear power decreases, the potential market for our nuclear fuel technology will decline.



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***Raw Materials***

We do not plan to utilize any raw materials directly in the conduct of our operations (except for potential purchases of certain raw materials in small quantities for testing and demonstration efforts). Fuel fabricators, which will ultimately fabricate fuel products incorporating our nuclear fuel technology, will acquire the zirconium and uranium, and additional raw materials that are required for the production of nuclear fuel assemblies that go into the reactor core. Uranium and zirconium are available from various suppliers at market prices. However, the availability of uranium metal enriched to 19.75% in the isotope uranium-235 uranium-235 is currently limited to small quantities sufficient only for research and testing purposes. Deployment of our fuel in light water reactors will necessitate increasing enrichment level from 5% up to 19.75% at enrichment facilities, as well as deployment of de-conversion/metallization capability at a commercial scale, and the design and licensing of a shipping container capable of accommodating fuel assemblies with uranium metal enriched up to 19.75%. We expect that utilities will contract with nuclear fuel fabricators to order nuclear fuel assemblies, and then ship the completed nuclear fuel assemblies to the reactor sites.

***Government Support/Approvals Needed, Relationships with Critical Development Partners/Vendors and Other Government Regulation***



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Due to our long fuel development timelines to commercialization and the significant amount of R&D funding required to bring our next generation nuclear fuel technology to market, substantial U.S. funding and/or in-kind contributions from government funding and and/or strategic partners and/or other third-party sources as well as political support for our project will be essential to the success of our nuclear fuel development program. Without significant U.S. government funding and cost sharing contributions from government and/or strategic partners and/or other third-party sources toward our fuel development activities, it will be unfeasible for the Company to fund all of its future fuel development efforts on its own.
The Biden administration's energy policy includes proposals for advanced nuclear as part of "critical clean energy technologies." We understand that own within the administration is prioritizing advanced nuclear technologies, including advanced fuels and SMRs, as part of its nuclear energy policy. President Biden has brought the U.S. back into the Paris Agreement on climate change, with the goal that the U.S. electricity sector be carbon neutral by 2035, just 12 years from now. We believe Lightbridge Fuel's™ coupling with SMRs can enhance the already strong case for SMRs and attract more private and government investment. expected timelines or at all.

In addition to U.S. government external funding and/or in-kind support, political support for our project is similarly important. The sales and marketing of our services and technology internationally may be subject to U.S. export control regulations, including 10 C.F.R. Part 810 and 10 C.F.R. Part 110 and the export control laws of other countries. Governmental authorizations may be required before we can export our services or technology or collaborate with foreign entities. NRC regulations at 10 C.F.R. Part 110 govern the export and import of nuclear equipment and material. Part 810 generally governs the exports of technology for development, production, or use (see 10 C.F.R. §810.3 for definitions of these terms) of reactors, equipment, and material subject to Part 110. If authorizations are required and not granted, our international business could be materially affected. Furthermore, the export authorization process is often time consuming and any delays could impact our fuel development and commercialization timelines. Violation of export control regulations could subject us to fines and other penalties, such as losing the ability to export for a period of years, which would limit our revenue growth opportunities and significantly hinder our attempts to expand our business internationally.

The testing, fabrication, and use of nuclear fuels by our future partners, licensees and nuclear power generators will be heavily regulated. The test facilities and other locations where our fuel designs may be tested before commercial use require governmental approvals from the host country's nuclear regulatory authority. The responsibility for obtaining the necessary regulatory approvals will lie with our research and development contractors that conduct such tests and experiments. Nuclear fuel fabricators, which will ultimately fabricate fuel using our technology under commercial licenses from us, are similarly regulated. Utilities that operate nuclear power plants that may utilize the fuel produced by these fuel fabricators require specific licenses relating to possession and use of nuclear materials as well as numerous other governmental approvals for the ownership and operation of nuclear power plants.

**Our Intellectual Property**

Our intellectual property rights include multiple U.S. and international patents and patent applications, trade secrets, trademark rights, and contractual agreements. Our patent applications are directed to our proprietary nuclear fuel technology and we seek additional patent protection for our fuel designs, development, and related alternatives by filing patent applications in the U.S. and other countries as appropriate.



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We received 4 1 new patents patent (worldwide) in 2022 2023 and currently have 13 12 pending patent applications. applications (worldwide). As of December 31, 2022 December 31, 2023, we held 5 11 U.S. patents and more than 140 146 foreign patents. The expiration dates of these patents, unless it's it is a divisional patent filing, are generally 20 years from their application dates. Our U.S. patents begin to expire in 2027.



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We ensure that we own intellectual property created for us by employees, independent contractors, consultants, companies, and any other third party third-party by signing agreements with them that assign any intellectual property rights to us.

We have established business procedures designed to maintain the confidentiality of our proprietary information, including the use of confidentiality agreements with employees, independent contractors, consultants, and entities with which we conduct business.

In addition to our patent portfolio, we also own trademarks to the Lightbridge corporate name and the Lightbridge logo.

**Human Capital Management Resources**

As of December 31, 2022 December 31, 2023, we had five six full-time employees and utilized a network of independent contractors, outside agencies, and technical facilities with specific skills to assist with various business functions including, but not limited to, corporate, financial, personnel, research and development, and communications. This allows us to draw upon resources that are specifically tailored to our internal needs. We have a competitive compensation plan and client needs. The Company's headquarters benefits plan that is in Reston, Virginia. designed to attract, retain, and reward individuals and includes an employee stock purchase plan and a 401k plan with a 100% matching employer contribution with immediate vesting.

***Our Culture***

Our mission is to help the world combat climate change and meet energy goals. We are passionate about understanding the needs of our society, and we work hard to develop our next generation nuclear fuel. We also believe that supporting our team with a wonderful work environment supports and empowers us to accomplish our goals. The Company's human resource professional is a resource available for employees regarding the development of their careers and training. We also have physical and mental health programs that are available to our employees. We believe that our relationship with our employees and contractors is satisfactory.

***Diversity and Inclusion***



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To truly help the world combat climate change, we need to work with a diversity of partners as well as have a diverse workforce. We also must operate with a high degree of awareness of evolving social conditions and social justice and create policy accordingly. We acknowledge that these measures evolve over time, and we are committed to improving our policies as awareness of social inequities or injustice arise. We believe an equitable and inclusive environment with diverse teams produces more creative solutions and results in better outcomes for our employees and stakeholders. We strive to attract, retain, and promote diverse talent at all levels of the organization.

**Available Information**

We make available, free of charge on our website, www.ltbridge.com, our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, including exhibits, and amendments to those reports filed or furnished pursuant to Sections 13(a) and 15(d) of the Securities Exchange Act of 1934, as amended, as soon as reasonably practicable after such reports are electronically filed with, or furnished to, the Securities and Exchange Commission (SEC). The SEC also maintains an internet site that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC at www.sec.gov. The information posted on our website is not incorporated into this Annual Report on Form 10-K, and any reference to our website is intended to be inactive textual references only.

**ITEM 1A. RISK FACTORS**

Our business faces significant risks. You should carefully consider all the information set forth in this annual report and in our other filings with the SEC, including the following risk factors which we face, and which are faced by our industry. Our business, financial condition, and results of operations could be materially and adversely affected by any of these risks. In that event, the trading price of our common stock would likely decline, and you might lose all or part of your investment. This report also contains forward-looking statements that involve risks and uncertainties. Our results could materially differ from those anticipated in these forward-looking statements, as a result of certain factors including the risks described below and elsewhere in this report and our other SEC filings. See also “Forward-Looking Statements” above.



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**Risks Related to Our Business**

***We will need to raise significant additional capital in the future to expand our operations and continue our R&D activities and we may be unable to raise such funds when needed on acceptable terms, or at all. Any capital raises may cause significant dilution to our shareholders.***

As of December 31, 2022 December 31, 2023, we had $28.9 million $28.6 million in cash and cash equivalents. We have experienced substantial and recurring losses from operations, which has created an accumulated deficit of $144.5



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million $152.4 million as of December 31, 2022 December 31, 2023. We will continue to incur losses because we are in the early development stage of commercializing our nuclear fuel.

We will need to raise significant additional capital (up to several hundred million dollars) in order to continue our R&D activities and fund our operations through the commercialization of our nuclear fuel. Our current plan is to maximize external funding from third party third-party sources, including potentially the DOE, to support the remaining development, testing and demonstration activities relating to our metallic nuclear fuel technology.

When we elect to raise additional funds or additional funds are required, we may raise such funds from time to time through public or private equity offerings, debt financings or other financing alternatives. Additional equity or debt financing, or other alternative sources of capital may not be available to us on acceptable terms, if at all. If we are unable to meet our future financial obligations, we could be forced to delay, reduce, or cease our operations, including substantially decrease or suspend our R&D activities, or otherwise impede our ongoing business efforts, which could have a material adverse effect on our business, operating results, financial condition, and long-term prospects, and, investors may lose their entire investment in the Company. In addition, if we are unable to demonstrate meaningful progress to further the development of our fuel products, it may be difficult for us to raise additional capital on terms acceptable to us or at all.

When we raise additional funds by issuing equity securities, our stockholders will experience dilution. Sales of substantial amounts of our common stock may cause the trading price of our common stock to decline in the future. New investors may have rights superior to existing securityholders. Debt financing, if available, would result in substantial fixed payment obligations and may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures, or declaring dividends. Any debt financing or additional equity that we raise may contain terms, such as liquidation and other preferences, which are not favorable to us or our stockholders. If we are unable to raise additional capital in sufficient amounts or on terms acceptable to us, we may not be able to fully develop our nuclear fuel designs, our future operations will be limited, and our ability to generate revenues and achieve or sustain future profitability will be substantially harmed. In particular, we may be required to delay, reduce the scope of or terminate one or more of our research projects, sell rights to our nuclear fuel technology or license the rights to such technologies on terms that are less favorable to us than might otherwise be available.

***We are dependent upon significant U.S. government funding and/or in-kind contributions and political support for nuclear power in order to complete our fuel development efforts and commercialize our nuclear fuel technology.***

Our projected fuel development timeline is dependent upon receiving significant funding and/or in-kind contributions from the U.S. government to not only support our ongoing R&D efforts, but to also provide confidence to our investors and reduce the need to raise funds through the issuance of additional dilutive equity securities. Government funding of R&D is subject to the political process, which is inherently unpredictable and highly competitive. The funding of government programs is dependent on budgetary limitations, congressional appropriations, and administrative allotment of funds, all of which are uncertain and may be affected by changes in U.S. government policies resulting from various political developments. If political support for the prioritization of the development of nuclear energy decreases, including due to policy changes by the Biden administration and



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future administrations and changing congressional funding priorities, it may affect our ability to secure government funding which would adversely affect our business, fuel development timeline, financial condition, and results of operations.

***Changes to, or termination of, any agreements with the U.S. government national laboratories, or deterioration in our relationship with the U.S. government, could adversely affect our research and development activities.***

We are a party to agreements and arrangements with U.S. national laboratories that are subject to review and approval by the DOE and which are important to our R&D activities. Termination, expiration, or modification of one or more of these or other agreements could adversely affect our future prospects to develop our fuel and/or commercially deploy it. In addition, deterioration in our relationship with the U.S. national laboratories that are parties to these agreements and/or the DOE could impair or impede our ability to successfully implement these agreements, which could adversely affect our R&D activities. Also, a COVID-19 outbreak, including the emergence and spread of variant strains of the virus or other pathogens, may affect future operations of the U.S. national laboratories.



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***The amount of time and funding needed to bring our nuclear fuel to market may greatly exceed our projections.***

The development of our nuclear fuel will take a significant amount of time and funding, and any shortfall in R&D funding levels or a delay in achieving fuel development milestones, or uncertainty in regulatory licensing timelines could result in significant delays and cost overruns. We cannot at this stage accurately predict the amount of funding or the time required to successfully manufacture and sell our nuclear fuel in the future. However, our best estimate at this time is that our metallic fuel development program is expected to take 15-20 years and cost several hundred million U.S. dollars before we can secure our initial commercial order for a batch reload. The actual cost and time required to commercialize our fuel technology may vary significantly depending on, among other things, the results of our research and product development efforts; the cost of developing or licensing our nuclear fuel; changes in the focus and direction of our research and product development programs; access to test reactor loops and/or other test facilities; competitive and technological advances; the cost of filing, prosecuting, defending and enforcing claims with respect to patents; the regulatory approval process; fuel manufacturing process; availability of metallic high assay low enriched uranium, and marketing and other costs associated with commercialization of these technologies. Because of this uncertainty, even if financing is available to us, we may need significantly more capital than anticipated, which may not be available on terms acceptable to us or at all, and the expected revenues and other expected benefits from our nuclear fuel technology may be delayed or never realized.

***Our current economic model for selling our nuclear fuel may prove to be inaccurate and subject to competition and our nuclear fuel technology products may not be cost effective.***

Although our preliminary economic model concludes that our nuclear fuel technology may provide a significant payback to utilities, it is based upon a number of assumptions that may not prove to be accurate. If our model is inaccurate, our nuclear fuel



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product may not provide nuclear utility customers with sufficient economic incentive to switch from existing nuclear fuels, and we could lose or fail to develop customers. For example, if ATF is successful in extending the cycle length from 18 to 24 months in existing PWRs, it could severely weaken or undermine the anticipated economic value of our nuclear fuel for large PWRs.

Separately, our economic model for SMRs is in the development stage and its viability is subject to favorable wholesale power prices in the markets in which our nuclear fuel may be used, the necessary upfront capital investment to enable a 30% power uprate in future SMRs using our nuclear fuel and the future costs of uranium metallization and fabrication of our fuel rods and fuel assemblies at commercial scale, all of which are inherently unpredictable.

Additionally, we believe our metallic fuel can be used in CANDU heavy water reactors. However, we have yet to conduct a complete our feasibility study to confirm our fuel's suitability for those types of reactors. As a result, we do not yet have an economic model for CANDU-type reactors and are uncertain at this time as to potential economic benefits, if any, our metallic fuel could provide in those types of reactors.

A failure of our current and future economic models, or a failure to find a strategic alternative, such as a potential business combination partner, would adversely affect our business, financial condition, and results of operations and may result in the failure of the Company.

***We may not achieve the expected benefits from our collaboration agreement with Centrus Energy Corp.***

On December 7, 2023, we announced the Company's entry into a collaboration agreement with Centrus Energy Corp. to engage in a front-end engineering and design (FEED) study to add a dedicated Lightbridge Pilot Fuel Fabrication Facility (LPFFF) at the American Centrifuge site in Piketon, Ohio. The FEED study is intended to identify infrastructure and licensing requirements as well as the estimated cost and deployment schedule for the LPFFF. Centrus Energy's wholly-owned subsidiary, American Centrifuge Operating, LLC, will lead the study, which is expected to be completed in 2024. The American Centrifuge Plant is currently the only place in the world to produce HALEU in UF6 form outside of Russia. There can be no guarantee that the FEED study will return results that confirm the feasibility of a LPFFF and may indicate that the infrastructure and licensing requirements or the estimated cost or timelines to deploy the LPFFF would be overly onerous, too lengthy or prohibitively expensive to proceed with the deployment of the LPFFF. If the FEED study indicates that the LPFFF cannot be completed at the American Centrifuge Plant on terms acceptable to us, it may delay our anticipated timeline for the commercialization of our fuel, which would adversely affect our business, financial condition, and results of operations.

***Development of our nuclear fuel technology is dependent upon the availability of a test reactor.***

Our fuel designs are still in the research and development stage and further research, development, and demonstration will be required in test facilities. We had intended to conduct further testing of our fuel designs at the Halden research reactor located in Halden, Norway. However, the Halden research reactor, which became operational in 1958, was shut down in June 2018 and will not reopen. The Company has identified alternative options to generate the irradiation data we need to support regulatory licensing of our LTA operation in a commercial reactor, such as the ATR at INL, but pursuing such alternatives to the Halden research reactor may significantly delay further testing of our fuel designs. We may not be able to contractually secure another reactor in which to test our fuel designs. As a result, commercialization of our nuclear fuel technology may be significantly delayed, perhaps indefinitely, which would adversely affect our business, financial condition, and results of operations.



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Our current R&D plan includes the use of research reactors made available by the U.S. government and the DOE, including but not limited to the ATR at INL. These reactors are limited in terms of technical capabilities, operating cycles, and prior reservations for similar research and development services. While the ATR may have enough space for additional flow loops where fuel rods can be irradiated, the reactor currently has only one such loop available, limiting how much fuel rod material that can be inserted into the reactor as well as its duration in the reactor. If new loops are not added to sufficient capacity within the ATR loop irradiation testing in the ATR is not available, we may not provide be able to obtain sufficient data to justify regulatory approval for LTA testing demonstration in a large commercial PWR in a commercially feasible timeframe. This would likely necessitate an extra fuel development step of additional loop irradiation testing in another test reactor or LTR testing demonstration in a large commercial PWR in addition to the ATR loop testing before LTA testing demonstration could commence.



Funding for any improvement of capabilities or continued operations of these reactors is subject to the priorities of the U.S. government, as well as the appropriation of funding by the U.S. Congress, and cannot be assured. Changes in these factors are outside of the Company's control and could cause significant delays and/or cost increases in our R&D programs.

***Our fuel designs have never been tested in an existing commercial reactor and actual fuel performance, as well as the willingness of commercial reactor operators and fuel fabricators to adopt a new design, is uncertain.***

Nuclear power research and development entails significant technological risk. New designs must undergo extensive development and testing necessary for regulatory approval. Our fuel designs are still in the research and development stage and, while certain testing on our fuel technologies has been completed, further testing and experiments will be required in order to achieve commercialization. For example, our proposed metallic fuel uses a helical multi-lobe form to increase its surface area and shorten the distance for heat generated in the fuel rod to reach water, resulting in an improved ability to cool the fuel. However, this proposed shape may also result in non-uniform distribution of heat flux that may have an adverse impact on the critical heat flux and limit power uprate capabilities of our metallic fuel. Additional testing and development may result in changes to the design of our proposed metallic fuel, which could decrease its realizable benefits and impair the ability of nuclear utilities to utilize nuclear fuel incorporating our technology.

Furthermore, the fuel technology has yet to be sufficiently demonstrated in operating conditions equivalent to those found in an existing commercial reactor. Until we are able to successfully demonstrate operation of our fuel designs in commercial reactor conditions, we cannot confirm the ability of our nuclear fuel to perform as expected, including its ability to enable a power uprate, a longer operating cycle, or other anticipated performance and safety benefits. In addition, there is also a risk that



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suitable testing or manufacturing facilities may not be available to us on a timely basis or at a reasonable cost, which could cause development program schedule delays and/or cost overruns.

There is also a risk that fuel fabricators that manufacture and supply commercial nuclear fuel assemblies to nuclear utility customers may not enter into a commercial arrangement with us relating to our metallic nuclear fuel designs. A failure to enter into a commercial arrangement with one or more of existing nuclear fuel fabricators could adversely affect our business, financial condition, and results of operations and may result in the failure of the Company.

If our fuel designs do not perform as anticipated in commercial reactor conditions, we will not realize revenues from licensing or other use of our fuel designs.

***Existing commercial nuclear infrastructure in many countries is limited to uranium material in dioxide form with enrichments limited to 5%. Our nuclear fuel will be in a metallic form and will be enriched to higher levels, which will require modifications to existing commercial nuclear infrastructure and could impede commercialization of our technology.***

Existing commercial nuclear infrastructure, including conversion facilities, enrichment facilities, fabrication facilities, fuel storage facilities, fuel handling procedures, fuel operation at reactor sites, used fuel storage facilities and shipping containers, were in most cases designed and are currently licensed to handle uranium in oxide form with enrichment up to 5% of the isotope uranium-235. Our fuel designs are expected to use uranium metal with uranium enrichment levels up to 19.75% and would therefore require certain modifications to existing commercial nuclear infrastructure to enable commercial nuclear facilities to handle our fuels. Those nuclear facilities will need to complete a regulatory licensing process and obtain regulatory approvals to be able to process, handle, or ship uranium metal with enrichment levels up to 19.75% and operate commercial reactors using our metallic fuel. There is significant risk that some relevant entities within the nuclear power industry may be slow in making any required facility infrastructure modifications or obtaining required licenses or approvals to enable enrichment to 19.75%, de-conversion to metallic uranium, fabrication of metallic fuel rods and assemblies, shipment of fresh and irradiated metallic fuel assemblies, interim storage of fresh and irradiated fuel assemblies in spent fuel pools or dry cask storage facilities at reactor sites, or permanent disposal of spent metallic fuel at a high-level repository, or may not make the necessary modifications at all. There is also a risk associated with possible negative perception of uranium enrichment greater than 5% that could potentially delay or hinder regulatory approval of our nuclear fuel designs.



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Our nuclear fuel designs rely on fabrication technologies that in certain material ways are different from the fabrication techniques presently utilized by existing commercial fuel fabricators. In particular, our metallic fuel rods must be produced using a co-extrusion fabrication process. Presently, most commercial nuclear fuel is produced using a pellet fabrication technology, whereby uranium dioxide is formed into small pellets which are stacked and sealed inside metallic tubes. Our co-extrusion fabrication technology involves co-extrusion of a composite solid fuel rod from a metallic matrix containing uranium and zirconium alloy. Fabrication of full-length (approximately 12 to 14 feet) PWR metallic fuel rods for large reactors and shorter



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length for SMRs or CANDUs has yet to be sufficiently demonstrated for our uranium-zirconium fuel. There is a risk that the fuel fabrication process utilized to date to produce our metallic fuel rods may not be feasibly adapted to the fabrication of full-length metallic fuel rods usable in commercial reactors.



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***The cost of production of our nuclear fuel could be prohibitively expensive.***

In order for our metallic fuel to succeed, we will need to be able to produce our nuclear fuel at a price that is economically viable. We have received estimates that production of our nuclear fuel could be achieved at a commercial scale for approximately $5,000 to $10,000 per kilogram using known metallization/de-conversion technologies. To bring the cost of metallization/de-conversion further down, we estimate that it would require a new government-funded research and development program that could take 15-20 years or longer and cost several billion dollars. There can be no assurance that we will be able to produce our nuclear fuel at a price that is economically feasible or that future research efforts will lower the cost of production. If we are unable to produce our nuclear fuel at a price that is economically viable, the market for our nuclear fuel may never develop and our current business model will fail.

***We are part of the nuclear power industry, which is highly regulated. Our fuel designs differ from fuels currently licensed and used by commercial nuclear power plants. The regulatory licensing and approval process for nuclear power plants to operate with our nuclear fuels may be delayed and made more costly, and industry acceptance of our nuclear fuels may be hampered.***

The nuclear power industry is a highly regulated industry. All entities that operate nuclear facilities and transport nuclear materials are subject to the jurisdiction of the NRC or its counterparts around the world. Our fuel designs differ significantly in some aspects from the fuel used today by commercial nuclear power plants. These differences will likely result in more prolonged and extensive review by the NRC and its counterparts around the world that could cause fuel development program delays and delays in commercialization. Entities within the nuclear industry may be hesitant to be the first to use our nuclear fuel, which currently has no history of commercial use. Furthermore, our fuel development timeline relies on the relevant nuclear regulator to accept and approve technical information and documentation about our nuclear fuel that is generated during the fuel qualification program. There is a risk that regulators may require additional information regarding the fuel's behavior or performance which necessitates additional, unplanned analytical and/or experimental work which could cause program schedule delays and require more research and development funding.

***Successful execution of our business model is dependent upon public support for nuclear power and overcoming public opposition to nuclear energy.***

Successful execution of our business model is dependent upon public support for nuclear power in the United States and other countries. Nuclear power faces strong opposition from certain competitive energy sources, individuals, and organizations. The accident that occurred at the Fukushima nuclear power plant in Japan beginning on March 11, 2011 increased public opposition



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to nuclear power in some countries, resulting in a slowdown in or, in some cases, a complete halt to new construction of nuclear power plants, early shut down of existing power plants, or dampening of the favorable regulatory climate needed to introduce new nuclear technologies. As a result of the Fukushima accident, some countries that were considering launching new domestic nuclear power programs have delayed or cancelled preparatory activities they were planning to undertake as part of such programs. Furthermore, nuclear fuel fabrication and the use of new nuclear fuels in reactors must be licensed by the NRC and equivalent governmental authorities around the world. In many countries, the licensing process includes public hearings in which opponents of the use of nuclear power might be able to cause the issuance of required licenses to be delayed or denied. Upon commercialization, a reduction or elimination of customer contracts or future customer contracts resulting from lower public support, less raw materials, lower demand, increased regulation, and increased costs could adversely affect our business model and future prospects.



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***Our nuclear fuel fabrication process is dependent on outside suppliers of nuclear and other materials and any difficulty by a fuel fabricator in obtaining these materials could be detrimental to our ability to eventually market our nuclear fuel through a fuel fabricator.***

Production of fuel assemblies using our nuclear fuel designs is dependent on the ability of fuel fabricators to obtain supplies of nuclear material utilized in our fuel assembly design. Our proposed nuclear fuel products require HALEU in metallic form, enriched between 5% and 19.75% in the isotope uranium-235, with presently no commercial supply of HALEU available in the U.S. Currently HALEU can only be sourced in limited quantities from the DOE.

Fabricators will also need to obtain metal for components, particularly zirconium or its alloys. These materials are regulated and can be difficult to obtain or may have unfavorable pricing terms. Any difficulties in obtaining these materials by fuel fabricators could have a material adverse effect on their ability to market fuel based on our technology.



***We rely on a limited number of suppliers for HALEU or other key source materials and/or key components and/or key equipment necessary for the development and fabrication of our nuclear fuel, which could, under certain circumstances, adversely delay our research and development activities.***

If the supply of a single-sourced or limited-sourced material and/or key component and/or key equipment is delayed or ceases, we may not be able to produce the related test fuel rod, which could adversely delay our research and development activities. In addition, a single-source or limited-source supplier of a key component or a key piece of equipment could potentially exert significant bargaining power over price, quality, or other terms relating to these materials or equipment, which could have a material adverse effect on our financial condition, results of operations and cash flows.

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***Labor shortages and supply chain disruptions could prevent us from meeting our R&D timelines and have a negative impact on our financial results.***

Shipping delays exist worldwide, as there is much greater demand for shipping and reduced capacity. Additionally, certain material and equipment prices are expected to remain at historically high levels in 2023 due to inflationary cost pressures and global transportation complexities. We may experience supply chain disruptions related to third-party vendors negatively impacted by the availability of qualified labor, restrictions on employees' ability to work, facility closures, disruptions to ports and other shipping infrastructure, border closures and other travel or health-related restrictions. These disruptions may impact our supply chain and delay the development of our nuclear fuel technology, which could negatively impact our financial results and our ability to execute timely on our R&D strategy, should they persist.

***If the price of non-nuclear energy sources falls, whether as the result of government policy or otherwise, there could be an adverse impact on nuclear energy, which would have a material adverse effect on our operations.***

In certain markets with a diversified energy base, decisions on new build new-build power plants are largely affected by the economics of various energy sources. If prices of non-nuclear energy sources fall, it could limit the deployment of new build new-build nuclear power plants in such markets. This could reduce the size of the potential markets for our nuclear fuel technology.

In addition, the U.S. federal government and many states have adopted a variety of government subsidies and utility incentives to allow renewable energy sources, such as biofuels, wind, and solar energy, to compete with conventional sources of energy that have historically been less expensive, such as fossil fuels and nuclear power. We may face additional indirect competition from providers of renewable energy sources, particularly in wind and solar energy, if government subsidies and utility incentives for those sources of energy remain or increase or if such sources of energy are mandated. Additionally, the availability of subsidies and other incentives from utilities or government agencies to install alternative renewable energy sources may negatively impact our potential customers' desire to purchase our products and services, or may be utilized by our existing or new competitors to develop a competing business model or products or services that may be potentially more attractive to customers than ours, any of which could have a material adverse effect on our results of operations or financial condition.

***We rely upon our senior are dependent on management and other highly skilled key personnel and if we are not successful in retaining or attracting highly qualified personnel, we may not be able to successfully implement our business strategy.***

Our success depends, in significant part, upon our senior management, including Seth Grae, our Chief Executive Officer, Andrey Mushakov, our Executive Vice President - Nuclear Operations, and Larry Goldman, our Chief Financial Officer. Mr. Grae's and Dr. Mushakov's knowledge of the nuclear power industry, their networks of key contacts within that industry and in governments and, in particular, their expertise in the potential markets for our technologies, are critical to success, and the implementation of our business strategy. Mr. Grae, Dr. Mushakov, and Mr. Goldman are likely to be significant factors in our future growth and success. Our success also depends on our ability to attract, motivate, develop, and retain a sufficient number of other highly skilled personnel, including consultants, managers, and nuclear engineers. Competition for employees and consultants in the nuclear industry is intense, partially as a result of a recent resurgence in the nuclear industry after decades of



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relative decline, and we may not be successful in attracting and retaining such personnel. For example, a senior nuclear engineer recently resigned from the Company and became a consultant to the Company. The Company may be unsuccessful in finding a replacement for this senior nuclear engineer on comparable terms. In addition, while we intend to partner with other entities in developing and commercializing our nuclear fuel technology, such other entities may also have difficulty in attracting and retaining nuclear engineers and other personnel and may not have adequate resources to dedicate to our joint projects.

The loss of services by any of Mr. Grae, Dr. Mushakov, or Mr. Goldman, or the inability of us or our partners to retain or attract highly skilled personnel, could delay or suspend development and commercialization of our nuclear fuel technology, adversely affect our ability to meet customer needs, or increase our expenses, any of which could have a material adverse effect on our business, results of operations or financial condition.

***Competition for highly qualified technical personnel is intense in our industry. business.***

Our business depends upon the recruitment and continued service of our highly skilled, educated, and trained employees, and the loss of, or the inability to attract and retain, qualified personnel could have a material adverse effect on our business. Our ability to attract, motivate, compensate, and retain highly qualified and diverse employees is necessary to support and achieve business objectives. Competition for skilled and diverse employees in our industry can be intense, and any uncertainty surrounding future success depends in part on employment opportunities, organizational and reporting structures and related concerns may impair our ability to contract with, hire, integrate, attract and retain engineers and scientists, and other qualified personnel with a focus in our nuclear fuel technology and products. Competition for these skilled professionals is intense. If we are unable to adequately anticipate our needs for certain key competencies and implement human resource solutions to recruit or improve these competencies, our business, results of operations and financial condition would suffer. In addition, a loss of the service of any of our existing skilled employees or contractors could have a significant negative effect on our ability to operate. employees.



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The loss of the services of qualified employees and any inability to recruit effective replacements or to otherwise attract, motivate, train, or retain highly qualified and diverse employees could have a material adverse effect on our business, financial condition, and results of operations.

Also, any significant leadership change and accompanying senior management transition involves inherent risk, and any failure to ensure a smooth transition could hinder our strategic planning, execution, and future performance. While we strive to mitigate the negative impact associated with changes to our senior management team, such changes may cause uncertainty among investors, employees, and others concerning our future direction and performance. If we fail to effectively manage any leadership changes, including organizational and strategic changes, such failure could have a material adverse effect on our ability to successfully attract, motivate and retain highly qualified employees, as well as our business, financial condition, and results of operations.

***We may not be able to receive or retain authorizations that may be required for us to sell or license our technology internationally.***



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The sales and marketing of our technology internationally may be subject to U.S. export control regulations and the export control laws of other countries. Governmental authorizations may be required before we can export our technology. If authorizations are required and not granted, our international business could be materially affected. The export authorization process is often time consuming. time-consuming. Violation of export control regulations could subject us to fines and other penalties, such as losing the ability to export for a period of years, which would limit our revenue growth opportunities and significantly hinder our attempts to expand our business internationally.

***Potential competitors could limit opportunities to license our technology.***

Other companies may develop new nuclear fuel designs that can be used in the same types of reactors as those that we target. These nuclear fuel designs include, but are not limited to, the ATFs currently being developed and tested by several U.S. and international nuclear fuel suppliers, some with the support of the DOE, which could undermine our nuclear fuel's economic value proposition if ATFs are proven to extend the operating cycle length from 18 to 24 months. Some of these companies have existing long-term commercial contracts with nuclear power utilities that we do not have. If another company were to successfully develop a new nuclear fuel that competes with our nuclear fuel design technology, opportunities to commercialize our technology would be limited, and our business would suffer.

Moreover, many of these other companies have substantially greater financial, technological, managerial and research and development resources and experience than we do. These larger companies may be better able to handle the corresponding long-term financial requirements to successfully develop new nuclear fuel and bring it to market.

***If the DOE were to successfully assert that an invention claimed within our 2007 or 2008 Patent Cooperation Treaty, or PCT, patent applications was first conceived or actually reduced to practice under a contract with the DOE, then our intellectual property rights in that invention could become compromised and our business model could become significantly impeded.***

Work on finite aspects and/or testing of some subject matter disclosed in our 2007 and 2008 Russian PCT patent applications was done under a government contract with the DOE. If the DOE asserted that an invention claimed in the 2007 and/or 2008 Russian PCT applications was first conceived or actually reduced to practice under such a contract, and a U.S. court agreed, the DOE could gain an ownership interest in such an invention outside of the Russian Federation and our intellectual property rights in that claimed invention could become compromised and our business model may then be significantly impeded.

***If we infringe or are alleged to infringe intellectual property rights of third parties, third-parties, our business, financial condition, and results of operations could be adversely affected.***

Our nuclear fuel designs may infringe, or be claimed to infringe, patents or patent applications under which we do not hold licenses or other rights. Third parties Third-parties may own or control these patents and patent applications in the United States and elsewhere. Third parties Third-parties could bring claims against us that would cause us to incur substantial expenses and, if successfully asserted against us, could cause us to pay substantial damages. If a patent infringement suit were brought against us, we could be forced to stop or delay commercialization of the our fuel design or a component thereof



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that is the subject of the suit. As a result of patent infringement claims, or in order to avoid potential claims, we may choose or be required to seek a license from the third party third-party and be required to pay license fees, royalties, or both. These licenses may not be available on acceptable terms, or at all. Even if we were able to obtain a license, the rights may be nonexclusive, which could result in our competitors gaining access to the same intellectual property. Ultimately, we could be forced to cease some aspect of our business operations if, as a result of actual or threatened patent infringement claims, we are unable to enter into licenses on acceptable terms. This could significantly and adversely affect our business, financial condition, and results of operations. In addition to infringement claims against us, we may become a party to other types of patent litigation and other proceedings, including interference proceedings declared by the United States Patent and Trademark Office regarding intellectual property rights with respect to our nuclear fuel designs. The cost to us of any patent litigation or other proceeding, even if resolved in our favor, could be substantial. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace. Patent litigation and other proceedings may also absorb significant management time.



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***We are exposed to risks related to cybersecurity and protection of confidential information.***

We retain highly confidential information in our systems and databases on third party third-party network providers. Although we maintain security features in our systems designed to protect proprietary information and prevent data loss and other security breaches, such measures cannot provide absolute security and our operations may be susceptible to breaches on our third party third-party networks, including from circumvention of security systems, denial of service attacks or other cyber-attacks, hacking, computer viruses or malware, technical malfunction, employee error, malfeasance, physical breaches, system disruptions or other disruptions. We outsource certain functions, including IT functions, and these relationships allow for the storage and processing of our information, as well as customer, counterparty, and employee information. While we engage in actions to reduce our exposure resulting from outsourcing, ongoing threats may result in unauthorized access, loss, exposure or destruction of data, or other cybersecurity incidents, with increased costs and other consequences, including those described below. The third-parties with which we outsource certain of our IT functions utilize a variety of systems and cybersecurity capabilities, and such third-parties may not be successful in preventing a breach that exploits a weakness in their cybersecurity systems. In some cases, we may not be aware of cyber incidents immediately as we rely on such third-parties to inform us of a cyber incident that could affect our information contained in their systems.

Disruptions from cybersecurity events may jeopardize the security of information, trade secrets, or confidential data stored in and transmitted through our systems or the systems of outsourcing parties. An increasing number of websites, including those owned by several other large internet and offline companies, have disclosed breaches of their security, some of which have involved sophisticated and highly targeted attacks on portions of their websites or infrastructure. The techniques used to obtain unauthorized access, disable, or degrade service, or sabotage systems, change frequently, may be difficult to detect for a long time, and often are not recognized until launched against a target. Certain efforts may be state sponsored and supported by



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significant financial and technological resources and therefore may be even more difficult to detect. We, or the third-parties with whom we contract, may not anticipate these techniques or implement adequate preventive measures. We currently expend and may be required to expend significant additional capital and other resources to protect against such security breaches or to alleviate problems caused by such breaches. Our insurance coverage may be inadequate to compensate us for any related losses we incur. incur and, in some cases, our insurance coverage may not cover the cyber incident at all.

These issues are likely to become more difficult as we expand our operations. Any breach of our security measures, or even a perceived breach of our security measures, could cause us to lose potential customers, government contracts and governmental approvals; suffer material harm to our business, financial condition, operating results, and reputation; or be subject to regulatory actions, litigation, sanctions, or other statutory penalties.

***Technological changes could render our technology and products uncompetitive or obsolete, which could prevent us from achieving market share and sales.***

Our failure to refine or advance our fuel technologies could cause our nuclear fuel to become uncompetitive or obsolete, which could prevent us from achieving market share and sales. We may need to invest significant financial resources in research and product development to keep pace with technological advances in the industry and to compete in the future; we may be unable to secure such financing. A variety of competing alternative technologies may be in development by other companies that could result in lower manufacturing costs and/or higher fuel performance than those expected for our fuel products. Our development efforts may be rendered obsolete by the technological advances of others, and other technologies may prove more advantageous for commercialization.

***We may acquire other companies or technologies, which could divert our managements' attention, result in dilution to our stockholders and otherwise disrupt our operations and adversely affect our operating results.***

We may in the future seek to acquire or invest in businesses, applications and services or technologies that we believe could complement or expand our Company, enhance our technical capabilities, or otherwise offer growth opportunities. The pursuit of potential acquisitions may divert the attention of management and cause us to incur various expenses in identifying, investigating, and pursuing suitable acquisitions, whether or not they are consummated.



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If we acquire additional businesses, we may not be able to integrate the acquired personnel, operations, and technologies successfully, or effectively manage the combined business following the acquisition. We also may not achieve the anticipated benefits from the acquired business due to a number of factors, including:

- inability to integrate or benefit from acquired technologies or services in a profitable manner;



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- unanticipated costs or liabilities associated with the acquisition;
- difficulty integrating the accounting systems, operations, and personnel of the acquired business;
- diversion of management's attention from other business concerns;
- adverse effects to our existing business relationships with business partners as a result of the acquisition;
- the potential loss of key employees;
- use of resources that are needed in other parts of our business; and
- use of substantial portions of our available cash to consummate the acquisition.



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In addition, a significant portion of the purchase price of companies we acquire may be allocated to acquired goodwill and other intangible assets, which must be assessed for impairment at least annually. In the future, if our acquisitions do not yield expected returns, we may be required to take charges to our operating results based on this impairment assessment process, which could adversely affect our results of operations.

Acquisitions could also result in dilutive issuances of equity securities or the incurrence of debt, which could adversely affect our operating results. In addition, if an acquired business fails to meet our expectations, our operating results, business, and financial position may suffer.

***If we are unable to obtain or maintain intellectual property rights and trade secrets relating to our technology, the commercial value of our technology may be adversely affected, which could in turn adversely affect our business, financial condition, and results of operations.***

Our success and ability to compete depends in part upon our ability to obtain protection in the United States and other countries for our nuclear fuel designs by establishing and maintaining intellectual property rights relating to or incorporated into our fuel technologies and products. We own a variety of patents and patent applications in the United States, as well as corresponding patents and patent applications in several other jurisdictions. We have not obtained patent protection in each market in which we plan to compete. Furthermore, our patents, trade secrets, information and intellectual property may be the subject of infringement by third-parties. We do not know how successful we would be should we choose to assert our patents or other intellectual property rights against suspected infringers. Our pending and future patent applications may not issue as patents or, if issued, may not issue in a form that will be advantageous to us. Even if issued, patents may be challenged, narrowed, invalidated, or circumvented, which could limit our ability to stop competitors from marketing similar products or limit the length



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of term of patent protection we may have for our products. Changes in patent laws or in interpretations of patent laws in the United States and other countries may diminish the value of our intellectual property or narrow the scope of our patent protection, which could in turn adversely affect our business, financial condition, and results of operations.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets, and other intellectual property protection, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our intellectual property and proprietary rights generally. Proceedings to enforce our intellectual property and proprietary rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly, could put our patent applications at risk of not issuing, and could provoke third-parties to assert claims against us. We may not prevail in any lawsuits that we initiate, and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property and proprietary rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.



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Additionally, sanctions or other restrictions on payments made to Russia imposed by the United States government in response to Russia's invasion of Ukraine may make it more difficult for us to maintain patent protection in certain foreign jurisdictions. Certain of our patents are maintained by the Eurasian Patent Office and the Russian patent office, Rospatent. Each of the Eurasian Patent Office and Rospatent use the Russian Central Bank to process patent annuity payments. The U.S. Office of Foreign Assets Control (OFAC) has identified the Russian Central Bank as a sanctioned entity. Paying a Russian firm or agent to make payments that will be processed by the Russian Central Bank could be deemed an act of evading or avoiding sanctions. On May 5, 2022, OFAC published General License 31, which created an exemption to such sanctions for payments made to maintain intellectual property rights. However, there can be no assurance that this exemption will be made permanent, and if it is rescinded, we may be unable to make the required annuity or other maintenance payments with respect to our Russian and Eurasian patents. If we are unable to make the required annuity or other maintenance payments, there can be no assurance that our Russian and Eurasian patents will continue to receive adequate protection in the applicable jurisdictions, which could have a material adverse effect on our patent portfolio.

Further, in response to the sanctions imposed by OFAC, the Russian government issued a decree in March 2022 stating that patent holders associated with foreign states that commit "unfriendly actions against Russian legal entities and individuals" will be entitled to no renumeration from the unsanctioned use of such patent holders' intellectual property. While the impact of this decree has yet to be determined, it may significantly undermine intellectual property protection in Russia. Because of this significant uncertainty with respect to the treatment of foreign owned patents maintained in Russia, there can be no assurance that we will be able to maintain adequate protection of our Russian patents.

We intend to apply for additional patents for our nuclear fuel technologies as we deem appropriate. We may, however, fail to apply for patents on important technologies or products in a timely fashion, if at all. Our existing patents and any future patents we obtain may not be sufficiently broad to prevent others from practicing our technologies or from developing competing



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products and technologies. Also, our portfolio of patents evolves as new patents are issued and older patents expire and the expiration of patents could have a negative effect on our ability to prevent competitors from duplicating certain or all of our products. In addition, in general, the patent positions of energy technology companies are highly uncertain and involve complex legal and factual questions for which important legal principles remain unresolved. As a result, the validity and enforceability of our patents cannot be predicted with certainty.

We also rely on trade secrets to protect some of our technology, especially where it is believed that patent protection is undesirable for the Company or unobtainable. We generally require our employees, consultants, advisors, and collaborators to execute appropriate agreements with us regarding the safeguarding of confidential information. If any of these agreements are violated, or if any of our employees, consultants, advisors or collaborators unintentionally or willfully disclose our proprietary information to competitors, we may not be able to fully perfect our rights to the technologies in question, and in some instances, we may not have an appropriate remedy available for the damages that we may incur as a result of any such violation. Enforcement of claims that a third party third-party has illegally obtained and is using trade secrets is expensive, time consuming and uncertain. In addition, courts outside the U.S. are sometimes less willing than U.S. courts to protect trade secrets. If our competitors independently develop equivalent knowledge, methods, and know-how, we would not be able to assert our trade secrets against them and our business could be harmed.



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***Applicable Russian intellectual property law may not protect some of our intellectual property, which could have a material adverse effect on our business.***

Intellectual property rights have been evolving in Russia, and are trending towards international norms, but are still developing. We have worked closely with employees in Russia and other Russian contractors and entities to develop some of our material intellectual property. Some of our earlier intellectual property rights originate from our patent filings in Russia. Our worldwide rights in some of this intellectual property, therefore, may be affected by Russian intellectual property laws, including laws adopted in response to international sanctions against Russia or otherwise. In particular, in response to the sanctions imposed by OFAC as a result of Russia's invasion of Ukraine, the Russian government issued a decree in March 2022 stating that patent holders associated with foreign states that commit "unfriendly actions against Russian legal entities and individuals" will be entitled to no renumeration from the unsanctioned use of such patent holders' intellectual property. If the application of Russian laws to some of our intellectual property rights proves inadequate, or if the rights of foreign holders of intellectual property in Russia adversely change as a result of hostilities between Russia and other countries or otherwise, we may not be able to fully avail ourselves of all of our intellectual property, and our business model may be impeded.

The laws of certain foreign jurisdictions do not protect intellectual property rights to the same extent as the laws of the United States, and many companies have encountered significant challenges in protecting and defending such rights in such foreign jurisdictions. The legal systems of certain countries, particularly developing countries, do not favor the enforcement of patents and other intellectual property protection, which could make it difficult for us to stop the infringement of our patents.



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Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial cost and divert our efforts and attention from other aspects of our business.



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***We have identified a material weakness in our internal control over financial reporting.***

Management, including our Chief Executive Officer and our Chief Financial Officer (CFO), assessed the effectiveness of our internal control over financial reporting as of December 31, 2022 December 31, 2023 and concluded that we did not maintain effective internal control over financial reporting. Specifically, management identified a material weakness relating related to recording accounts payable invoices. the design of our controls over logical access and segregation of duties, at the application control level, in certain information technology environments.

We previously identified a material weakness in our internal control over financial reporting and may identify additional material weaknesses in the future or otherwise fail to maintain an effective system of internal controls, which may result in material misstatements of our financial statements or cause us to fail to meet our periodic reporting obligations.

See Part II. Item 9A, 9A., Controls and Procedures, below for additional information about the material weakness.

While certain actions have been taken to implement a remediation plan to address this material weakness and to enhance our internal control over financial reporting, if this material weakness is not remediated, it could adversely affect our ability to report our financial condition and results of operations in a timely and accurate manner, which could negatively affect investor confidence in our Company, and, as a result, the value of our common stock could be adversely affected.

**Risks Related to the Ownership of Our Common Stock**

***We may issue preferred stock with rights senior to our common stock.***

We can issue preferred stock in one or more series and can set the terms of the preferred stock without seeking any further approval from the holders of our common stock. Any preferred stock that we issue may rank ahead of our common stock in terms of dividend priority or liquidation premiums, may have greater voting rights than our common stock, and may have consent rights over certain fundamental transactions. The interests of the holders of the preferred stock may as a consequence be different from the interests of the holders of our common stock, including in certain fundamental transactions in which the preferred stockholders would receive distributions before any distributions may be made to our common stockholders. In addition, such preferred stock may contain provisions allowing it to be converted into shares of common stock, which could dilute the value of our common stock to the then current stockholders and could adversely affect the market price of our common stock.



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***There may be volatility in our stock price, which could negatively affect investments, and our stockholders may not be able to resell their shares at or above the value they originally purchased such shares.***

The market price of our common stock may fluctuate significantly in response to a number of factors, some of which are beyond our control, including:

- trading volume of our common stock;
- quarterly variations in operating results;
- actual or anticipated variations in our results of operations or those of our competitors;
- failure to obtain or maintain analyst coverage of our common stock, changes in earnings estimates or recommendations by securities analysts, or our failure to achieve analyst earnings estimates;
- future sales of our common stock or other securities by us or our stockholders;
- general market conditions and other factors unrelated to our operating performance or the operating performance of our competitors; and
- the risks discussed elsewhere in this Annual Report on Form 10-K.

The stock market may experience extreme volatility that is often unrelated to the performance of particular companies. These market fluctuations may cause our stock price to fall regardless of the Company's performance.



***If we are unable to comply with the listing requirements of the Nasdaq Capital Market, it would result in our common stock being delisted, which could affect its market price and liquidity and reduce our ability to raise capital.***

If we fail to maintain compliance with, or otherwise fail to comply with, all applicable continued requirements, Nasdaq may determine to delist our common stock, which could substantially decrease trading in our common stock and adversely affect the market liquidity of our common stock and cause the market price of our common stock to decline. In addition, our ability to raise additional capital, including through future at-the-market offerings and other offerings utilizing short-form registration statements on Form S-3, would be substantially impaired.

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***The issuance of additional stock in connection with financings, acquisitions, investments, our stock incentive plans or otherwise will dilute all other stockholders.***



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Our amended and restated certificate of incorporation authorizes the Company to issue up to 25,000,000 shares of common stock and up to 10,000,000 shares of preferred stock with such rights and preferences as may be determined by our board of directors. Subject to compliance with applicable rules and regulations, we may seek to expand the number of authorized common shares, and issue shares of common stock or securities convertible into our common stock from time to time in connection with a financing, acquisition, investment, our stock incentive plans or otherwise. Any such issuance could result in substantial dilution to our existing stockholders and cause the trading price of our common stock to decline.

***Our ability to utilize our net operating loss carryforwards to offset future taxable income will be limited. limited and may also expire.***

Our ability to fully utilize our existing net operating losses (NOLs) generated after the tax year 2017 will be limited and the use of our NOLs generated prior to the 2018 tax year are severely limited, due to ownership changes in prior years as defined under Section 382 of the Internal Revenue Code. An “ownership change” is generally defined as a greater than 50% change in equity ownership by value over a rolling three-year period. Future NOLs generated will be limited if (i) we undergo an “ownership change” as described under Section 382, (ii) we do not reach profitability or are only marginally profitable, or (iii) there are changes in U.S. government laws and regulations. We did not perform a complete Section 382 study to determine the limitation on prior year NOLs, due to the long timeline for developing our nuclear fuel to commercialization to generate taxable income. Further, based on the results of our phase I Section 382 study in 2022, it’s likely our NOLs generated prior to the 2018 tax year will expire unused given the 20-year carry forward period for these NOLs. Future ownership changes, some of which may be beyond our control, as well as differences and fluctuations in the value of our equity securities may adversely affect our ability to utilize our current and future NOLs and could reduce our flexibility to raise capital in future equity financings or other transactions, or we may decide to pursue transactions even if they would result in an ownership change and impair our ability to use our NOLs. We also may decide to pursue transactions even if they would result in an ownership change and impair our ability to use our NOLs. In addition, any changes to tax rules and regulations or the interpretation of tax rules and regulations could negatively impact our ability to recognize any potential benefits from our NOLs or net unrealized built-in losses.



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***Shareholder activism could cause us to incur significant expense, hinder execution of our business strategy and impact our stock price.***

Shareholder activism, which can take many forms and arise in a variety of situations, could result in substantial costs, and divert management and our board’s attention and resources from our business. Additionally, such shareholder activism could give rise to perceived uncertainties as to our future, adversely affect our relationships with our employees or service providers and make it more difficult to attract and retain qualified personnel. Also, we may be required to incur significant fees and other expenses related to activist shareholder matters, including for third-party advisors. Our stock price could be subject to significant fluctuation or otherwise be adversely affected by the events, risks, and uncertainties of any shareholder activism.



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**ITEM 1B. UNRESOLVED STAFF COMMENTS**

Not applicable.

**ITEM 1C. CYBERSECURITY**

*Risk management and strategy*

Lightbridge utilizes third-party vendors to manage its Information Technology (IT) systems and has a Managed Service Provider (MSP) for general administration of the IT process including providing a Chief Information Security Officer (CISO), who is responsible for leading our enterprise-wide cybersecurity strategy, policy, standards, architecture, and processes. The MSP utilizes a Security Information and Event Management (SIEM) system to monitor the IT Infrastructure. This and other third-party security applications provide reports that include but are not limited to Endpoint protection, Employee Security scores, Phishing reports, Dark Web scanning and Vulnerability scanning. The CISO reports to our CFO. This CISO is informed about and monitors prevention, detection, mitigation, and remediation efforts through regular communication and reporting from professionals in the industry, many of whom hold cybersecurity certifications, and through the use of technological tools and software and results from third-party audits. The CISO issues quarterly reports and reports to the CFO, as appropriate, providing updates on the Company's cyber risks and threats, the status of projects to strengthen our information security systems, assessments of the information security program, and the emerging threat landscape. The Company requires its employees to take a yearly cyber training course and its employees are also required to sign confidentiality agreements for purposes including ensuring cybersecurity.



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*Risks from Cybersecurity Threats*

As of the date of this report, we are not aware of any material risks from cybersecurity threats, that have materially affected or are reasonably likely to materially affect the Company, including our business strategy, results of operations, or financial condition.

*Governance*

The Board of Directors is acutely aware of the critical nature of managing risks associated with cybersecurity threats. The Board has established robust oversight mechanisms to ensure effective governance in managing risks associated with cybersecurity threats because Lightbridge recognizes the significance of these threats to our operational integrity and stakeholder confidence. Furthermore, significant cybersecurity matters, and strategic risk management decisions are escalated to the Board of Directors, ensuring that they have comprehensive oversight and can provide guidance on critical cybersecurity issues.

*Board of Directors Oversight*

The Audit Committee is central to the Board's oversight of cybersecurity risks and bears the primary responsibility for this domain. The Audit Committee is composed of board members with diverse expertise including risk management, technology, and finance that equips them to oversee cybersecurity risks effectively. The Audit Committee conducts an annual review of the company's cybersecurity posture and the effectiveness of its risk management strategies. This review helps in identifying areas for improvement and ensuring the alignment of cybersecurity efforts with the overall risk management framework. The CFO reports to the Audit Committee regarding cybersecurity risks and provides a comprehensive briefing to the Audit Committee on



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a regular basis as needed, with a minimum frequency of once per year. The CFO also maintains an ongoing dialogue regarding emerging or potential cybersecurity risks and cybersecurity incidents.

**ITEM 2. PROPERTIES**

Our office space is located at 11710 Plaza America Drive, Suite 2000 Reston, VA 20190 USA. The In January 2024, the lease was renewed for the term of the lease extends January 1, 2024 through December 31, 2023. We are obligated to pay December 31, 2024 with a monthly payment of approximately $8,000 per month for office rent. This space is used by our executives, employees, and contractors for administrative purposes, consulting work, and research and development activities.

**ITEM 3. LEGAL PROCEEDINGS**

From time to time, we may become involved in various lawsuits and legal proceedings, which arise in the ordinary course of business. However, litigation is subject to inherent uncertainties, and an adverse result in these or other matters may arise from time to time that may harm our business. To its our knowledge, the Company does not have any current pending legal issues or proceedings. For a description of legal proceedings that were resolved by the Company, see the information set under Litigation in Note 5. Commitments and Contingencies of the Notes to our Consolidated Financial Statements in Part II. Item 8. *Financial Statements and Supplementary Data,* of this Annual Report on Form 10-K.

**ITEM 4. MINE SAFETY DISCLOSURES**

Not applicable.



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**PART II**

**ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS, AND ISSUER PURCHASES OF EQUITY SECURITIES**

Our common stock is quoted on the Nasdaq Capital Market under the symbol "LTBR". "LTBR."

**Holders**

As of March 2, 2023 February 15, 2024, our common stock was held by approximately 53 52 stockholders of record, including Cede & Co., the nominee for the Depository Trust & Clearing Corporation, and consequently that number does not include beneficial owners of our common stock who hold their stock in "street name" through their brokers.

**Dividends**



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We have never paid dividends. While any future dividends will be determined by our board of directors after consideration of the earnings and financial condition of the Company and other relevant factors, it is currently expected that available cash resources will be utilized in connection with our ongoing operations for the foreseeable future.

**Transfer Agent**

Our transfer agent and registrar for our common stock is Computershare Trust Company, 6200 S. Quebec Street, Greenwood Village, CO 80111. Its telephone number is 800-962-4284 and facsimile is 303-262-0604.

**Recent Sales of Unregistered Securities**

None.

**ITEM 6. [RESERVED]**

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

The following Management's Discussion and Analysis of Financial Condition and Results of Operations, or MD&A, is intended to help the reader understand Lightbridge Corporation, our operations, and our present business environment. MD&A is provided as a supplement to, and should be read in conjunction with, our Consolidated Financial Statements and the accompanying Notes thereto, which are contained in Part II. Item 8. *Financial Statements and Supplementary Data*, of this report. This discussion contains forward-looking statements that are based on our management's current expectations, estimates, and projections for our business, which are subject to a number of risks and uncertainties. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of many factors, including those set forth under "Forward-Looking Statements" and Part I. Item 1A. *Risk Factors*.

This MD&A consists of the following sections:

- Overview of Our Business and Recent Developments – Development of Lightbridge Fuel™ - a general overview of our business and updates;
- Critical Accounting Policies and Estimates – - a discussion of accounting policies that require critical judgments and estimates;
- Operations Review – - an analysis of our consolidated results of operations for the periods presented in our consolidated financial statements; and
- Liquidity, Capital Resources, and Financial Position – - an analysis of our cash flows and an overview of our financial position.



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As discussed in more detail under “Forward-Looking Statements” immediately preceding this MD&A, the following discussion contains forward-looking statements that are based on our management’s current expectations, estimates, and projections, which are subject to a number of risks and uncertainties. Our actual results may differ materially from those discussed in these forward-looking statements because of the risks and uncertainties inherent in future events. events, including those set forth under “Forward-Looking Statements” and Part I. Item 1A. *Risk Factors*.



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**Overview of Our Business and Recent Developments**

***Our Business***

Our Company’s goal is to impact in a meaningful way the world’s climate and energy problems. We are developing and plan to commercialize innovative, proprietary nuclear fuel designs, which we expect will significantly enhance the nuclear power industry’s economics due to higher power output and longer fuel cycles, and we also expect the fuel will provide improved safety margins. We are an early-stage technology company in the product development phase and are pre-revenue. Our ongoing operations are currently being financed primarily by raising new equity capital.

***Recent Developments***

FEED Study with Centrus Energy for a Lightbridge Pilot Fuel Fabrication Facility

On December 5, 2023 we entered into an agreement with Centrus Energy Corp. (Centrus Energy) to conduct a front-end engineering and design (FEED) study to construct a Lightbridge Pilot Fuel Fabrication Facility (LPFFF) to manufacture Lightbridge Fuel™ using high-assay low-enriched uranium (HALEU) at the American Centrifuge Plant in Piketon, Ohio, the only HALEU production plant in the world outside of Russia. The FEED study will identify infrastructure and licensing requirements as well as the estimated cost and construction schedule for the LPFFF. Centrus Energy’s wholly-owned subsidiary, American Centrifuge Operating, LLC, will lead the study. The work is expected to be completed in 2024 at a fixed price of approximately $0.5 million.

Engineering Study of Lightbridge Fuel™ for use in Canada Deuterium Uranium (CANDU) reactors

On October 16, 2023, we engaged Institutul de Cercetări Nucleare Pitești, a subsidiary of Regia Autonoma Tehnologii pentru Energia Nucleara in Romania to perform an engineering study to assess the compatibility and suitability of Lightbridge Fuel™ for use in CANDU reactors. This assessment will cover key areas including mechanical design, neutronics analysis, and thermal and thermal-hydraulic evaluations. The findings from this engineering study will play an important role in guiding future economic evaluations and navigating potential regulatory licensing-related issues for potential use of Lightbridge Fuel™ in CANDU reactors. The work is expected to be completed in 2024 at a fixed price of approximately $0.2 million.

HALEU Consortium Membership

To support establishment of domestic HALEU infrastructure, the DOE announced on December 7, 2022 the creation of a HALEU Consortium. According to the DOE, the purposes of the HALEU Consortium include: (i) providing the Secretary of



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Energy HALEU demand estimates for domestic commercial use, (ii) purchasing HALEU made available to members for commercial use under the program, (iii) carrying out demonstration projects using HALEU under the program, and (iv) identifying actionable opportunities to improve the reliability of the HALEU supply chain. On December 15, 2022, the Company submitted a formal request to the DOE to join the HALEU Consortium to mitigate HALEU supply risk. On January 12, 2023, the Company received written confirmation from the DOE of Lightbridge's membership in the HALEU Consortium. HALEU is a key component necessary for the fabrication and operation of Lightbridge Fuel™ in light water reactors.

Idaho National Laboratory Agreements

In the second half of December 2022, we Lightbridge entered into agreements with Battelle Energy Alliance, LLC (BEA), the DOE's operating contractor for Idaho National Laboratory (INL), in collaboration with the United States Department of Energy (DOE) to support the development of Lightbridge Fuel™. The framework agreements use an innovative structure and consist that consists of an "umbrella" Strategic Partnership Project Agreement (SPP) and an "umbrella" Cooperative Research and Development Agreement (CRADA), each with Battelle Energy Alliance, LLC (BEA), the DOE's operating contractor for INL, BEA, with an initial duration of seven years.

We anticipate that the initial phase of work under the two agreements that has been released will culminate in casting and extrusion of unclad fuel material samples using enriched uranium supplied by the DOE that will subsequently be inserted for irradiation testing in the Advanced Test Reactor (ATR) of our fuel material coupons, using enriched uranium supplied by the DOE. at INL. The initial phase of work aims to generate irradiation performance data for Lightbridge's delta-phase uranium-zirconium alloy relating to various thermophysical properties. The data, which will be obtained during post-irradiation examination work to be released under a future Project Task Statement, will support fuel performance modeling and regulatory licensing efforts for the commercial deployment of Lightbridge Fuel™.

We anticipate that plan to negotiate subsequent phases of work under the two umbrella agreements that have not yet been released will that may include post-irradiation examination of the irradiated fuel material coupons, loop radiation irradiation testing in the ATR, and post-irradiation examination of one or more uranium-zirconium fuel rodlets, as well as transient experiments at in the Transient Reactor Test Facility (TREAT) at INL.

The DOE's Office of Nuclear Energy has established the Gateway for Accelerated Innovation in Nuclear (GAIN) program to provide the nuclear community with access to the technical, regulatory, and financial support necessary to expedite moving new or advanced nuclear technologies toward commercialization, while ensuring the continued safe, reliable, and economic operation of the existing nuclear reactor fleet.

We were awarded our first GAIN voucher in 2019 for the experiment design for irradiation of fuel material coupons of Lightbridge metallic fuel in the ATR at INL. On April 22, 2020, we entered into a CRADA with BEA, the DOE's operating contractor at INL. The project commenced in the second quarter of 2020 and was originally expected to be completed in the second quarter of 2021. However, because of project staffing issues at INL related to the laboratory's COVID-19 restrictions and U.S. export control matters, the project was completed during the third quarter of 2021. The total project amount recorded as contributed services – research and development was approximately $0.5 million. This experiment design forms the basis of our current and future efforts with the INL.

The DOE awarded us a second voucher from the GAIN program to support development of Lightbridge Fuel™ in collaboration with Pacific Northwest National Laboratory (PNNL) on March 25, 2021. The scope of the project is to demonstrate Lightbridge's nuclear fuel casting process using depleted uranium, a key step in the manufacture of Lightbridge Fuel™. On July 14, 2021, the Company executed a CRADA with the Battelle Memorial Institute, Pacific Northwest Division, the operating contractor of the PNNL, in collaboration with the DOE. The project commenced in the third quarter of 2021. In December 2022, PNNL completed



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a contract extension with the Company for one month to complete the final report related to this PNNL GAIN voucher. The period of performance was extended to January 31, 2023. The work under this contract was completed in 2022, and a final report was issued by PNNL on January 31, 2023. The total project value was $0.7 million, with three-quarters of this amount provided by the DOE for the scope performed by PNNL. Under this GAIN voucher, we worked with PNNL to develop a reliable and repeatable casting process utilizing its existing equipment. As part of the scope, several castings were performed and the cast ingots analyzed. In an iterative process, the casting methodology was modified based on the characterization results as part of process demonstration to achieve acceptable results with PNNL's existing equipment. The results of this work will help to inform a final process suitable to produce fuel material coupons for our upcoming irradiation tests.

In June 2022, Lightbridge Fuel™ was selected to participate in a study led by the Massachusetts Institute of Technology (MIT to investigate the performance and economics of accident tolerant fuels for light water cooled small modular reactors (SMRs). Among other objectives, the project will simulate the fuel and safety performance of Lightbridge Fuel™ in an SMR designed by NuScale Power and provide a scoping analysis of longer-term advanced fuel forms to improve the safety and economics of SMRs. The DOE's Nuclear Energy University Program awarded $800,000 to MIT with the goal of bringing collaborative teams together to solve complex problems to advance nuclear technology and understanding.



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We have incurred net losses and negative cash flows from operations and expect this to continue for the foreseeable future. In 2023, we worked with INL to complete and issue a Quality Implementation Plan (QIP) for our collaborative project at INL which was an essential first step to ensure all future work performed at INL on the project would meet the U.S. nuclear industry quality assurance requirements. Additionally, we worked with INL to demonstrate casting of delta-phase uranium-zirconium ingots with depleted uranium using existing INL equipment. As part of that effort, we cast several laboratory-scale ingots using depleted uranium and zirconium alloy materials. Our next step is to cast additional ingots using depleted uranium and zirconium alloy materials and conduct initial extrusions from those ingots in the next several months at INL.

Nuclear Energy University Program Awards

We are working with Texas A&M University (TAMU), NuScale Power, and Structural Integrity Associates on a 3-year study led by TAMU. In mid-2023, TAMU was awarded $1 million by the DOE's Nuclear Energy University Program (NEUP) R&D Awards to conduct this study. The project entails a characterization of the performance of the Lightbridge Fuel™ Helical Cruciform advanced fuel design, which will continue to evaluate spending generate sets of experimental data on friction factor, flow, and heat transfer behavior under NuScale's small modular reactors (SMRs) simulated normal and off-normal conditions.

We previously announced our ongoing NEUP project with the overall goal Massachusetts Institute of commercializing our nuclear Technology (MIT). The study led by MIT and funded by DOE relates to evaluation of accident tolerant fuels in various SMRs. The project aims to simulate the fuel and safety performance of Lightbridge Fuel™ for the NuScale SMR and provide scoping analysis to improve the safety and economics of water-cooled SMRs.

We do not have any performance obligations with the lowest research collaboration teams working on the above-mentioned projects and development (R&D) cost, in order to maximize our shareholders' value. Our only source of funding in 2022 and 2021 was our at-the-market (ATM) financing arrangement with Stifel, Nicolaus & Company. Although we expect this ATM facility to continue to be a significant source of working capital for the Company in 2023, there is no assurance that an ATM financing



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arrangement will be available to us in the future (see liquidity outlook section below). Please also see Note 8. Stockholders' Equity and Stock-Based Compensation of the Notes to the Consolidated Financial Statements included in Part II. Item 8. *Financial Statements and Supplementary Data*, of this Annual Report on Form 10-K for information regarding our ATM and prior financings. not receive any revenue or record any benefits from these awards.

***Fuel Development Strategy***

We believe our metallic fuel can be used in different types of water-cooled commercial power reactors, such as pressurized water reactors (PWRs), boiling-water reactors (BWRs), Russian-designed water-cooled, water-moderated energetic reactors (VVERs), CANDUs, water-cooled SMRs, and water-cooled research reactors.

We have obtained patent validation in key countries (in our judgement) and will continue to seek patent validation in countries that either currently operate or are expected to build and operate a large number of nuclear power reactors compatible with our fuel technology.

Below is a brief description of each key fuel development step leading up to a lead test assembly (LTA) operation in a commercial reactor.

a. Fuel Fabrication

In the short to medium term, we expect the development of the fabrication processes for Lightbridge Fuel™ to be performed utilizing existing facilities and equipment within the DOE national laboratory complex and other facilities. Discussions are currently ongoing with the INL and PNNL to perform process development activities and establish the capability to manufacture development quantities of fuel rods for irradiation testing.

Fabrication of LTAs will require a dedicated pilot-scale fuel fabrication facility. We estimate the major scopes of work to establish a manufacturing capability for LTAs would take 5-8 years to complete. In December 2023, to help us identify infrastructure and regulatory licensing requirements as well as better define cost and schedule estimates for a LPFFF, we entered into a contract with Centrus Energy to conduct a FEED Study for the LPFFF. Expanding that pilot-scale fuel fabrication facility from LTA capability to batch reload quantities would require a substantial additional capital investment in the manufacturing facility and equipment. These estimates assume sufficient funding availability and that the project receives prioritization by the DOE and US Nuclear Regulatory Commission (NRC). to facilitate access to the required quantities of the HALEU material and timely regulatory licensing of such a facility.

b. Nuclear Material/Coupon Sample Irradiation Test

Lightbridge's irradiation testing program includes coupon irradiation of material samples of its uranium-zirconium fuel alloy which will allow characterization of the underlying thermophysical behavior of the fuel alloy. This project is currently underway, and we expect insertion of fuel material coupons in the ATR in 2025 and completion of irradiation testing to full burnup and post-irradiation examination of the fuel material coupons in approximately four years thereafter. The data obtained from this program



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will be a fundamental component of Lightbridge's accelerated fuel qualification approach described below as it will be used to inform and develop the physics-based models and simulations of the fuel rod behaviors.



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c. Loop Irradiation Testing

The purpose of the loop irradiation testing of Lightbridge's metallic fuel rod rods is to demonstrate the performance and behavior of the fuel rod rods under prototypic commercial reactor operating conditions typical of PWRs at a power level and burnup accumulation higher than the fuel would experience in normal operation in a commercial power plant. This will provide a physical demonstration of the capabilities of the fuel rod rods in order to ensure reactor safety. Such testing is expected to provide information of sufficient detail to validate the performance of individual fuel rods such that their behavior in normal operating conditions of a regulated NRC-regulated nuclear power plant would be sufficiently well understood to request a license amendment from the NRC for operation of a lead test assembly. LTA.

We expect execution of such a loop irradiation test to be performed in the ATR at INL. The ATR currently has limited irradiation loop test facilities and the performance facilities; however, installation of the above-mentioned test new so-called "I-loops" will increase the loop irradiation capacity of ATR for performing tests on Lightbridge Fuel™ may require installation of a new test loop with increased heat removal capability to enable in the desired test conditions.



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We expect the performance of the irradiation test to take three years of in-reactor time plus an additional one year for post-irradiation examination, (PIE), wherein analysis of the fuel rod performance and behavior is performed, from the time when the additional test loop becomes available.

d. Preparation for Lead Test Assembly Operation

Insertion of an LTA with Lightbridge's fuel rods in a nuclear power plant requires the power plant owner to obtain approval from the NRC based on a safety evaluation and justification that the LTA will not be detrimental to the plant's licensed operations. This justification must address numerous technical areas (e.g., neutronics design, mechanical design, thermal hydraulic design, materials science, reactor operations, etc.) and include considerations of the performance of the LTA itself as well as its interaction with other fuel assemblies in the reactor core which may be impacted by the presence of the LTA. The safety evaluation must result in confirmation that the plant's ability to ensure plant worker and public safety is not compromised due to the operation of the LTA. This safety justification will require cooperation between Lightbridge, the fuel manufacturer, and the power plant owner.



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With historical approaches, the development and qualification of a nuclear fuel system can take 20-30 years as the approach has been driven largely by a cycle of physical testing and design changes based on the results of those physical tests. Computer modeling and simulation has increasingly been used in support of fuel qualification efforts, but the cyclical approach continues to be the default methodology.

In order to shorten the timeframe for fuel qualification, advanced Advanced nuclear fuel developers are now taking an approach that leverages significant improvements in computational capability in a methodology referred to as Accelerated Fuel Qualification (AFQ). The AFQ approach combines physics-informed modeling and simulation coupled with targeted physical testing such that the overall fuel qualification effort is could be significantly reduced in terms of cost and time, with a goal of fuel qualification taking approximately 15 years. time. Lightbridge intends to leverage the AFQ methodologies to qualify its advanced fuels.

Along with leveraging the AFQ approach, uranium-zirconium (U-Zr) fuel technology has the benefits of being previously demonstrated in operating icebreaker reactors and several aspects of the performance of the fuel have been demonstrated. This enables Lightbridge to begin designing an LTA and developing the necessary computer models of the fuel behavior, prior to obtaining the results of the loop irradiation testing of the fuel rod.

Along with the irradiation testing and computer simulations, some physical testing of the fuel assembly design will be required. Lightbridge anticipates that such 'out-of-pile' testing to justify the LTA performance will take approximately four years.

We expect that the LTA design effort, development of computer modeling and simulation capabilities, and performance of the LTA safety justification will take 8 eight years. The NRC NRC's review and approval of the license amendment for LTA insertion is expected to require two years after the license amendment is submitted.

Based on these activities and time estimates, Lightbridge expects to have LTAs of its fuel ready for insertion in a commercial reactor in the 2030s.



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The above fuel development strategy is based on the following key assumptions:

- A large portion of our project funding requirements are is met with U.S. direct or indirect cash and/or in-kind contributions from government providing most of the necessary fuel development costs; and/or strategic partner and/or other third-party sources;

- our expected time estimates for irradiation loop design and construction at availability in the ATR can be achieved by the national laboratory complex;



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- partnership with nuclear power plant and fuel manufacturer for LTA demonstration purposes is achieved in a timely manner and does not delay the assumed start of work;

- potential accelerated fuel qualification methodology developed (AFQ) that we currently plan to develop for Lightbridge Fuel™ is accepted by the NRC as sufficient for the safety justification of the LTAs;

- execution of out-of-reactor fuel development activities can be performed in parallel with LTA design;

- facilities and personnel for completion of the fuel development work are available when necessary and do not delay the execution of our research and development activities;

- by implementation of accelerated burn-up techniques, the irradiation loop at ATR is capable of 50% reduction in irradiation time compared to operating commercial reactor fuel cycle; and

- the pilot-scale fuel fabrication facility will be capable of manufacturing LTA quantities of metallic fuel rods to the desired rod length and specification.



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**Operations Review**

***Consolidated Results of Operations***

The following table presents our operating results as a percentage of revenues for the years indicated (rounded to millions):

| | Years Ended December 31, | | Increase (Decrease) | Increase (Decrease) | Year Ended December 31, | | Increase (Decrease) | Increase (Decrease) |
|---|---|---|---|---|---|---|---|---|
| | 2022 | 2021 | Change $ | Change % | 2023 | 2022 | Change $ | Change % |
| Operating Expenses | | | | | | | | |
| General and administrative | $ 7.5 | $ 7.1 | $ 0.4 | 6% | $ 7.1 | $ 7.5 | $ (0.4) | (5)% |
| Research and development | $ 0.7 | $ 1.4 | $ (0.7) | (50)% | 1.9 | 0.7 | 1.2 | 171% |



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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total Operating Expenses | $ 8.2 | $ 8.5 | $ (0.3) | (4)% | 9.0 | 8.2 | 0.8 | 10% |
| Other Operating Income | | | | | | | | |
| Distribution from joint venture | $ — | $ 0.1 | $ (0.1) | (100)% | | | | |
| Contributed services – research and development | $ 0.4 | $ 0.5 | $ (0.1) | (20)% | | | | |
| Contributed services - research and development | | | | | — | 0.4 | (0.4) | (100)% |
| Total Other Operating Income | $ 0.4 | $ 0.6 | $ (0.2) | (33)% | — | 0.4 | (0.4) | (100)% |
| Total Operating Loss | $ (7.8) | $ (7.9) | $ (0.1) | (1)% | (9.0) | (7.8) | 1.2 | 15% |
| Other Income | $ 0.3 | $ 0.1 | $ 0.2 | 200% | 1.1 | 0.3 | 0.8 | 267% |
| Net loss before Income Taxes | $ (7.5) | $ (7.8) | $ (0.3) | (4)% | (7.9) | (7.5) | 0.4 | 5% |
| Income tax expense | | | | | — | — | — | — |
| Net Loss | $ (7.5) | $ (7.8) | $ (0.3) | (4)% | $ (7.9) | $ (7.5) | $ 0.4 | 5% |

***Operating Expenses***



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General and Administrative Expenses

General and administrative expenses consist mostly of compensation and related costs for personnel and facilities, stock-based compensation, finance, human resources, information technology, and fees for consulting and other professional services. Professional services are principally comprised of legal, audit, strategic advisory services, and outsourcing services.

Total general and administrative expenses increased decreased by $0.4 million for the year ended December 31, 2022 December 31, 2023, as compared to the year ended December 31, 2021 December 31, 2022. This increase The decrease of $0.4 million was primarily due an increase to a decrease in directors' fees employee compensation and employee benefits of $0.2 million $0.4 million, due to the increase in the time allocation percentage of the number G&A labor costs to research and development expenses, a decrease in consulting expenses of board members, an increase $0.1 million, a decrease in insurance expense of $0.1 million, a decrease in dues and subscriptions of $0.1 million, increase and a decrease in patent promotion expenses of $0.2 million and $0.1 million, offset by an increase in insurance expense, promotion, and travel expenses stock-based compensation of $0.3 million. These increases were offset by a decrease $0.4 million, which was due to the partial vesting of restricted stock awards granted in professional fees of $0.4 million relating to fees incurred in connection with the arbitration matter that was settled in 2021, that were not repeated during the year ended December 31, 2022. 2022.



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Total stock-based compensation included in general and administrative expenses was $0.8 million $1.1 million for the years ended December 31, 2022 December 31, 2023 and 2021. 2022.

Research and Development (R&D)

Research and development R&D expenses consist primarily of costs associated with our CRADA and SPP agreements with INL for the research and development of our fuel, employee compensation and related fringe benefits including stock-based compensation and related allocable overhead costs for the research and development of our fuel and contributed services - research and development for the R&D work performed under the GAIN Gateway for Accelerated Innovation in Nuclear (GAIN) vouchers.

Total R&D expenses decreased increased by $0.7 million $1.2 million for the year ended December 31, 2022 December 31, 2023, as compared to the year ended December 31, 2021. This decrease was primarily December 31, 2022 due to a decrease the increase in outside R&D expenses activities related to the development of $0.3 million our fuel. This increase primarily consisted an increase in INL project labor costs of $0.8 million, a decrease an increase in allocated employee compensation and employee benefits of $0.4 million, an increase in consulting expenses of $0.1 million, an increase in travel expenses of $0.1 million and an increase in stock-based compensation expenses of $0.1 million. This increase was offset by a decrease in other of $0.3 million primarily related to the GAIN voucher work recorded as research and development expenses in 2022 that was completed in the first quarter of $0.3 million. 2023.



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We currently expect anticipate investing approximately $6 million to invest a total of approximately $6.5 million $8 million in the research and development R&D of our nuclear fuel over the next 12 to 15 months.

Due to the nature of our R&D expenditures, cost and schedule estimates are inherently uncertain and can vary significantly as new information and the outcome of these R&D activities become available. Our future business operations are dependent on budgetary constraints due primarily to market conditions and the uncertainty of future liquidity and capital resources available to us to conduct our future R&D activities.

Other Operating Income

Total other operating income decreased $0.2 million for the year ended December 31, 2022, as compared to the year ended December 31, 2021. There was a decrease in other operating income of $0.1 million $0.4 million related to a decrease in the distribution from joint venture due to the final cash distribution from the dissolved Enfission joint venture that occurred in 2021. There was contributed services - research and development from for the year ended December 31, 2023 due to the GAIN program voucher project that was completed in the first quarter of $0.4 million 2023. There are no outstanding GAIN vouchers. Contributed services - research and $0.5 million for the years ended December 31, 2022 and 2021, respectively, development are recorded with a charge to R&D expenses and a corresponding amount recorded to contributed services - research and development.

Other Income

There was an increase in other income of $0.2 million $0.8 million due to rising treasury bill interest rates over the past year which resulted in an increase in interest income generated from the interest earned from the purchase of treasury bills and from our bank savings account for the year ended December 31, 2022 December 31, 2023, as compared to the year ended December 31, 2021 December 31, 2022.

Provision for Income Taxes

On March 27, 2020, the Coronavirus Aid, Relief, and Economic Security Act (CARES Act) was enacted in response to the COVID-19 pandemic. The CARES Act, among other things, permits net operating loss (NOL) carryovers and carrybacks to offset 100% of taxable income for taxable years beginning before 2021. In addition, the CARES Act allows NOLs incurred in 2018, 2019, and 2020 to be carried back to each of the five preceding taxable years to generate a refund of previously paid income taxes. The Company has evaluated the impact of the CARES Act and does not expect that the NOL carryback provision of the CARES Act will result in a material cash benefit. We incurred a pre-tax net loss for both 2022 2023 and 2021. 2022. We reviewed all sources of income for purposes the purpose of recognizing the deferred tax assets and concluded a full valuation allowance for 2022 2023 and 2021 2022 was necessary. Therefore, we did not have a provision for taxes for both years ended



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December 31, 2022 December 31, 2023 and 2021. 2022. Prior period ownership changes, coupled with the Company's projections of no taxable income for the foreseeable future, will substantially limit any future benefit to be derived from our NOLs.

See Note 7. Income Taxes of the Notes to our Consolidated Financial Statements included in Part II. Item 8. *Financial Statements and Supplementary Data*, of this Annual Report on Form 10-K for information regarding our income taxes and the limitations on the utilization and amount of our net operating loss carry-forwards.

**Liquidity, Capital Resources and Financial Position**

***Liquidity Outlook***

We measure liquidity in terms of our ability to fund the cash requirements of our R&D activities and our general and administrative expenses, including our contractual obligations and other commitments. We believe that based on our current level of operating expenses and currently available cash resources, we will have sufficient funds available to cover our business activities and operating cash needs for the next 12 months. Our long-term cash requirements are currently projected estimated to be an average of $10 million $10.0 million of outside or third-party R&D expenditures per year over the next 10-15 years. These long- term In order to meet these long-term cash requirements for future planned operations to develop and commercialize our nuclear fuel, including any additional expenditures that may result from unexpected developments, it will require us be necessary for our project to receive direct or indirect funding and/or in-kind support from government support in the future. and/or strategic partners and/or other third-party sources.



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At December 31, 2022 December 31, 2023, we had cash and cash equivalents of $28.9 million $28.6 million, as compared to $24.7 million $28.9 million at December 31, 2021 December 31, 2022, an increase a decrease of $4.2 million $0.3 million. We raised $11.0 million net proceeds of $6.4 million from the sale of approximately 1.9 million 1.5 million shares of common stock during the year ended December 31, 2022 December 31, 2023. Our net cash used in operating activities for the year ended December 31, 2022 December 31, 2023 was $6.7 million $6.5 million and our cash flow projections indicate that we will have continued negative cash flows for the foreseeable future. We currently do not anticipate any incoming cash flows, other than the sale of common stock through our ATM offering. Therefore, we are not profitable, and we cannot provide any assurance that we will become profitable in the future. We will continue to incur losses because we are in the early development stage of commercializing our nuclear fuel.



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We have approximately $28 million $28.2 million of working capital as of the date of this filing. We currently project a negative cash flow from our operations for both our general and administrative and R&D expenses, for resulting in total expected



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expenditures of $13.1 million to $15.7 million approximately $13.8 million for the next 12 to 15 months, respectively. months. Our R&D expenses are expected to increase over the next 12-15 months. Our cash balance at December 31, 2022 December 31, 2023 and as of the date of this filing exceeds our anticipated cash requirements for the next 12 months. There are inherent uncertainties in forecasting the future required R&D or other expenditures in the future. Once other anticipated agreements are finalized or other future R&D agreements are entered into and the future R&D costs expenses are known, we expect to forecast incur a significantly higher level of future required R&D expenses and higher negative monthly cash flows from operations in the future.

If sufficient funding becomes available to us, our R&D activities may significantly increase in the future. This funding is needed to continue our nuclear fuel development project and to achieve our future R&D milestones. The actual amount of cash we will need to operate is subject to many factors, including, but not limited to, the timing, design and conduct of the R&D work at the DOE's national laboratories for our fuel along with the cost to commercialize our nuclear fuel. Accordingly, there is high potential for budget variances in the current cost projections and fuel development timelines of our current planned operations over the fuel development period. We will continue to utilize our ATM (as defined below) to finance our future R&D and corporate activities.

We will also need to receive substantial U.S. funding and in-kind support from government support in the form of grants and/or strategic partners and/or other third-party sources throughout our nuclear fuel R&D development period in order to fund our ongoing R&D efforts in the future. If we are unable to obtain government such funding and/or in-kind support that meets our future R&D cash requirements, we will need to seek other funding, which may include the issuance of additional shares of the Company's common stock, if available. This will result in dilution to our existing stockholders. If we can raise additional funds through the issuance of preferred stock, other equity or convertible securities, these securities could have rights or preferences senior to those of our common stock and could contain covenants that restrict our operations in the future. There can be no assurance that we will be able to obtain additional equity or debt financing on terms acceptable to us, if at all.

The primary Our current source of cash available to us for the next 12 months, in addition to cash and cash equivalents on hand, is the potential funding from equity issuances from pursuant to the ATM equity offering sales agreement, as amended, with Stifel, Nicolaus & Company, Incorporated. The Company has an effective shelf registration statement on Form S-3 that was filed with the Securities and Exchange Commission, or SEC, on March 25, 2021, registering the sale of up to $75 million of the Company's securities and which was declared effective on April 5, 2021. We may be limited on the amount of funding available under this Form S-3 shelf registration statement in the future. We filed a prospectus supplement, dated April 9, 2021 with the SEC pursuant to which we offered and sold shares of common stock having an aggregate offering price of $9.0 million through the ATM. We filed a second prospectus supplement, dated November 19, 2021, with the SEC pursuant to which we offered and sold shares of common stock having an aggregate offering price of up to $20.0 million, through the ATM. We filed another prospectus supplement, dated November 9, 2022 April 4, 2023, with the SEC pursuant to which we may offer and sell shares of common stock having an aggregate offering price of up to $20.0 million $17.9 million from time to time, through the ATM. We will file another prospectus supplement with the SEC after we have either sold $17.9 million of our common stock under this prospectus supplement or are required to file a new prospectus supplement when our current S-3 shelf registration expires in April 2024. Under current SEC regulations set forth under General Instruction I.B.6. of Form S-3, if at any time our public float is less than $75.0 million, and for so long as our public float remains less than $75.0 million, the amount we can raise through



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primary public offerings of securities in any twelve-month period using shelf registration statements is limited to an aggregate of one-third of our public float, which is referred to as the baby shelf rules. As of the date of this filing, our calculated public float is below $75.0 million and we will be are subject to the baby shelf rules for any offerings conducted on our current shelf registration statement. statement, and therefore may be limited on the amount of funding available under this Form S-3 shelf registration statement in the future. Although we expect this ATM facility to continue to be a source of working capital for the Company in 2024, there is no assurance that an ATM financing arrangement will be available to us in the future. See Note 8. Stockholders' Equity and Stock-Based Compensation of the Notes to the Consolidated Financial Statements included in Part II. Item 8. *Financial Statements and Supplementary Data* of this Annual Report on Form 10-K for information regarding our ATM financing.

We have no debt or lines of credit and we have financed our operations to date through the sale of our preferred stock and common stock. Management believes that public or private equity investments may be available in the future, future; however adverse market conditions, in our common stock price and trading volume, as well as other factors could substantially impair our ability to raise capital in the future and continue developing our nuclear fuel.



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***Short-Term and Long-Term Liquidity Sources***

Our current source of liquidity is cash raised from our ATM facility.

As discussed above, we will seek new financing bringing in order to bring us additional sources of capital, depending on the capital market conditions of our common stock. There can be no assurance that these additional sources of capital will be made available on terms acceptable to us. us, or at all. The primary potential sources of cash that may be available to us are as follows:

- equity or debt investment from third party third-party investors in Lightbridge;
- collaboration with potential industry partners; and
- strategic investment and U.S. and/or government funding to support the remaining R&D activities required to continue the development of our fuel products and move them to a commercial stage.



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In support of our long-term business with respect to our fuel technology business, we endeavor to create strategic alliances with other parties to support the remaining R&D activities that is are required to further enhance and complete the development of our fuel products to a commercial stage. We may be unable to form such strategic alliances on terms acceptable to us or at all.



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See Note 8. Stockholders' Equity and Stock-Based Compensation of the Notes to the Consolidated Financial Statements included in Part II. Item 8. *Financial Statements and Supplementary Data*, of this Annual Report on Form 10-K for information regarding our prior financings.

The following table provides detailed information about our net cash flows for the years ended December 31, 2022 December 31, 2023 and 2021: 2022 (rounded in millions):

***Cash Flow***

| | Year Ended December 31, | |
|---|---|---|
| | **2022** | **2021** |
| | (rounded in millions) | |
| Net cash used in operating activities | $ (6.7) | $ (11.0) |
| Net cash used in investing activities | $ — | $ — |
| Net cash provided by financing activities | $ 10.9 | $ 14.2 |
| Net cash inflow | $ 4.2 | $ 3.2 |

| | Year Ended December 31, | |
|---|---|---|
| | **2023** | **2022** |
| Net Cash Used in Operating Activities | $ (6.5) | $ (6.7) |
| Net Cash Used in Investing Activities | — | — |
| Net Cash Provided by Financing Activities | 6.2 | 10.9 |
| Net Cash (Outflow) Inflow | $ (0.3) | $ 4.2 |

Operating Activities

Cash used in operating activities decreased by $4.3 million $0.2 million in 2022 2023 as compared to 2021. This 2022. The decrease was primarily due to an arbitration settlement payment of $4.2 million in 2021, and a decrease of $0.1 million in reported net loss, adjusted for non-cash charges such as stock-based compensation and changes in operating assets and liabilities.

In 2022 operating cash flows reflect our net loss of $7.5 million, adjusted for non-cash charges totaling $0.9 million (consisting of non-cash adjustments for stock-based compensation of $0.8 million and common stock issued to directors of $0.1 million) and a net increase in our operating assets and liabilities, of $0.1 million. Decreases in operating cash flows due to the net



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increase in operating assets and liabilities include which were driven by an increase in prepaid project costs assets of $0.3 million $0.2 million, offset by a net an increase in accounts payable and accrued expenses liabilities of $0.2 million $0.4 million.

Investing Activities

Net cash used in our investing activities was insignificant for the years ended December 31, 2022 December 31, 2023 and 2021. 2022.

Financing Activities

Cash provided by financing activities decreased by $3.3 million $4.7 million. This decrease was due to a decrease in cash provided by the net proceeds received from the issuance of common stock under our ATM at-the-market (ATM) facility in fiscal year 2023 of $3.8 million, a decrease in cash provided by the exercise of stock options of $0.2 million, offset by decrease $4.6 million and an increase in net share settlement of equity awards for the payment of withholding taxes of $0.7 million $0.1 million.

Cash provided by our ATM facility was $6.4 million (sale of approximately 1.5 million common shares) and $11.0 million (sale of approximately 1.9 million common shares) and $14.8 million (sale of approximately 2.0 million common shares) for the years 2022 2023 and 2021, 2022, respectively. Cash used during the years 2023 and 2022 and 2021 relating related to the payment of withholding taxes on the net share settlement of equity awards was $0.1 million $0.2 million and $0.8 million $0.1 million, respectively.



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Contractual Obligations and Commitments

On December 9, 2022, we entered into an initial project task statements with BEA, the operating contractor of INL, in collaboration with the DOE, which releases statements set forth the initial scopes of work and funding commitments under the umbrella agreements, each dated September 27, 2022, between the Company and BEA. At December 31, 2022 December 31, 2023, we had approximately $3.4 million $2.9 million in outstanding project task statement obligations to BEA relating to the research and development being conducted under the SPP and CRADA at INL. Performance of work under these agreements may be terminated at any time by either party, without any liability, after the effective date of termination, upon giving a thirty-day written notice under the SPP and a sixty-day written notice under the CRADA, to the other party. In the event of termination, the Company shall be responsible for BEA's costs (including the closeout costs), through the effective date of termination, but in no event shall the Company's cost responsibility exceed the total estimated cost stated in each PTS and any subsequent modification to the PTS.





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Engineering Study of Lightbridge Fuel™ for use in CANDU reactors

On October 16, 2023, the Company engaged RATEN ICN in Romania to perform an engineering study to assess the compatibility and suitability of Lightbridge Fuel™ for use in CANDU reactors. As of December 31, 2023, the Company had approximately $0.2 million in outstanding project commitments to RATEN ICN.

FEED Study with Centrus Energy for a Lightbridge Pilot Fuel Fabrication Facility

On December 5, 2023, we entered into an agreement with Centrus Energy to conduct a FEED study to add a dedicated LPFF at the American Centrifuge Plant in Piketon, Ohio. The work is expected to be completed in 2024 at a cost and with a remaining contractual obligation of approximately $0.5 million at December 31, 2023.

*Operating Leases*

The Company leased office space for a 12-month term from January 1, 2024 through December 31, 2024 with a monthly payment of approximately $8,000. The future minimum lease payments required under the non-cancellable operating leases for 2024 total approximately $0.1 million.

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**Critical Accounting Policies and Estimates**

***Patent Costs***

Patent filing fees with patent granting agencies and legal fees directly relating to those filings, incurred to file patent applications are expensed as the Company believes that there is not a high likelihood that there will be a future economic benefit associated with the patents, due to the uncertainties in the current fuel development timelines and the patents being commercialized.

***Contributed Services - Research and Development***

The Company concluded that its government grants were not within the scope preparation of ASC Topic 606 as they did not meet the definition of a contract consolidated financial statements, in conformity with a customer. Additionally, the Company concluded that the grants met the definition of a contribution, as the grants were a non-reciprocal transaction. As such, the Company determined that Subtopic 958-605, Not-for-Profit-Entities-Revenue Recognition applies for these contributed services, even though the Company is a business entity, as guidance accounting principles generally accepted in the contributions received subsections United States of Subtopic 958-605 applies America, requires management to all entities (NFPs make estimates and business entities).

The Company has adopted Accounting Standards Update 2020-07 which amends Subtopic 958-605 which further clarifies assumptions that affect the presentation reported amounts of assets and liabilities and disclosure about contributions.

Subtopic 958-605 requires that nonfinancial of contingent assets which includes services, such as the research and development services provided under the GAIN vouchers described in Note 6. Research and Development Costs, should be shown on a gross method at the fair value of the services contributed, with the contributed services - research and development shown as other operating income and the related costs as a charge to research and development expense, rather than depicting the contributed services - research and development as a reduction of research and development expense. The fair value of contributed services was determined by the cost of professional time and materials which were charged by the subcontractor who fulfilled the services contributed under the grant award.

***Accounting for Stock-Based Compensation, Stock Options and Stock Granted to Employees and Non-employees***

We adopted the requirements for stock-based compensation, where all forms of share-based payments to employees or non-employees, including stock options and stock purchase plans, are treated the same as any other form of compensation by



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recognizing the related cost in the consolidated statement of operations.

Under these requirements, stock-based compensation expense for employees is measured at the grant date based on the fair value of the award, and the expense is recognized ratably over the award's vesting period.

The stock-based compensation expense incurred in connection with our employees is based on the employee model of ASC 718. Under ASC 718 an employee is defined as "An individual over whom the grantor of a share-based compensation award exercises or has the right to exercise sufficient control to establish an employer-employee relationship based on common law as illustrated in case law and currently under U.S. tax regulations." The stock-based compensation expense for our consultants is accounted for under ASU 2018-07, which allows us to account for options issued to consultants in the same manner as they are issued to our employees. For all service-based grants made, we recognize compensation cost under the straight-line method.

We measure the fair value of service-based stock options on the measurement date using the Black-Scholes option-pricing model, which requires the use of several estimates, including:

- the volatility of our stock price;
- the expected life of the option;
- risk free interest rates; and
- expected dividend yield.

We use the historical volatility of our stock price over the number of years that matches the expected life of our stock option grants or we use the historical volatility of our stock price since January 5, 2006, the date we announced that we were becoming a public company, to estimate the future volatility of our stock. At this time, we do not believe that there is a better objective method to predict the future volatility of our stock. The expected life of options is based on internal studies of historical experience and projected exercise behavior. We estimate expected forfeitures of stock-based awards at the grant date and recognize compensation cost only for those awards expected to vest. The forfeiture assumption is ultimately adjusted to the actual forfeiture rate. Estimated forfeitures are reassessed in subsequent periods and may change based on new facts and circumstances. We utilize a risk-free interest rate, which is based on the yield of U.S. treasury securities with a maturity equal to the expected life of the options. We have not and do not expect to pay dividends on our common shares for the foreseeable future.



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We use the Monte Carlo valuation model to determine the fair value of market-based and performance-based stock options liabilities at the date of grant, which requires us to make assumptions, including:

- expected term;
- volatility;
- dividend yield;



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- risk-free interest rate; the consolidated financial statements, and the reported amounts of expenses during the reporting period. Actual results could differ from those estimates. Estimates and

- forfeiture rates.

These assumptions are based on historical information periodically reviewed and judgment regarding market factors the effects of revisions are reflected in the consolidated financial statements in the period they are determined to be necessary. Our significant accounting policies are more fully described in Note 1. Basis of Presentation, Summary of Significant Accounting Policies, and trends. If actual results differ from our assumptions and judgments used Nature of Operations, in estimating these factors, future adjustments to these estimates may be required.

***Research and Development Costs***

Research and development expenses are expensed when incurred. Research and development expenses consist primarily of wages and related payroll benefits, non-cash stock-based compensation, materials, testing, consulting and other outside research and development services, related the Notes to the development Consolidated Financial Statements included in Part II. Item 8. *Financial Statements and Supplementary Data* of the Company's nuclear fuel. this Annual Report on Form 10-K. There were no critical accounting estimates at December 31, 2023 and 2022.

***Recent Accounting Standards and Pronouncements***

Refer to Note 1. Basis of Presentation, Summary of Significant Accounting Policies, and Nature of Operations of the Notes to our Consolidated Financial Statements in Part II. Item 8. *Financial Statements and Supplementary Data*, of this Form 10-K for a discussion of recent accounting standards and pronouncements.

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

The Company is not required to provide the information required by this Item as it is a "smaller reporting company," as defined in Rule 12b-2 of the Exchange Act.

**ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA**

The full text of our audited consolidated financial statements as of and for the years ended December 31, 2022 December 31, 2023 and 2021 2022 begins on page 41 of this Report.



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

None

**ITEM 9A. CONTROLS AND PROCEDURES**



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**Conclusion Regarding the Effectiveness of Disclosure Controls and Procedures**

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, CFO, has evaluated the effectiveness of the design and operation of our disclosure controls and procedures as of December 31, 2022 December 31, 2023 (as such term is defined in Rule 13a-15(e) under the Exchange Act). Our disclosure controls and procedures are designed to provide reasonable assurance that the information required to be disclosed in our reports filed or submitted under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to management, including our Chief Executive Officer and Chief Financial Officer, CFO, as appropriate to allow timely decisions regarding required disclosure. Any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives.



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Based upon this evaluation our management concluded that, as of December 31, 2022 December 31, 2023, our disclosure controls and procedures were not effective due to the material weakness described below.

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

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

Management has assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2022, utilizing the criteria in the Committee of Sponsoring Organizations of the Treadway Commission's *Internal Control-Integrated Framework* (2013). Based on its assessment, our management determined that, as of December 31, 2022, the Company's internal control over financial reporting was not effective due to the material weakness described below.



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A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of annual or interim financial statements will not be prevented or detected on a timely basis. In management's assessment

Management has assessed the effectiveness of the effectiveness of Company's internal control over financial reporting as of December 31, 2022 December 31, 2023, utilizing the criteria in the Committee of Sponsoring Organizations of the Treadway Commission's *Internal Control-Integrated Framework* (2013). Based on its assessment as of December 31, 2023, our management determined that the Company's internal control over financial reporting was not effective due to the material weakness described below.

Management determined that there were control deficiencies concerning was a material weakness related to the accounting procedures that support design of our information technology general controls (ITGC) over logical access to key information systems used in the financial reporting process, related to recording accounts payable invoices resulting in certain segregation of duties conflicts. Additionally, certain business process controls that are dependent on information from these systems were received and approved for payment, and such control deficiencies aggregated to a material weakness. also not effective.

**Remediation Plan**

The Company's management, with under the oversight of the Audit Committee, has evaluated the material weakness described above and designed a remediation plan to address this material weakness. The Company intends undertaken measures to remediate these deficiencies. This includes enhancing the material weakness design of logical access controls to ensure appropriate segregation of duties through improved internal documentation and monitoring activities. Management began to implement these remedial steps during the fourth quarter of fiscal 2023 by (i) implementing multiple reviews of the accounting mailbox where accounts payable invoices are received from vendors, which the multiple reviews of the accounting mailbox was first established in 2022 before the identification of the control deficiency (ii) multiple reviews of the weekly accounts payable schedules and activity reports from the Company's accounting system, and (iii) contacting vendors on a quarterly basis regarding outstanding invoices. removing privileged access. The material weakness will not be considered remediated until the applicable remedial controls operate for a sufficient period of time and management has concluded, through testing, that these controls are designed and operating effectively.



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Notwithstanding the material weakness described above, there have been no restatements of prior period financial statements, and no changes in previously released financial results were required as a result of the material weakness.

**Remediation of Previously Reported Material Weakness**

As previously reported, we did not maintain effective controls over the review of accounts payable. During 2023, we implemented remediation plans to address this material weakness by designing and implementing processes and controls over the timely identification, recording, and review of accounts payable. Management has concluded, through testing, that these controls are designed and operating effectively as of December 31, 2023, and the material weakness has been effectively remediated.

**Changes in Internal Control Over Financial Reporting**



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Except as noted above, there was no change in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) of the Exchange Act that occurred during the quarter ended December 31, 2022 December 31, 2023 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

**ITEM 9B. OTHER INFORMATION**

None During the three months ended December 31, 2023, no director or officer of the Company adopted or terminated a Rule 10b5-1 trading arrangement or non-Rule 10b5-1 trading arrangement, as each term is defined in Item 408(a) of Regulation S-K.

**ITEM 9C. Disclosure Regarding Foreign Jurisdictions That Prevent Inspections DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS**

Not applicable.



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**PART III**

**Item ITEM 10. Directors and Executive Officers of the Registrant DIRECTORS, EXECUTIVE OFFICERS, AND CORPORATE GOVERNANCE**

The information required by Item 10 of Part III will be included in our Proxy Statement relating to the 2023 2024 Annual Meeting of Stockholders and is incorporated herein by reference.

**Item ITEM 11. Executive Compensation EXECUTIVE COMPENSATION**

Information required by Item 11 of Part III will be included in our Proxy Statement relating to the 2023 2024 Annual Meeting of Stockholders and is incorporated herein by reference.

**Item ITEM 12. Security Ownership of Certain Beneficial Owners and Management and Related Shareholders SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS**

Information required by Item 12 of Part III will be included in our Proxy Statement relating to the 2023 2024 Annual Meeting of Stockholders and is incorporated herein by reference.



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**Item ITEM 13. Certain Relationships and Related Transactions, and Director Independence CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE**

Information required by Item 13 of Part III will be included in our Proxy Statement relating to the 2023 2024 Annual Meeting of Stockholders and is incorporated herein by reference.

**Item ITEM 14. Principal Accountant Fees and Services PRINCIPAL ACCOUNTANT FEES AND SERVICES**

Information required by Item 14 of Part III will be included in our Proxy Statement relating to the 2023 2024 Annual Meeting of Stockholders and is incorporated herein by reference.



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**PART IV**

**Item ITEM 15. Exhibits and Financial Statement Schedules EXHIBITS AND FINANCIAL STATEMENT SCHEDULES**

(a) Documents filed as part of this report.

(1) The following financial statements of Lightbridge Corporation, supplemental information and report of independent registered public accounting firm are included in this Form 10-K:

- Consolidated Balance Sheets at December 31, 2022 December 31, 2023 and 2021 2022
- Consolidated Statements of Operations for the Years Ended December 31, 2022 December 31, 2023 and 2021 2022
- Consolidated Statements of Cash Flows for the Years Ended December 31, 2022 December 31, 2023 and 2021 2022
- Consolidated Statements of Changes in Stockholders' Equity for the Years Ended December 31, 2022 December 31, 2023 and 2021 2022
- Notes to Consolidated Financial Statements



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- Report of BDO USA, LLP P.C. dated March 30, 2023 March 4, 2024 on the Company's financial statements filed as a part hereof for the fiscal years ended December 31, 2022 December 31, 2023 and 2021. 2022. The independent registered public accounting firm's consent with respect to this report appears in Exhibit 23 of this Annual Report on Form 10-K.

(2) All schedules have been omitted because they are not required, not applicable or the information is otherwise included.

(3) Exhibits.

| Exhibit Number | Description |
|---|---|
| 1.1 | At-the-Market Equity Offering Sales Agreement, dated May 28, 2019, by and between Lightbridge Corporation and Stifel, Nicolaus & Company, Incorporated (incorporated by reference to Exhibit 1.1 to the Form 8-K filed by the Company on May 28, 2019). |
| 1.2 | Amendment No. 1 to the At-the-Market Equity Offering Sales Agreement, dated May 28, 2019, by and between Lightbridge Corporation and Stifel, Nicolaus & Company, Incorporated (incorporated by reference to Exhibit 1.1 to the Form 8-K filed by the Company on April 9, 2021). |
| 3.1* 3.1 | Articles of Incorporation of the Company, as amended through October 27, 2022. (incorporated by reference to Exhibit 3.1 to the Form 10-K filed by the Company on March 30, 2023). |
| 3.2 | Amended and Restated Bylaws of the Company as amended through November 4, 2021 (incorporated by reference to Exhibit 3.1 to the Form 10-Q filed by the Company on November 8, 2021). |
| 4.2 | Description of Securities (incorporated by reference to Exhibit 4.2 to the Form 10-K filed by the Company on March 31, 2022). |
| 4.3 | Specimen Certificate for Company's Common Stock (incorporated by reference to Exhibit 4.1 to the Company's registration statement on Form S-3 filed on April 1, 2013, File No. 333-187659). |
| 10.1** | Lightbridge Corporation 2006 Stock Plan (incorporated by reference to Exhibit 10.1 to the Form 8-K filed by the Company on February 21, 2006). |
| 10.2** | Lightbridge Corporation 2015 Equity Incentive Plan, as amended (incorporated by reference to Appendix A to the definitive proxy statement filed on March 29, 2018, File No. 001-34487). |



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| 10.3** | Form of Incentive Stock Option Agreement for Employees under the 2015 Equity Incentive Plan (incorporated by reference to Exhibit 99.2 to the Company's Registration Statement on Form S-8, File No. 333-218796, filed on June 16, 2017). |
| 10.4** | Form of Non-Qualified Stock Option Agreement for Employees under the 2015 Equity Incentive Plan (incorporated by reference to Exhibit 99.3 to the Company's Registration Statement on Form S-8, File No. 333-218796, filed on June 16, 2017). |
| 10.5** | Form of Non-Qualified Stock Option Agreement for Non-Employee Directors under the 2015 Equity Incentive Plan (incorporated by reference to Exhibit 99.4 to the Company's Registration Statement on Form S-8, File No. 333-218796, filed on June 16, 2017) |
| 10.6** | Amended Lightbridge Corporation 2020 Omnibus Incentive Plan (incorporated by reference to Appendix B A to the definitive proxy statement filed on August 31, 2022 April 3, 2023). |
| 10.7** | Form of Non-Statutory Stock Option Agreement for Employees under the 2020 Omnibus Incentive Plan. (incorporated by reference to Exhibit 10.12 to the Form 10-K filed by the Company on March 25, 2021). |
| 10.8** | Form of Restricted Stock Unit Award Agreement for Employees under the 2020 Omnibus Incentive Plan. (incorporated by reference to Exhibit 10.13 to the Form 10-K filed by the Company on March 25, 2021). |
| 10.9** | Form of Restricted Stock Unit Award Agreement for Non-Employee Directors under the 2020 Omnibus Incentive Plan. (incorporated by reference to Exhibit 10.14 to the Form 10-K filed by the Company on March 25, 2021). |
| 10.10** | Employment Agreement, dated August 8, 2018, between the Company and Seth Grae (incorporated by reference to Exhibit 10.2 to the Form 10-Q filed by the Company on August 9, 2018). |
| 10.11** | Employment Agreement, dated August 8, 2018, between the Company and Andrey Mushakov (incorporated by reference to Exhibit 10.3 to the Form 10-Q filed by the Company on August 9, 2018). |
| 10.12** | Employment Agreement, dated August 8, 2018, between the Company and Larry Goldman (incorporated by reference to Exhibit 10.4 to the Form 10-Q filed by the Company on August 9, 2018). |



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| 10.13** | Form of Indemnification Agreement (August 2018) (incorporated by reference to Exhibit 10.5 to the Form 10-Q filed by the Company on August 9, 2018). |
| 10.14** | Form of Restricted Stock Award Agreement under the 2020 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.14 to the Form 10-K filed by the Company on March 31, 2022). |
| 10.15* 10.10** | Employment Agreement, dated August 8, 2018, between the Company and Seth Grae (incorporated by reference to Exhibit 10.2 to the Form 10-Q filed by the Company on August 9, 2018). |
| 10.12** | Employment Agreement, dated August 8, 2018, between the Company and Andrey Mushakov (incorporated by reference to Exhibit 10.3 to the Form 10-Q filed by the Company on August 9, 2018). |
| 10.13** | Employment Agreement, dated August 8, 2018, between the Company and Larry Goldman (incorporated by reference to Exhibit 10.4 to the Form 10-Q filed by the Company on August 9, 2018). |
| 10.14** | Form of Indemnification Agreement (August 2018) (incorporated by reference to Exhibit 10.5 to the Form 10-Q filed by the Company on August 9, 2018). |
| 10.15▲ | Strategic Partnership Project Agreement, dated September 27, 2022, between the Company and Battelle Energy Alliance, LLC. LLC(incorporated by reference to Exhibit 10.15 to the Form 10-K filed by the Company on March 30, 2023). |
| 10.16* 10.16▲ | Project Task Statement under the Strategic Partnership Project Agreement, dated December 9, 2022, between the Company and Battelle Energy Alliance, LLC. LLC(incorporated by reference to Exhibit 10.16 to the Form 10-K filed by the Company on March 30, 2023). |
| 10.17* 10.17▲ | Cooperative Research and Development Agreement, dated September 27, 2022, between the Company and Battelle Energy Alliance, LLC. LLC(incorporated by reference to Exhibit 10.17 to the Form 10-K filed by the Company on March 30, 2023). |
| 10.18* 10.18▲ | Project Task Statement under the Cooperative Research and Development Agreement, dated December 9, 2022, between the Company and Battelle Energy Alliance, LLC. LLC(incorporated by reference to Exhibit 10.18 to the Form 10-K filed by the Company on March 30, 2023). |
| 21.1 | Subsidiaries of the Company (incorporated by reference to Exhibit 21.1 to the Form 10-K filed by the Company on March 15, 2016). |
| 23.1* | Consent of BDO USA, LLP. |
| 24.1* | Power of Attorney (Included on the signature page hereto). |



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| 31.1* | Rule 13a-14(a)/15d-14(a) Certification - Principal Executive Officer. P.C. |



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|---|---|
| 24.1* | Power of Attorney (Included on the signature page hereto). |
| 31.1* | Rule 13a-14(a)/15d-14(a) Certification - Principal Executive Officer. |
| 31.2* | Rule 13a-14(a)/15d-14(a) Certification - Principal Financial Officer and Principal Accounting Officer. |
| 32* | Section 1350 Certifications. |
| 97.1* | Incentive Compensation Recovery Policy. |
| 101 | The following materials from Lightbridge Corporation's Annual Report on Form 10-K for the year ended December 31, 2022 December 31, 2023, formatted in Inline eXtensible Business Reporting Language (XBRL): (i) the Consolidated Balance Sheets; (ii) Consolidated Statement of Operations; (iii) Consolidated Statement of Cash Flows; (iv) Consolidated Statement of Changes in Stockholders' Equity; and (v) Notes to Consolidated Financial Statements |
| 101.INS | Inline XBRL Instance Document (the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document). |
| 101.SCH | Inline XBRL Taxonomy Extension Schema Document. |
| 101.CAL | Inline XBRL Taxonomy Extension Calculation Linkbase Document. |
| 101.DEF | Inline XBRL Taxonomy Extension Definition Linkbase Document. |
| 101.LAB | Inline XBRL Taxonomy Extension Labels Linkbase Document. |
| 101.PRE | Inline XBRL Taxonomy Extension Presentation Linkbase Document. |
| 104* | Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101). |

* Filed or furnished herewith



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** Indicates management contract or compensatory plan or arrangement.

▲ Certain portions of this Exhibit have been redacted pursuant to Item 601(b)(10)(iv) of Regulation S-K. The Company agrees to furnish supplementally an unredacted copy of this Exhibit to the SEC upon request.

**Item ITEM 16. Form FORM 10-K Summary SUMMARY**

None.



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**LIGHTBRIDGE CORPORATION**

**DECEMBER 31, 2022 2023 and 2021 2022**

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**Report of Independent Registered Public Accounting Firm**

Shareholders Stockholders and Board of Directors
Lightbridge Corporation
Reston, Virginia

**Opinion on the Consolidated Financial Statements**



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We have audited the accompanying consolidated balance sheets of Lightbridge Corporation (the “Company”) as of December 31, 2022 December 31, 2023 and 2021, 2022, the related consolidated statements of operations, changes in stockholders’ equity, and cash flows for each of the years then ended, and the related notes (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2022 December 31, 2023 and 2021, 2022, and the results of its operations and its cash flows for each of the years then ended, in conformity with accounting principles generally accepted in the United States of America.

**Basis for Opinion**

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

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated 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 audits, 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 audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.



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**Critical Audit Matter**

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



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financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing separate opinions on the critical audit matter or on the accounts or disclosures to which it relates.

**Classification of Research and Development Expenses**

As described in Note 1 to the consolidated financial statements, the Company records research and development expenses as incurred, which consists consist primarily of wages and related payroll benefits, non-cash stock-based compensation, materials, testing, consulting and other outside research and development services, related to the development of the Company's nuclear fuel technology. During the year ended December 31, 2022 December 31, 2023, the Company incurred recorded approximately $0.7 million $1.9 million of research and development expenses.

We identified the classification evaluation of research and development expenses as a critical audit matter. The principal consideration for our determination is matter due to the Company's management judgment involved in: (i) determining whether expenses incurred are related to the research and development activities, and (ii) the methodology for classifying various operating used to allocate certain expenses as incurred related to wages, payroll benefits, and non-cash stock-based compensation to research and development expenses. Auditing this classification these elements was especially challenging given due to the significant nature and extent of audit effort and evidence required to address the extent of audit evidence required. matter.

The primary procedures we performed to address this critical audit matter included:

- Testing a sample of research and development expenses.
- Performing inquiries expenses by: (i) obtaining and inspecting underlying supporting documents, and (ii) inquiring of the project manager to determine whether expenses incurred are related to the nature of expenses. research and development activities.
- Testing management's allocation of wages, payroll benefits, and non-cash stock-based compensation by by: (i) recalculating the percentage of wages, payroll benefits and non-cash stock-based compensation allocated to research and development expenses, and (ii) testing the completeness and accuracy of data used in determining the allocation.

/s/ BDO USA, LLP P.C.

We have served as the Company's auditor since 2015.

Philadelphia, Pennsylvania
March 30, 2023



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## LIGHTBRIDGE CORPORATION
## CONSOLIDATED BALANCE SHEETS

| | December 31, 2022 | December 31, 2021 |
|---|---|---|
| **ASSETS** | | |
| Current Assets | | |
| Cash and cash equivalents | $ 28,899,997 | $ 24,747,613 |
| Prepaid expenses and other current assets | 115,264 | 113,452 |
| Total Current Assets | 29,015,261 | 24,861,065 |
| Other Assets | | |
| Prepaid project costs | 345,000 | — |
| Trademarks | 108,225 | 101,583 |
| Total Assets | $ 29,468,486 | $ 24,962,648 |
| **LIABILITIES AND STOCKHOLDERS' EQUITY** | | |
| Current Liabilities | | |
| Accounts payable and accrued liabilities | $ 350,331 | $ 171,521 |
| Total Current Liabilities | 350,331 | 171,521 |
| Commitments and contingencies - Note 5 | | |
| Stockholders' Equity | | |
| Preferred stock, $0.001 par value, 10,000,000 authorized shares, 0 shares issued and outstanding at December 31, 2022 and 2021 | — | — |
| Common stock, $0.001 par value, 25,000,000 authorized, 11,900,217 shares and 9,759,223 shares issued and outstanding at December 31, 2022 and 2021, respectively | 11,900 | 9,759 |
| Additional paid-in capital | 173,595,385 | 161,772,641 |
| Accumulated deficit | (144,489,130) | (136,991,273) |
| Total Stockholders' Equity | 29,118,155 | 24,791,127 |
| Total Liabilities and Stockholders' Equity | $ 29,468,486 | $ 24,962,648 |

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



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## LIGHTBRIDGE CORPORATION
## CONSOLIDATED STATEMENTS OF OPERATIONS

| | Years Ended |
|---|---|



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| | December 31, | |
|---|---|---|
| | 2022 | 2021 |
| Revenue | $ — | $ — |
| Operating Expenses | | |
| General and administrative | 7,490,086 | 7,158,558 |
| Research and development | 669,818 | 1,366,496 |
| Total Operating Expenses | 8,159,904 | 8,525,054 |
| Other Operating Income | | |
| Distribution from joint venture | — | 119,641 |
| Contributed services - research and development | 372,612 | 527,927 |
| Total Other Operating Income | 372,612 | 647,568 |
| Total Operating Loss | $ (7,787,292) | $ (7,877,486) |
| Other Income | | |
| Interest income | 289,435 | 8,127 |
| Foreign currency transaction gain | — | 33,694 |
| Total Other Income | 289,435 | 41,821 |
| Net Loss Before Income Taxes | (7,497,857) | (7,835,665) |
| Income taxes | — | — |
| Net Loss | $ (7,497,857) | $ (7,835,665) |
| Accumulated Preferred Stock Dividend | — | (477,991) |
| Additional deemed dividend on preferred stock due to the beneficial conversion feature | — | (213,720) |
| Deemed dividend upon induced conversions of Series A and Series B Preferred Stock to common stock | — | (3,509,328) |
| Net Loss Attributable to Common Shareholders | $ (7,497,857) | $ (12,036,704) |
| Net Loss Per Common Share | | |
| Basic and diluted | $ (0.69) | $ (1.71) |
| Weighted Average Number of Common Shares Outstanding | 10,834,574 | 7,035,510 |

The accompanying notes are an integral part of these consolidated financial statements. 4, 2024





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**LIGHTBRIDGE CORPORATION**

**CONSOLIDATED STATEMENTS OF CASH FLOWSBALANCE SHEETS**

| | Years Ended December 31, | |
|---|---|---|
| | **2022** | **2021** |
| Operating Activities | | |
| Net Loss | $ (7,497,857) | $ (7,835,665) |
| Adjustments to reconcile net loss from operations to net cash used in operating activities: | | |
| Common stock issued for services | 45,000 | 254,994 |
| Stock-based compensation | 842,704 | 826,493 |
| Changes in operating assets and liabilities: | | |
| Prepaid expenses and other current assets | (1,812) | 59,008 |
| Prepaid project costs | (345,000) | — |
| Accounts payable and accrued liabilities | 193,810 | (140,919) |
| Accrued legal settlement costs | — | (4,200,000) |
| Net Cash Used in Operating Activities | (6,763,155) | (11,036,089) |
| Investing Activities | | |
| Trademarks | (6,642) | (16,021) |
| Net Cash Used in Investing Activities | (6,642) | (16,021) |
| Financing Activities | | |
| Net proceeds from the issuances of common stock | 11,026,785 | 14,821,354 |
| Net proceeds from the exercise of stock options | — | 270,857 |
| Payments for taxes related to net share settlement of equity awards | (104,604) | (824,153) |
| Net Cash Provided by Financing Activities | 10,922,181 | 14,268,058 |
| Net Increase in Cash and Cash Equivalents | 4,152,384 | 3,215,948 |
| Cash and Cash Equivalents, Beginning of Year | 24,747,613 | 21,531,665 |
| Cash and Cash Equivalents, End of Year | $ 28,899,997 | $ 24,747,613 |



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| | | |
|---|---|---|
| Supplemental Disclosure of Cash Flow Information | | |
| Cash paid during the year: | | |
| Interest paid | $ — | $ — |
| Income taxes paid | $ — | $ — |
| Non-Cash Financing Activities: | | |
| Accumulated preferred stock dividend | $ — | $ 691,711 |
| Exchanges of preferred stock Series A and B to common stock | $ — | $ 3,366 |
| Payment of accrued liabilities with common stock | $ 15,000 | $ 69,690 |

| | December 31, 2023 | December 31, 2022 |
|---|---|---|
| **ASSETS** | | |
| Current Assets | | |
| Cash and cash equivalents | $ 28,598,445 | $ 28,899,997 |
| Prepaid expenses and other current assets | 207,063 | 115,264 |
| Total Current Assets | 28,805,508 | 29,015,261 |
| Other Assets | | |
| Prepaid project costs and other long-term assets | 483,000 | 345,000 |
| Trademarks | 108,865 | 108,225 |
| Total Assets | $ 29,397,373 | $ 29,468,486 |
| **LIABILITIES AND STOCKHOLDERS' EQUITY** | | |
| Current Liabilities | | |
| Accounts payable and accrued liabilities | $ 486,326 | $ 350,331 |
| Total Current Liabilities | 486,326 | 350,331 |
| Commitments and contingencies - Note 5 | | |
| Stockholders' Equity | | |
| Preferred stock, $0.001 par value, 10,000,000 authorized shares, 0 shares issued and outstanding at December 31, 2023 and 2022 | — | — |
| Common stock, $0.001 par value, 25,000,000 authorized, 13,698,274 shares and 11,900,217 shares issued and outstanding at December 31, 2023 and 2022, respectively | 13,698 | 11,900 |
| Additional paid-in capital | 181,295,125 | 173,595,385 |
| Accumulated deficit | (152,397,776) | (144,489,130) |



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| | | |
|---|---|---|
| Total Stockholders' Equity | 28,911,047 | 29,118,155 |
| Total Liabilities and Stockholders' Equity | $ 29,397,373 | $ 29,468,486 |

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



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**LIGHTBRIDGE CORPORATION**

**CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITYOPERATIONS**

**FOR THE YEARS ENDED DECEMBER 31, 2022 AND 2021**

| | Common Stock | | Additional Paid-in | Accumulated | Total |
|---|---|---|---|---|---|
| | Shares | Amount | Capital | Deficit | Equity |
| Balance - January 1, 2022 | 9,759,223 | $ 9,759 | $ 161,772,641 | $ (136,991,273) | $ 24,791,127 |
| Shares issued, net of share settlement for withholding taxes paid upon vesting of restricted stock awards | 268,796 | 269 | (104,873) | — | (104,604) |
| Shares issued - registered offerings - net of offering costs | 1,855,085 | 1,855 | 11,024,930 | — | 11,026,785 |
| Shares issued to consultant & directors for services | 17,113 | 17 | 59,983 | — | 60,000 |
| Stock-based compensation | — | — | 842,704 | — | 842,704 |
| Net loss | — | — | — | (7,497,857) | (7,497,857) |
| Balance - December 31, 2022 | 11,900,217 | $ 11,900 | $ 173,595,385 | $ (144,489,130) | $ 29,118,155 |

| | Series A Preferred Stock | | Series B Preferred Stock | | Common Stock | | Additional Paid-in | Accumulated | Total |
|---|---|---|---|---|---|---|---|---|---|
| | Shares | Amount | Shares | Amount | Shares | Amount | Capital | Deficit | Equity |
| Balance - January1, 2021 | 699,878 | $ 699 | 2,666,667 | $ 2,667 | 6,567,110 | $ 6,567 | $ 146,353,232 | $ (129,155,608) | $ 17,207,557 |



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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Exchanges of Series A & B Preferred Stock to Common Stock | (699,878) | (699) | (2,666,667) | (2,667) | 789,382 | 790 | 2,576 | — | — |
| Shares issued, net of share settlement for withholding taxes paid upon vesting of restricted stock units | — | — | — | — | 130,281 | 130 | (824,283) | — | (824,153) |
| Common stock issued pursuant to restricted stock awards | — | — | — | — | 188,588 | 188 | (188) | — | — |
| Common stock issued - registered ATM offerings - net of offering costs | — | — | — | — | 2,008,822 | 2,010 | 14,819,344 | — | 14,821,354 |
| Common stock issued through the exercise of options | — | — | — | — | 30,282 | 30 | 270,827 | — | 270,857 |
| Common stock issued to directors and consultants for services | — | — | — | — | 44,758 | 44 | 324,640 | — | 324,684 |



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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Stock-based compensation | — | — | — | — | — | — | 826,493 | — | 826,493 |
| Net loss | — | — | — | — | — | — | — | (7,835,665) | (7,835,665) |
| Balance - December 31, 2021 | — | $ — | — | $ — | 9,759,223 | $ 9,759 | $ 161,772,641 | $ (136,991,273) | $ 24,791,127 |

| | Year Ended December 31, | |
|---|---|---|
| | **2023** | **2022** |
| Revenue | $ — | $ — |
| Operating Expenses | | |
| General and administrative | 7,149,773 | 7,490,086 |
| Research and development | 1,922,865 | 669,818 |
| Total Operating Expenses | 9,072,638 | 8,159,904 |
| Other Operating Income | | |
| Contributed services - research and development | 31,028 | 372,612 |
| Total Other Operating Income | 31,028 | 372,612 |
| Total Operating Loss | (9,041,610) | (7,787,292) |
| Other Income | | |
| Interest income | 1,132,964 | 289,435 |
| Total Other Income | 1,132,964 | 289,435 |
| Net Loss Before Income Taxes | (7,908,646) | (7,497,857) |
| Income taxes | — | — |
| Net Loss | $ (7,908,646) | $ (7,497,857) |
| Net Loss Per Common Share | | |
| Basic and diluted | $ (0.65) | $ (0.69) |
| Weighted Average Number of Common Shares Outstanding | 12,099,574 | 10,834,574 |

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



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## LIGHTBRIDGE CORPORATION
## CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY
## FOR THE YEARS ENDED DECEMBER 31, 2023 AND 2022

| | Common Stock | | Additional Paid-in | Accumulated | Total |
|---|---|---|---|---|---|
| | Shares | Amount | Capital | Deficit | Equity |
| Balance - January 1, 2022 | 9,759,223 | $ 9,759 | $ 161,772,641 | $ (136,991,273) | $ 24,791,127 |
| Shares issued, net of share settlement for withholding taxes paid upon vesting of restricted stock awards | 268,796 | 269 | (104,873) | — | (104,604) |
| Shares issued - registered offerings - net of offering costs | 1,855,085 | 1,855 | 11,024,930 | — | 11,026,785 |
| Shares issued to consultant & directors for services | 17,113 | 17 | 59,983 | — | 60,000 |
| Stock-based compensation | — | — | 842,704 | — | 842,704 |
| Net loss | — | — | — | (7,497,857) | (7,497,857) |
| Balance - December 31, 2022 | 11,900,217 | $ 11,900 | $ 173,595,385 | $ (144,489,130) | $ 29,118,155 |
| Shares issued, net of share settlement for withholding taxes paid upon vesting of restricted stock awards | 240,499 | 240 | (221,850) | — | (221,610) |
| Shares issued - registered offerings - net of offering costs | 1,492,148 | 1,493 | 6,403,938 | — | 6,405,431 |
| Shares issued to consultant & directors for services | 65,410 | 65 | 259,935 | — | 260,000 |
| Stock-based compensation | — | — | 1,257,717 | — | 1,257,717 |
| Net loss | — | — | — | (7,908,646) | (7,908,646) |
| Balance - December 31, 2023 | 13,698,274 | $ 13,698 | $ 181,295,125 | $ (152,397,776) | $ 28,911,047 |

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



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## LIGHTBRIDGE CORPORATION
## CONSOLIDATED STATEMENTS OF CASH FLOWS

| | Year Ended December 31, |
|---|---|



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| | 2023 | 2022 |
|---|---|---|
| Operating Activities | | |
| Net Loss | $ (7,908,646) | $ (7,497,857) |
| Adjustments to reconcile net loss to net cash used in operating activities: | | |
| Common stock issued for services | 45,000 | 45,000 |
| Stock-based compensation | 1,257,717 | 842,704 |
| Changes in operating assets and liabilities: | | |
| Prepaid expenses and other current assets | (91,799) | (1,812) |
| Prepaid project costs and other long-term assets | (138,000) | (345,000) |
| Accounts payable and accrued liabilities | 350,995 | 193,810 |
| Net Cash Used in Operating Activities | (6,484,733) | (6,763,155) |
| Investing Activities | | |
| Trademarks | (640) | (6,642) |
| Net Cash Used in Investing Activities | (640) | (6,642) |
| Financing Activities | | |
| Net proceeds from the issuances of common stock | 6,405,431 | 11,026,785 |
| Payments for taxes related to net share settlement of equity awards | (221,610) | (104,604) |
| Net Cash Provided by Financing Activities | 6,183,821 | 10,922,181 |
| Net (Decrease) Increase in Cash and Cash Equivalents | (301,552) | 4,152,384 |
| Cash and Cash Equivalents, Beginning of Year | 28,899,997 | 24,747,613 |
| Cash and Cash Equivalents, End of Year | $ 28,598,445 | $ 28,899,997 |
| Supplemental Disclosure of Cash Flow Information | | |
| Cash paid during the year: | | |
| Interest paid | $ — | $ — |
| Income taxes paid | $ — | $ — |
| Non-Cash Financing Activities: | | |
| Payment of accrued liabilities with common stock | $ 215,000 | $ 15,000 |

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



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**LIGHTBRIDGE CORPORATION**
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**

## Note 1. Basis of Presentation, Summary of Significant Accounting Policies, and Nature of Operations

The Company was formed on October 6, 2006, when Thorium Power, Ltd., which was incorporated in the state of Nevada on February 2, 1999, merged with Thorium Power, Inc. (TPI), which was incorporated in the state of Delaware on January 8, 1992 (subsequently and collectively referred to as "we" or the "Company"). On September 29, 2009, the Company changed its name from Thorium Power, Ltd. to Lightbridge Corporation and began its focus on developing and commercializing metallic nuclear fuels. The Company is a nuclear fuel technology company developing its next generation nuclear fuel technology.

**Basis of presentation**

***Basis of Consolidation***

These consolidated financial statements include the accounts of Lightbridge, a Nevada corporation, and the Company's wholly-owned subsidiaries, TPI, a Delaware corporation, and Lightbridge International Holding LLC, a Delaware limited liability company. These wholly-owned subsidiaries are inactive. All significant intercompany transactions and balances have been eliminated in consolidation.

***Segment Reporting***

*ASC Topic 280, "Segment Reporting," requires use of the "management approach" model for segment reporting. The management approach model is based on the way a company's management organizes segments within the company for making operating decisions and assessing performance. We report our results in a single reportable segment, which reflects how our chief operating decision maker allocates resources considering our core data, which is managed centrally on a company-wide basis and evaluates our financial results. Because we have a single reportable segment, all required financial segment information can be found directly in the Consolidated Financial Statements. We evaluate the performance of our reporting segment based on our operating expenses and will evaluate additional segment disclosure requirements if and when the Company expands its operation. expenses.*

***Basis of Presentation and Use of Estimates and Assumptions***

*The preparation of consolidated financial statements, in conformity with accounting principles generally accepted in the United States of America (GAAP), requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenue and expenses during the reporting period. Actual results could differ from those estimates. Estimates and assumptions are periodically reviewed and the effects of revisions are reflected in the consolidated financial statements in the period they are determined to be necessary.*

***Significant Estimates***



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*These accompanying consolidated financial statements include some amounts that are based on management's best estimates and assumptions. The most There were no significant estimates relate to its valuation of stock options, the valuation allowance on deferred tax assets at December 31, 2023 and contingent liabilities. It is reasonably possible that these above-mentioned estimates and others may be adjusted as more current information becomes available, and any adjustment could be significant in future reporting periods. The compensation expense related to stock options may have been a materially different amount had other reasonable assumptions been used that differed from the reasonable assumptions made by management. 2022.*

***Fair Value of Financial Instruments***

*The Company determines fair value of a financial instrument is as the amount price that would be received in to sell an asset sale or paid to transfer a liability in an orderly transaction between unaffiliated market participants. participants at the measurement date.*

*ASC 820 establishes a fair value hierarchy that prioritizes the inputs used to measure fair value. Assets and liabilities measured at fair value are categorized based on whether the inputs are observable in the market and the degree that the inputs are observable. The categorization of financial instruments within the valuation hierarchy is based on the lowest level of input that is significant to the fair value measurement.*

*In accordance with the provisions of ASC 820, "Fair Value Measurements," the Company determines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The Company generally applies the income approach to determine fair value. This method uses valuation techniques to convert future amounts to a single present amount. The measurement is based on the value indicated by current market expectations with respect to the future amounts.*



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*ASC 820 establishes a fair value hierarchy that prioritizes the inputs used to measure fair value. The hierarchy gives the highest priority to active markets for identical assets and liabilities (Level 1 measurement) and the lowest priority to unobservable inputs (Level 3 measurement). The Company classifies fair value balances categorization of financial instruments within the valuation hierarchy is based on the observability lowest level of those inputs. input that is significant to the fair value measurement. The three levels of the fair value hierarchy are as follows:*

*Level 1 - Observable inputs such as quoted prices in active markets for identical assets or liabilities liabilities;*

*Level 2 - Inputs other than quoted prices that are observable for the asset or liability, either directly or indirectly. These include quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active and inputs other than quoted prices that are observable for the asset or liability liability; and*

*Level 3 - Unobservable inputs that reflect management's assumptions assumptions.*

*For disclosure purposes, assets and liabilities are classified in their entirety in the fair value hierarchy level based on the lowest level of input that is significant to the overall fair value measurement. The Company's assessment of the significance of a*



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*particular input to the fair value measurement requires judgment and may affect the placement within the fair value hierarchy levels.*



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*The Company's financial instruments consist principally of cash and cash equivalents, accounts payable and accrued liabilities. The carrying amounts of cash and cash equivalents (which includes U.S. treasury bills at December 31, 2022), accounts payable and accrued liabilities are considered to be a Level 1 measurement, representative to of their respective fair values because of the short-term nature of those instruments. Cash equivalents which consists of U.S. treasury bills are classified as Level 1 on the fair value hierarchy as there are quoted prices in active markets for identical assets.*

*The following tables summarize the valuation of the Company's cash equivalents that fall within the fair value hierarchy (in millions) at December 31, 2022. There were no cash equivalents at December 31, 2023.*

| Assets | Level I | Level II | Level III |
|---|---|---|---|
| Treasury Bills | $ 19.90 | $ — | $ — |

***Certain Risks and Uncertainties***

*The Company will need additional funding by way of and /or in-kind support via a combination of strategic alliances, government grants, further offerings of equity securities, or an offering of debt securities in order to support its future R&D research and development (R&D) activities required to further enhance and complete the development and commercialization of its fuel products to a proof-of-concept stage and a commercial stage thereafter. products.*

*There can be no assurance that the Company will be able to successfully continue to conduct its operations if there is a lack of financial resources available in the future to continue its fuel development activities, and a failure to do so would have a material adverse effect on the Company's future R&D activities, financial position, results of operations, and cash flows. Also, the success of the Company's operations will be subject to other numerous contingencies, some of which are beyond management's control. These contingencies include general and regional economic conditions, contingent liabilities, potential competition with other nuclear fuel developers, including those entities developing accident tolerant fuels, changes in government regulations, risks related to the research and development of our nuclear fuel, regulatory approval of the Company's fuel, support for nuclear power, changes in accounting and taxation standards, inability to achieve overall short-term and long-term research and development milestones toward commercialization, future impairment charges to its the Company's assets, and global or regional catastrophic events. The Company may also be subject to various additional political, economic, and other uncertainties.*

***Cash and Cash Equivalents***

*The Company may at times invest its excess cash in interest bearing accounts and U.S. treasury bills. It classifies all highly liquid investments with original stated maturities of three months or less from date of purchase as cash equivalents and all*



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*highly liquid investments with stated maturities of greater than three months as marketable securities. The Company holds cash balances in excess of the federally insured limits of $250,000. It deems this credit risk not to be significant as cash is held by two prominent financial institutions in 2022 2023 and 2021. 2022. The Company buys and holds short-term U.S. treasury bills to maturity. U.S. treasury bills totaled approximately zero and $19.9 million as of December 31, 2023 and $9.0 million at December 31, 2022 and 2021, 2022, respectively. The remaining $9.0 million and $15.7 million at December 31, 2022 and 2021, respectively, are , were on deposit with two notable prominent financial institutions.*

***Contributed services - Research and Development***

*The Company was awarded a grant in 2019 and a second grant in 2021 from the United States Department of Energy (DOE) , which represented contributed services to further the Company's R&D activities. The Company concluded that its government grants were not within the scope of the revenue recognition standard ASC Topic 606, Revenue Recognition, as they did not meet the definition of a contract with a customer. Additionally, the Company concluded that the grants met the definition of a contribution, as the grants were a non-reciprocal transaction. As such, the Company determined that Subtopic 958-605, Not-for-Profit-Entities-Revenue Recognition (Subtopic 958-605), applies for these contributed services, even though the Company is a business entity, as guidance in the contributions received subsections of Subtopic 958-605 applies to all entities (not-for-profits and business entities).*



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*The Company early adopted Accounting Standards Update 2020-07 in the fourth quarter of 2021, which amends Subtopic 958-605 and further clarifies the presentation and disclosure about contributions.*

*Subtopic 958-605 requires that nonfinancial assets, which includes services, such as the research and development R&D services provided under the Gateway for Accelerated Innovation in Nuclear (GAIN) vouchers described in Note 6, should 6. Research and Development Expenses, be shown on a gross method at the fair value of the services contributed, with contributed services - research and development shown as other operating income and the related costs as a charge to research and development R&D expense, rather than depicting contributed services - research and development as a reduction of research and development R&D expense. The fair value of contributed services was determined by the cost of professional time and materials, which were charged by the subcontractor who fulfilled the services contributed under the grant award. The principal market used to arrive at fair value is the market in which the Company operates.*



The Company recognized contributed services - research and development of approximately $0.4 million for the year ended December 31, 2022 and approximately $0.5 million for the year ended December 31, 2021.

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***Trademarks***



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*Costs for filing and legal fees for trademark applications are capitalized. Trademarks are considered intangible assets with an indefinite useful life and therefore are not amortized. The Company performed performs an impairment test in the fourth quarter or more frequently if events or circumstances indicate that an impairment loss may have been incurred. For the fourth quarter 2023 test, the Company applied the FASB's accounting guidance which allows the company to first assess qualitative factors to determine the extent of 2022 additional quantitative analysis, if any, that may be required to test trademarks for impairment. Based on the qualitative assessments performed, the company concluded that it was more likely than not that the fair value of the Trademarks substantially exceeded its carrying value and 2021 and therefore, further quantitative analysis was not required. As a result, no impairment of the trademarks was identified. recorded. As of December 31, 2022 December 31, 2023 and December 31, 2021 December 31, 2022, the carrying value of trademarks was approximately $0.1 million.*

***Leases***

*In accordance with ASU 2016-02, Leases (Topic 842), which requires recognition of most lease arrangements on the balance sheet, the The Company recognizes operating lease right of use assets and liabilities at commencement date based on the present value of the future minimum lease payments over the lease term. Leases with an initial term of 12 months or less are not recorded on the consolidated balance sheet in accordance with the short-term lease recognition exemption. The Company applies the practical expedient to non-separate and non-lease components for all leases that qualify. Lease expense is recognized on a straight-line basis over the lease term. The Company has only one lease for office rent and the lease is for a term of 12 months without renewal options (See Note 5. Commitments and Contingencies). options.*

***Income Taxes***

*Income taxes are accounted for using the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to temporary differences between the financial statements carrying amounts of assets and liabilities and their respective tax bases, operating loss carryforwards, and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. In accordance with FASB Financial Accounting Standards Board (FASB) ASC 740, Accounting for Income Taxes, the Company reflects in the financial statements the benefit of positions taken in a previously filed tax return or expected to be taken in a future tax return only when it is considered 'more-likely-than-not' that the position taken will be sustained on its technical merits by a taxing authority. authority upon examination. As of December 31, 2022 December 31, 2023 and 2021, 2022, the Company had no unrecognized income tax benefits and correspondingly there is no impact on the Company's effective income tax rate associated with these items. The Company's policy for recording interest and penalties relating to uncertain income tax positions is to record them as a component of income tax expense in the accompanying consolidated statements of operations. As of December 31, 2022 December 31, 2023 and 2021, 2022, the Company had no such accruals.*

***Common Stock Warrants Research and Development Expenses***



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*The Company accounts for common stock warrants as either equity instruments or derivative liabilities depending on Research and development expenses are expensed when incurred. Research and development expenses consist primarily of wages and related payroll benefits, non-cash stock-based compensation, materials, testing, consulting, and other third-party research and development services, related to the specific terms development of the warrant agreement. Common stock warrants Company's nuclear fuel. Advance payments for goods or services for future research and development activities are accounted for deferred and expensed as a derivative in accordance with ASC 815, Derivatives and Hedging, if the stock warrants contain terms that could potentially require "net cash settlement" and therefore, do not meet goods are delivered or the scope exception for treatment as a derivative. Warrant instruments that could potentially require "net cash settlement" in the absence of explicit language precluding such settlement related services are initially classified as derivative liabilities at their estimated fair values, regardless of the likelihood that such instruments will ever be settled in cash.*



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*All outstanding warrants expired on May 16, 2022. performed.*

***Stock-Based Compensation***

*The stock-based compensation expense incurred by Lightbridge the Company for employees and directors in connection with its equity incentive plan is based on the employee model of ASC 718, and the fair value of any stock options granted is measured at the grant date. In accordance with ASU 2018-07, Compensation - Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting, options Options or common stock granted to our consultants for services performed are accounted for in the same manner as options and stock issued to employees. employees for services.*

*Awards with service-based vesting conditions only: Expense is recognized on a straight-line basis over the requisite service period of the award.*

*Awards with performance-based vesting conditions: Expense is not recognized until it is determined that it is probable the performance-based conditions will be met. When achievement of a performance-based condition is probable, a catch-up of expense is recorded as if the award had been vesting on a straight-line basis from the award date. The award will continue to be expensed on a straight-line basis over the requisite service period until a higher performance-based condition is met, if applicable.*

*Awards with market-based vesting conditions: Expense is recognized on a straight-line basis over the requisite service period, which is the lesser of the derived service period or the explicit service period if one is present. However, if the market condition is satisfied prior to the end of the requisite service period, the Company accelerates all remaining expense to be recognized.*

*Awards with both performance-based and market-based vesting conditions: If an award vesting or exercisability is conditional upon the achievement of either a market condition or performance or service conditions, the requisite service period is generally the shortest of the explicit, implicit, and derived service period.*

*The Company elected to use the uses a Black-Scholes pricing model to determine the fair value of stock options on the measurement date of the grant for service-based vesting conditions and the Monte-Carlo valuation method for performance-based or market-based vesting conditions for stock options. conditions. The Company estimates forfeitures at the time of grant*



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*and revises the estimate, if necessary, in subsequent periods if actual forfeitures differ from those estimates. The forfeiture rate estimate used for all equity awards was zero, based on the experience of the Company having an insignificant historical forfeiture rate. Shares that are issued to employees upon exercise of the stock options or vesting of Restricted Stock Units (RSUs) or Restricted Stock Awards (RSAs) grants may be issued net of a the number of shares with a fair value equal to the amount required to satisfy applicable tax withholding requirements to be paid by the Company regarding its tax withholding obligations. requirements. As a result, the actual number of shares issued with tax withholding obligations are fewer than the actual number of shares exercised under the stock option or on the dates of vesting of Restricted Stock Unit ("RSU") RSU or Restricted Stock Awards ("RSAs") RSA grants.*



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*The Company grants two types of RSAs. The first type RSAs, which is an award of our common shares that have full voting rights and dividend rights (with dividends paid upon vesting of the RSA) but are restricted with regard to regarding the sale or transfer before vesting. As such, they are shown as shares issued and outstanding. These restrictions lapse over as the vesting period. award vests. The shares are forfeited and returned to the Company if they do not vest. The RSAs are included in common stock issued and outstanding and are considered contingently issuable in the calculation of weighted-average shares outstanding for purposes of calculating earnings per share. The consolidated statement of changes in stockholders' equity shows the initial grant of RSAs as a reclassification from additional paid-in capital to common stock, with any compensation expense related to the RSAs included in stock-based compensation. The second type number of RSAs to be granted are determined by the Company have only performance conditions. These closing stock price on the date of the RSAs do not have voting and dividend rights until they vest as ordinary common shares and are not included in common stock issued and outstanding. grant.*

***Research and Development Costs Comprehensive Loss***

*Research Comprehensive loss is defined as a change in equity of a business enterprise during a period resulting from transactions from nonowner sources. There have been no items qualifying as other comprehensive loss and, development expenses are expensed when incurred. Research and development expenses consist primarily of wages and related payroll benefits, non-cash stock-based compensation, materials, testing, consulting and other outside research and development services, related to therefore, for all periods presented, the development of Company's comprehensive loss was the Company's nuclear fuel. Advance payments for goods or services for future research and development activities are deferred and expensed same as the goods are delivered or the related services are performed.*



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*its reported net loss.*

***Recent Recently Adopted Accounting Pronouncements Pronouncement***



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*In November 2021, the The FASB issued ASU 2021-10, Government Assistance (Topic 832) No. 2016-13, Financial Instruments - Disclosures by Business Entities about Government Assistance. Credit Losses (Topic 326). This ASU standard requires disclosures that are a financial asset to be presented at the net amount expected to increase the transparency of transactions with a government accounted for by applying a grant or contribution accounting model by analogy, including (1) the nature be collected. The financial assets of the transactions Company in scope of ASU 2016-13 will primarily be accounts receivable. The Company will estimate an allowance for expected credit losses on accounts receivable that result from the inability of customers to make the required payments. In estimating the allowance for expected credit losses, consideration will be given to the current aging of receivables, historical experience, and a review for potential bad debts. The Company does not expect to have revenue or receivables for the form in which assistance has been received, (2) the accounting policy applied, and (3) the balance sheet and income statement line items that are affected by the transactions, and the amounts applicable to each financial statement line item. This ASU is effective for annual periods beginning after December 15, 2021, with early adoption permitted. foreseeable future. The Company adopted this guidance on January 1, 2022 January 1, 2023, and it did not have a material impact on our consolidated its results of operations, financial statements. position, and disclosures because the Company had no outstanding accounts receivable on which to apply this new standard.*

***Recent Accounting Pronouncements Not Yet Adopted***

*In August 2020, the FASB issued ASU 2020-06, Debt-Debt with Conversion and Other Options (Subtopic (Subtopic 470-20) and Derivatives and Hedging- Contracts in Entity's Own Equity (Subtopic (Subtopic 815-40), which simplifies the complexity associated with applying U.S. GAAP for certain financial instruments with characteristics of liabilities and equity. This ASU (1) simplifies the accounting for convertible debt instruments and convertible preferred stock by removing the existing guidance in ASC 470-20, Debt: Debt with Conversion and Other Options, that requires entities to account for beneficial conversion features and cash conversion features in equity, separately from the host convertible debt or preferred stock; (2) revises the scope exception from derivative accounting in ASC Subtopic 815-40 for freestanding financial instruments and embedded features that are both indexed to the issuer's own stock and classified in stockholders' equity, by removing certain criteria required for equity classification; and (3) revises the guidance in ASC 260, Earnings Per Share, to require entities to calculate diluted earnings per share for convertible instruments by using the if-converted method. ASU 2020-06 is effective for fiscal years beginning after December 15, 2023, including interim periods within those fiscal years. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020, including interim periods within those fiscal years. Adoption is either through a modified retrospective method or a full retrospective method of transition. The Company does not currently have any transaction or instruments to which this standard applies. If, in the future, the Company issues new convertible debt, new warrants or certain other instruments, the standard may have a material effect, but this cannot be determined at this time.*

*The FASB issued ASU No. 2016-13, Financial Instruments - Credit Losses (Topic 326). This standard requires a financial asset to be presented at the net amount expected to be collected. The financial assets of the Company in scope of ASU 2016-13 will primarily be accounts receivable. The Company will estimate an allowance for expected credit losses on accounts receivable that result from the inability of customers to make required payments. In estimating the allowance for expected credit losses, consideration will be given to the current aging of receivables, historical experience, and a review for potential bad debts. The Company will adopt this guidance in the first quarter of fiscal 2023 January 1, 2024 and does not expect the adoption to have a material impact on its results of operations, financial position, and disclosures. disclosures because the Company does not have any transactions or instruments to which this standard applies. If in the future, the Company issues new convertible debt, warrants or other instruments, the standard may have a material effect, but it cannot be determined at this time.*



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***Immaterial Revision***

*An immaterial revision was made during In November 2023, the course FASB issued ASU 2023-07, Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures (ASU 2023-07). The ASU expands public entities' segment disclosures by requiring disclosure of preparing significant segment expenses that are regularly provided to the Company's chief operating decision maker and included within each reported measure of segment profit or loss, an amount and description of its composition for other segment items, and interim disclosures of a reportable segment's profit or loss and assets. The ASU is effective for us January 1, 2024 and will be applied retrospectively. Early adoption is permitted. This ASU will likely result in additional required disclosure when adopted. The Company is currently evaluating the provisions of this ASU and the impact on its consolidated financial statements as of and for the year ended December 31, 2022, after the Company completed a preliminary Internal Revenue Code Section 382 analysis of its historical net operating loss carryforward amounts. As a result, a portion of the prior years' net operating loss carryforwards were limited and incorrectly presented in the deferred tax table within Note 7. Income Taxes. related disclosures.*

***Note 2. Net Loss Per Share***

*Basic net loss per share is computed using the weighted-average number of common shares outstanding during the year reporting period, except that it does not include unvested common shares subject to repurchase or cancellation. Diluted net income loss per share is computed using the weighted-average number of common shares and, if dilutive, potential common shares outstanding during the period. Potential common shares consist of the incremental common shares issuable upon the exercise of stock options, warrants options. For the years ended December 31, 2023 and convertible preferred 2022, there is no difference in the number of shares (see Note 8. Stockholders' Equity used to calculate basic and Stock-Based Compensation). The common stock equivalents diluted shares outstanding as the inclusion of performance-based milestone compensation arrangements are included as the potentially dilutive shares only if the performance condition has been met as of the end of the reporting period. securities would be antidilutive.*



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*The treasury stock method is used in calculating diluted EPS for potentially dilutive stock options and share purchase warrants, which assumes that any proceeds received from the exercise of in-the-money stock options and share purchase warrants, would be used to purchase common shares at the average market price for the period, unless including the effects of these potentially dilutive securities would be anti-dilutive.*

*The following table sets forth the computation of the basic and diluted loss per share (dollars in millions, except share data):*

| | Years Ended December 31, | |
|---|---|---|
| | **2022** | **2021** |
| **Basic** | | |
| **Numerator:** | | |



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| | | |
|---|---|---|
| Net loss attributable to common stockholders | $ (7.5) | $ (12.0) |
| **Denominator:** | | |
| Weighted-average common shares outstanding | 10,834,574 | 7,035,510 |
| Basic net loss per share | $ (0.69) | $ (1.71) |
| | | |
| **Diluted** | | |
| **Numerator:** | | |
| Net loss attributable to common stockholders, basic | $ (7.5) | $ (12.0) |
| Effect of dilutive securities | — | — |
| Net loss, diluted | $ (7.5) | $ (12.0) |
| **Denominator:** | | |
| Weighted average common shares outstanding - basic | 10,834,574 | 7,035,510 |
| **Potential common share issuances:** | | |
| Incremental dilutive shares from equity instruments (treasury stock method) | — | — |
| Weighted-average common shares outstanding | 10,834,574 | 7,035,510 |
| Diluted net loss per share | $ (0.69) | $ (1.71) |

*The following outstanding securities have been excluded from the computation of diluted weighted shares outstanding for the years noted below, as they would have been anti-dilutive due to the Company's losses at December 31, 2022 December 31, 2023 and 2021 2022 and also because the exercise price of certain of these outstanding securities was greater than the average closing price of the Company's common stock.*

| | Years Ended December 31, | | Years Ended December 31, | |
|---|---|---|---|---|
| | 2022 | 2021 | 2023 | 2022 |
| *Warrants outstanding* | *—* | *45,577* | | |
| *Stock options outstanding* | *525,903* | *538,713* | *510,787* | *525,903* |
| *RSAs outstanding* | *—* | *188,588* | | |
| *Restricted stock awards outstanding* | | | *557,688* | *416,316* |
| *Total* | *525,903* | *772,878* | *1,068,475* | *942,219* |

***Note 3. Prepaid Project Costs***

*Prepaid Project Costs – Short-Term*

*On October 16, 2023, the Company engaged RATEN ICN in Romania to perform an engineering study to assess the compatibility and suitability of Lightbridge Fuel™ for use in Canada Deuterium Uranium (CANDU) reactors. The total price of approximately $0.2 million shall be payable in three installments, including an advance payment of $0.1 million, and total of a milestone payment and a final payment of approximately $0.1 million. The Company advanced payment for future project work*



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*totaling approximately $56,000 and approximately 50% of this amount was expensed at December 31, 2023 and the remaining amount was recorded under Prepaid expenses and other current assets.*

*On December 5, 2023, the Company entered into an agreement with Centrus Energy to conduct a front-end engineering and design (FEED) study to add a dedicated Lightbridge Pilot Fuel Fabrication Facility (LPFFF) at the American Centrifuge Plant in Piketon, Ohio. The work is expected to be completed in 2024. The Company advanced payment for future project work totaling approximately $0.1 million and approximately 23% of this amount was expensed at December 31, 2023 and the remaining amount was recorded under Prepaid expenses and other current assets.*

*Prepaid Project Costs – Long-Term*

*In 2022, the Company entered into agreements with Idaho National Laboratory (INL), in collaboration with the U.S. Department of Energy (DOE), DOE, to support the development of Lightbridge Fuel™. The At the time of signing, the Company made advanced payments for future project work totaling $0.4 million to Battelle Energy Alliance, LLC ("BEA") (BEA), DOE's operating contractor for INL. In May 2023, the Company and INL modified the agreements to extend the contract term to May 2029, aligning it with the duration of the irradiation testing and increasing the advanced payments by $0.1 million. The prepaid project costs were $0.5 million as of December 31, 2023 and $0.3 million as of December 31, 2022. under Other Assets - Prepaid project costs and other long-term assets.*

***Note 4. Accounts Payable and Accrued Liabilities***

*Accounts payable and accrued liabilities consisted of the following (rounded in millions):*

| | December 31, 2022 | December 31, 2021 |
|---|---|---|
| Trade payables | $ 0.2 | $ 0.1 |
| Accrued directors' fee and consulting expenses | 0.2 | 0.1 |
| Total | $ 0.4 | $ 0.2 |



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| | December 31, 2023 | December 31, 2022 |
|---|---|---|
| Trade payables | $ 0.1 | $ 0.2 |
| Accrued director fees, legal and consulting expenses | 0.4 | 0.2 |
| Total | $ 0.5 | $ 0.4 |

***Note 5. Commitments and Contingencies***



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***Commitments***

***The Company had total contractual commitments of approximately $3.6 million for research and development work as of December 31, 2023 for the following three R&D projects.***



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***Project Task Statements - INL***

***The Company had approximately $2.9 million in outstanding project task statement (PTS) commitments to BEA relating to the R&D work being conducted under the Strategic Partnership Project Agreement (SPP) and Cooperative Research and Development Agreement (CRADA) at INL. Performance of work under these agreements may be terminated at any time by either party, without any liability, after the effective date of termination, upon giving a thirty-day written notice under the SPP and a sixty-day written notice under the CRADA, to the other party. In the event of termination, the Company shall be responsible for BEA's costs (including the closeout costs), through the effective date of termination, but in no event shall the Company's cost responsibility exceed the total estimated cost stated in each PTS and any subsequent modification to the PTS.***

***Engineering Study of Lightbridge Fuel™ for use in CANDU reactors***

***On October 16, 2023, the Company engaged RATEN ICN in Romania to perform an engineering study to assess the compatibility and suitability of Lightbridge Fuel™ for use in CANDU reactors. As of December 31, 2023, the Company has approximately $0.2 million in remaining outstanding project commitments to RATEN ICN.***

***FEED Study with Centrus Energy for a Lightbridge Pilot Fuel Fabrication Facility***

***On December 5, 2023, the Company entered into an agreement with Centrus Energy to conduct a FEED study to add a dedicated LPFFF at the American Centrifuge Plant in Piketon, Ohio. The work is expected to be completed in 2024. The Company had approximately $0.5 million in remaining outstanding project commitments to Centrus Energy for the FEED study at December 31, 2023.***

***Operating Leases***

*The Company leased office space for a 12-month term from January 1, 2023 January 1, 2024 through December 31, 2023 December 31, 2024 with a monthly payment of approximately $8,000. The future minimum lease payments required under the Company's non-cancellable operating leases for 2023 2024 total approximately $0.1 million. Total rent expense for the year ended December 31, 2022 December 31, 2023 and 2021 2022 was approximately $0.1 million.*

***Project Task Statements (Purchase Orders)***

*For the year ended December 31, 2022, the Company had approximately $3.4 million in outstanding project task statement obligations to BEA relating to the research and development being conducted under the Strategic Partnership Project Agreement and Cooperative Research and Development Agreement at INL (see Note 6. Research and Development Costs).*

***Note 6. Research and Development Costs Expenses***

*INL Project*



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*In 2022, Lightbridge entered into agreements with INL, in collaboration with the DOE, BEA, to support the development of Lightbridge Fuel™. These framework agreements use an innovative structure and consist that consists of an "umbrella" Strategic Partnership Project Agreement and an "umbrella" Cooperative Research and Development Agreement, (CRADA), each with BEA, the DOE's operating contractor for INL, with an initial duration of seven years. Throughout the duration of these umbrella agreements, all R&D work contracted with BEA is through the issuance of project task statements.*

*It is anticipated that the PTSs. The initial phase of work under the two agreements will culminate in irradiation testing in the Advanced Test Reactor (ATR) of fuel samples using enriched uranium supplied by the DOE. The initial phase of work aims to generate irradiation performance data for Lightbridge's delta-phase uranium-zirconium alloy relating to various thermophysical properties. The data, which will be obtained during post-irradiation examination work, will support fuel performance modeling and regulatory licensing efforts for the commercial deployment of Lightbridge Fuel. Fuel™. For the year ended December 31, 2023, the Company recorded $0.8 million in research and development expenses associated with INL.*

*It*Romania Feasibility Study*

*On October 16, 2023, the Company engaged RATEN ICN in Romania to perform an engineering study to assess the compatibility and suitability of Lightbridge Fuel™ for use in CANDU reactors. The total price of approximately $0.2 million is anticipated that subsequent phases payable in three installments, including an advance payment of $0.1 million and an interim milestone payment and final payment totaling approximately $0.1 million. For the year ended December 31, 2023, the Company recorded $27,000 in research and development expenses associated with RATEN ICN.*

*Centrus Feed Study*

*On December 5, 2023, the Company entered into an agreement with Centrus Energy to conduct a FEED study to add a dedicated Lightbridge pilot fuel fabrication facility (LPFFF) at the American Centrifuge Plant in Piketon, Ohio. The work under began in 2023 and is expected to be completed in 2024 at a cost of approximately $0.5 million. For the two umbrella agreements will include post-irradiation examination of year ended December 31, 2023, the irradiated fuel samples, loop radiation testing Company recorded $23,400 in the ATR, research and post-irradiation examination of one or more uranium-zirconium fuel rodlets, as well as transient experiments in the Transient Reactor Test Facility at INL. development expenses associated with this FEED study.*



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*DOE GAIN Voucher*

*On March 25, 2021, the Company was awarded a second voucher from the DOE's GAIN program to support development of Lightbridge Fuel™ in collaboration with the Pacific Northwest National Laboratory (PNNL). The scope of this project was to demonstrate Lightbridge's nuclear fuel casting process using depleted uranium, a key step in the manufacture of Lightbridge Fuel™. On July 14, 2021, the Company executed a CRADA with the Battelle Memorial Institute (Battelle), Pacific Northwest Division, the operating contractor of the PNNL, in collaboration with the DOE. The total project value was $0.7 million, with three-quarters of this amount expected to be paid by the DOE for the scope of work performed by PNNL and the remaining amount provided by Lightbridge, by providing in-kind services to the project. PNNL has completed a contract extension with the Company for one month to complete the final report related to this The PNNL GAIN voucher in December 2022. The PNNL Gain voucher project was completed on January 31, 2023. For the years ended December 31, 2022 December 31, 2023 and*



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*2021, 2022, the Company recorded $0.4 million $31,000 and $0.1 million $0.4 million of contributed services - research and development, respectively. The Company recorded the corresponding amount as research and development expenses for the work that was completed by Battelle.*



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*On December 19, 2019, the Company was awarded its first voucher from the DOE's GAIN program to support development of Lightbridge Fuel™ in collaboration with INL. The scope of the project included experiment design for irradiation of Lightbridge metallic fuel material samples in the ATR at INL. On April 22, 2020, the Company entered into a CRADA with BAE, the operating contractor of INL, in collaboration with the DOE. Signing the CRADA was the last step in the contracting process to formalize a voucher award from the GAIN program. The voucher award could only be used to conduct the experiment defined in the CRADA. All work was completed on this GAIN voucher in the third quarter of 2021. This experiment design formed the basis of the Company's current and future efforts with the INL. The Company had no cash payment obligations related to the GAIN voucher, but did provide in-kind services consisting of project management, quality assurance, and technical oversight under the CRADA. The DOE incurred payment obligations to BAE, related to the work done under the GAIN voucher. For the year ended December 31, 2021, the Company recorded approximately $0.4 million of contributed services - research and development respectively, for work that was completed that caused the DOE to incur payment obligations to its contractor related to the GAIN voucher. The Company had no payment obligations related to the GAIN voucher. This amount was recorded as contributed services - research and development in the Other Operating Income section of the consolidated statement of operations and the corresponding amount as R&D expenses for the work that was recorded as research and development expenses. completed by the DOE contractor.*

*The R&D services provided under the GAIN vouchers were utilized by the Company in its ongoing development of its next generation nuclear fuel technology. The Company believes that the amounts paid by the DOE to BEA and Battelle its contractor for the service services provided does do not differ materially from what the Company would have paid had it directly contracted for these services for its R&D activity.*

*Total R&D expenses, including internal costs and other outside R&D costs, for the years ended December 31, 2023 and 2022 were $1.9 million and $0.7 million, respectively.*

***Note 7. Income Taxes***

***Revision of Previously Issued Financial Statements***

*The Company's ability to utilize its net operating loss (NOL) carryforwards may be substantially limited due to ownership changes that have occurred or that could occur in the future, as required by Section 382 of the Internal Revenue Code of 1986, as amended (the Code), as well as similar state provisions. These ownership changes may limit the amount of NOL carryforwards that can be utilized annually to offset future taxable income and tax, respectively. In general, an "ownership change," as defined by Section 382 of the Code, results from a transaction or series of transactions over a three-year period resulting in an ownership change of more than 50 percent of the outstanding stock of a company by certain stockholders or public groups.*



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*During the course of preparing the Company's consolidated financial statements, as of and for the year ended December 31, 2022, the Company completed a preliminary assessment of the available NOL carryforwards under Section 382 of the Code. The Company determined that it likely had undergone multiple ownership changes from 2009 to 2022 as defined under Section 382. As a result of these identified ownership changes, the portion of NOL carryforwards attributable to the pre-ownership change periods are subject to a substantial annual limitation under Section 382 of the Code. A conclusive Section 382 study had not been performed for December 31, 2023 due to the Company's current projections of the lack of taxable income for the foreseeable future. The Company has adjusted its previously reported NOL carryforwards to address the impact of these 382 ownership changes. This resulted in a reduction of available total federal and state NOL carryforwards of $109 million, as originally reported at December 31, 2021, to $47 million (post-2017 NOLs) at December 31, 2022. The write-down of $62 million (pre-2018 NOLs) reduced the net operating losses line as of December 31, 2021 within gross deferred tax assets, as previously disclosed, by $15.9 million, with a corresponding decrease in the valuation allowance. NOLs created in years beginning after 2017 now only offset 80% of taxable income but no longer have a 20-year expiration.*

*Since the limitation affected the prior period, the Company has determined that its December 31, 2021 tax footnote presentation overstated the gross deferred tax asset The 2023 and corresponding valuation allowance by $15.9 million. However, there was no net impact to the net deferred tax asset and tax expense as the decrease in the net operating loss was offset completely by a corresponding adjustment to the Company's overall valuation allowance. For comparative purposes, the Company's prior year tax footnote has been revised to reflect the adjustment to the net operating losses and valuation allowance. The revision had no effect on the previously reported balance sheets, statements of operations, cash flows and stockholders' equity.*

*The Company's revised deferred tax asset disclosures are below:*

*Deferred tax assets consisted of the following (rounded in millions):*

| | December 31, 2021 As Previously Reported | 2021 Adjustment | December 31, 2021 As Revised |
|---|---|---|---|
| Stock-based compensation | $ 3.1 | $ — | $ 3.1 |
| Patent impairment provision | 0.3 | — | 0.3 |
| Net operating loss carry-forwards | 27.6 | (15.9) | 11.7 |
| Research and development tax credits | 0.3 | — | 0.3 |
| Less: valuation allowance | (31.3) | 15.9 | (15.4) |
| Total | $ — | $ — | $ — |

*The 2022 and 2021 annual effective tax rate is estimated to be 25% for the combined U.S. federal and state statutory tax rates. The Company reviews tax uncertainties in light of changing facts and circumstances and adjusts them accordingly. As of December 31, 2022 December 31, 2023 and 2021, 2022, there were no tax contingencies or unrecognized tax positions recorded.*



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*On August 16, 2022, President Biden signed the Inflation Reduction Act (the "IRA"). The IRA contains a number of tax related provisions including a 15% minimum corporate income tax on certain large corporations as well as an excise tax on stock repurchases. Both provisions are effective for tax years beginning after December 31, 2022. The Company is in the process of evaluating the IRA but does not expect it to have a material impact on the Company's consolidated financial statements.*

*Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities recognized for financial reporting, and the amounts recognized for income tax purposes. The significant components of deferred tax assets (at an approximate 25% total effective tax rate) rate, consisting of a 21% effective tax rate for Federal and a 4% effective tax rate for the state) as of December 31, 2022 December 31, 2023 and 2021, 2022, respectively, are as follows.*

*The reconciliation of federal statutory income tax rate to the effective income tax rate was as follows:*

| | December 31, 2023 | December 31, 2022 |
|---|---|---|
| Book income at federal statutory rate, 21% | 21.00 % | 21.00 % |
| State taxes, net of federal benefit | 4.25 % | 4.82 % |
| Change in valuation allowance | (25.40 )% | (31.97 )% |
| Permanent difference | (0.15 )% | (0.16 )% |
| True-Ups, Stock-based compensation and Other | 0.30 % | 6.31 % |
| | — % | — % |



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*Deferred tax assets consisted of the following (rounded in millions):*

| | December 31, 2022 | December 31, 2021 As Revised | December 31, 2023 | December 31, 2022 |
|---|---|---|---|---|
| *Stock-based compensation* | $ 3.5 | $ 3.1 | $ 3.7 | $ 3.5 |
| *Patent impairment provision* | 0.4 | 0.3 | 0.3 | 0.4 |
| *Net operating loss carry-forwards* | 13.6 | 11.7 | 15.0 | 13.6 |
| *Research and development expenses – capitalized for tax purposes* | 0.1 | — | 0.5 | 0.1 |
| *Research and development tax credits* | 0.3 | 0.3 | 0.3 | 0.3 |
| *Total deferred tax asset* | | | 19.8 | 17.9 |
| *Less: valuation allowance* | (17.9) | (15.4) | (19.8) | (17.9) |
| *Total* | $ — | $ — | | |
| *Net deferred tax asset* | | | $ — | $ — |



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*The Company has NOL carryforwards for federal and state tax purposes of approximately $54 million $60 million at December 31, 2023 and $54.4 million at December 31, 2022, that is potentially available to offset future taxable income.*

*There were no deferred tax liabilities at December 31, 2023 and 2022. As of December 31, 2023 and 2022, the Company had federal research and development credit carry-forwards of approximately $0.3 million. The federal research and development credit carry-forwards have a 20-year carry-forward period and expire from 2036 to 2040. The Company's NOL carryforwards included the NOL from 2018 (post-2017) to current reporting year and all have an unlimited carryforward period. For financial reporting purposes, no deferred tax asset was recognized because as of December 31, 2022 December 31, 2023 and 2021, 2022, management currently estimates that it is more likely than not that substantially all of the deferred tax assets, the majority of which are NOLs, will be unused. The increase in the total valuation allowance for the years ended December 31, 2023 and 2022 was approximately $1.9 million and $2.5 million, respectively. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the years in which those temporary differences are deductible. Any unused annual limitation may be carried over to later years, and the amount of the limitation may under certain circumstances be increased by the built-in gains in assets held by us at the time of the change that are recognized in the five-year period after the change.*

*The reconciliation between income taxes (benefit) at the U.S. and State statutory combined tax rates of approximately 25% and the amount recorded in the accompanying consolidated financial statements is as follows (rounded in millions):*

| | December 31, 2022 | December 31, 2021 | December 31, 2023 | December 31, 2022 |
|---|---|---|---|---|
| Tax benefit at U.S. federal statutory rates | $ (1.6) | $ (1.7) | $ (1.7) | $ (1.6) |
| Tax benefit at state statutory rates | (0.4) | (0.2) | (0.3) | (0.4) |
| Tax benefit from federal and state R&D tax credits | — | — | | |
| Other | (0.4) | — | — | (0.4) |
| Increase in valuation allowance | 2.4 | 1.9 | 2.0 | 2.4 |
| Total provision for income tax benefit | $ — | $ — | $ — | $ — |

***Uncertain Tax Positions***

*We file income tax returns in the U.S. federal jurisdiction and Virginia. The tax years 2018 through 2022 remain subject to examination by the appropriate governmental agencies. At December 31, 2023 and 2022, the Company had no unrecognized tax benefits. As of December 31, 2022 and 2023, we did not accrue interest and penalties.*

***Recent Change in U.S. Tax Law***

*Prior to 2022, Internal Revenue Code Section 174 allowed taxpayers to deduct R&D expenditures in the year in which they were incurred. The 2017 Tax Act amended Section 174, effective for amounts paid or incurred in tax years beginning after December 31, 2021, to require taxpayers to charge their R&D expenditures to a capital account. Capitalized research and development costs R&D expenses are required to be amortized over five years (15 years for expenditures attributable to foreign research).*



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*Due to the Company's future significant R&D expenses, the impact of this tax law change will mean that a significant portion of our the total operating expenses will be taken as a deduction over a 5-year period rather than being currently deductible. The Company does not expect to pay cash taxes as a result of this tax law change as our the remaining operating expenses, after excluding research and development expenses are significant and the Company expects to continue to generate losses for tax purposes.*

***Note 8. Stockholders' Equity and Stock-Based Compensation***

*On October 27, 2022, at the Company's annual shareholder meeting, the shareholders' approved an amendment to the Articles of Incorporation of the Company to increase the number of authorized shares of common stock from 13,500,000 shares to 25,000,000 shares and an amendment to the Lightbridge Corporation 2020 Omnibus Incentive Plan to increase the number of shares of common stock available for issuance under this Incentive Plan from 650,000 shares to 1,100,000 shares.*



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***Note 8. Stockholders' Equity and Stock-Based Compensation***

*At December 31, 2023, the Company had 13,698,274 common shares outstanding (including outstanding RSAs totaling 557,688 shares). Also outstanding were stock options relating to 510,787 shares of common stock, all totaling 14,209,061 shares of common stock and all common stock equivalents, potentially outstanding at December 31, 2023.*

*At December 31, 2022, the Company had 11,900,217 common shares outstanding (including outstanding restricted stock awards RSAs totaling 416,316 shares). Also outstanding were stock options relating to 525,903 shares of common stock, all totaling 12,426,120 shares of common stock and all common stock equivalents, outstanding at December 31, 2022.*

*At December 31, 2021, the Company had 9,759,223 common shares outstanding (including outstanding restricted stock awards totaling 188,588 shares). Also outstanding were warrants relating to 45,577 shares of common stock, stock options relating to 538,713 shares of common stock and performance-based RSA awards of 188,588 shares, all totaling 10,532,101 shares of common stock and all common stock equivalents, outstanding at December 31, 2021.*

***Common Stock Equity Offerings***

***ATM At-the-Market (ATM) Offerings***

*On May 28, 2019, the Company entered into an at-the-market (ATM) equity offering sales agreement with Stifel, Nicolaus & Company, Incorporated (Stifel), which was amended on April 9, 2021, pursuant to which the Company may issue and sell shares of its common stock from time to time through Stifel as the Company's sales agent. Under this agreement, the Company pays Stifel a commission equal to 4.0% of the aggregate gross proceeds of any sales of common stock under the agreement. The offering of common stock pursuant to this agreement can be terminated with 10 days written notice by either party. Sales of the Company's common stock through Stifel, if any, will be made by any method that is deemed to be an "at-the-market" equity offering as defined in Rule 415 promulgated under the Securities Act of 1933. On March 25, 2021, the Company filed a new shelf registration statement on Form S-3, registering the sale of up to $75 million $75.0 million of the Company's securities,*



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*which registration statement was declared effective on April 5, 2021 and expires on April 5, 2024. The On April 4, 2023, the Company filed a prospectus supplement dated April 9, 2021, with the Securities and Exchange Commission pursuant to which amount of the Company offered and sold shares securities available for issuance totaling $17.9 million with $11.9 million available for future share issuances as of common stock having an aggregate offering price of up to $9.0 million through its ATM. The Company, after this offering was completed, filed a second prospectus supplement, dated November 19, 2021, with the Securities and Exchange Commission pursuant to which the Company may offer and sell shares of common stock having an aggregate offering price of up to up to $20.0 million from time to time under this prospectus supplement, through its ATM. The Company filed another prospectus supplement, dated November 9, 2022, with the SEC pursuant to which it may offer and sell shares of common stock having an aggregate offering price of up to $20.0 million from time to time, through the ATM. December 31, 2023.*

*The Company records its ATM sales on a settlement date basis. The Company sold approximately 1.9 million 1,492,148 shares under the ATM for the year ended December 31, 2023 resulting in net proceeds of $6.4 million (stock issuance costs were $0.4 million). The Company sold 1,855,085 shares under the ATM for the year ended December 31, 2022 resulting in net proceeds of approximately $11.0 million. The Company sold approximately 2.0 million shares under the ATM for the year ended December 31, 2021 resulting in net proceeds of approximately $14.8 million. (stock issuance costs were $0.5 million).*

***Preferred Stock Equity Offerings***

***Exchange of Outstanding Series A and Series B Convertible Preferred Stock for Common Shares***

*On October 29, 2021, the Company entered into an agreement with the holder of all of the outstanding Series A Preferred Stock, to exchange all of the outstanding Series A Preferred Stock and the payment-in-kind (PIK) dividends for 262,910 shares of the Company's common stock ($10 per share induced conversion price), without any cash payments by either party.*

*On December 3, 2021, the Company entered into a series of agreements with all of the holders of the Company's Series B convertible preferred stock to exchange all outstanding Series B Preferred Stock for shares of the Company's common stock at an exchange rate equal to the sum of the liquidation preference of the Series B Preferred Stock and the accrued and unpaid dividends thereon, divided by $10.00 per share. Upon the closing of the exchange, the Company issued an aggregate of 522,244 shares of common stock to the holders in exchange for all 2,666,667 issued and outstanding Series B Preferred Stock. The exchange for both Series A and Series B preferred stock was effected without registration under the Securities Act of 1933, as amended, pursuant to the exemption from registration set forth in Section 3(a)(9) of the Securities Act.*

*In accordance with ASC 470-20, the Company accounted for both exchanges as an induced conversion based on the short period of time the exchange offer was open and that all equity securities pursuant to the original terms were exchanged. Pursuant to this accounting guidance, the Company evaluated the fair value of the incremental 183,098 common shares issued to the Series A Preferred stockholders. Based on the $9.57 closing stock price on October 29, 2021, the Company recorded to additional paid-in capital a deemed dividend of $1.8 million at the date of the exchange. Also, the Company evaluated the fair value of the incremental 232,111 common shares issued to the Series B Preferred stockholders. Based on the $7.57 closing stock price on December 3, 2021, the Company recorded to additional paid-in capital a deemed dividend of $1.8 million at the date of the exchange.*



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***Warrants***

*The Company did not have any outstanding warrants as of December 31, 2022 and had 45,577 outstanding warrants as of December 31, 2021. The 45,577 warrants that were issued to investors on November 17, 2014, entitling the holders to purchase 45,577 common shares in the Company at an exercise price of $138.60 per common share, expired on May 16, 2022.*

***Stock-based Compensation Option Plan***

***2020 Equity Incentive Plan***

*On March 9, 2020, the Board of Directors adopted the Company's 2020 Omnibus Incentive Plan (the "2020 Plan") 2020 Plan). On September 3, 2020, the shareholders approved the 2020 Plan to authorize grants of the following types of awards awards: (a) Options, (b) Stock Appreciation Rights, (c) Restricted Stock and Restricted Stock Units, and (d) Other Stock-Based and Cash-Based Awards. The total number of shares of common stock available for issuance under the 2020 Plan is 1,800,000 shares with 803,467 shares available for future issuance at December 31, 2023.*



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***Stock Options***

*Stock options issued to the Company's employees, directors and consultants are summarized as follows for the year ended December 31, 2023:*

| | Number of Options | Weighted Average Exercise Price | Weighted-Average Remaining Contractual Term (Years) | Aggregate Intrinsic Value |
|---|---|---|---|---|
| Outstanding, December 31, 2022 | 525,903 | $ 18.74 | 4.52 | $ 4,982 |
| Granted | 35,482 | 4.58 | | |
| Exercised | — | — | | |
| Forfeited | — | — | | |
| Expired | (50,598) | 17.47 | | |
| Outstanding, December 31, 2023 | 510,787 | $ 17.88 | 3.84 | $ — |
| Vested and expected to vest, December 31, 2023 | 510,787 | $ 17.88 | 3.84 | $ — |
| Options exercisable, December 31, 2023 | 498,177 | $ 18.21 | 3.71 | $ — |

*During the year ended December 31, 2023, the Company issued 35,482 stock options to two consultants. These options were assigned a fair value of $1.77 per share. For the year ended December 31, 2022, the Company issued 18,852 stock options to*



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*two consultants. These options were assigned a weighted average fair value of $3.98 per share (total fair value of $75,000). During the year ended December 31, 2021, the Company issued 58,164 stock options to consultants. The 2021 options issued to the consultants of the Company were assigned a weighted average fair value of $2.58 per share (total fair value of $150,000). share. The value was determined using the Black-Scholes pricing model. The following assumptions were used For expected volatility, we have concluded that our historical volatility over the option's expected holding term provides the most reasonable basis for this estimate. For the risk-free interest rate, we use U.S. Treasury Note rates which mature at approximately the same time as the option's expected holding term or option life determined by using the simplified method. We recognize forfeitures of equity-based awards as a reduction to compensation costs in the Black-Scholes pricing model:*

| | ***2022*** | ***2021*** |
|---|---|---|
| *Expected volatility* | *97.58% to 115.37%* | *95.15% to 131.85%* |
| *Risk free interest rate* | *1.02% to 3.28%* | *0.06% to 0.93%* |
| *Dividend yield rate* | *0* | *0* |
| *Weighted average years* | *2-6 years* | *1-6 years* |
| *Closing price per share - common stock* | *$5.93 to $6.27* | *$4.55 to $6.51* |

*Stock options issued to period in which they occur. The estimated future forfeiture rates, based on the Company's employees, directors and consultants are summarized as follows for the year ended December 31, 2022: historical forfeiture rates, which were not significant, were zero.*

| | **Options Outstanding** | **Weighted Average Exercise Price** | **Weighted Average Grant Date Fair Value** |
|---|---|---|---|
| Beginning of the year - January 1, 2022 | 538,713 | $ 18.51 | $ 12.92 |
| Granted | 18,852 | 6.17 | 3.98 |
| Exercised | — | — | — |
| Forfeited | — | — | — |
| Expired | (31,662) | 7.29 | 2.37 |
| End of the period - December 31, 2022 | 525,903 | $ 18.74 | $ 13.23 |
| Options exercisable | 514,513 | $ 19.03 | $ 13.43 |



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*Stock option transactions to the employees, directors and consultants are summarized as follows for the year ended December 31, 2021:*

| | **Options Outstanding** | **Weighted Average Exercise Price** | **Weighted Average Grant Date Fair Value** |
|---|---|---|---|



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| | | | |
|---|---|---|---|
| Beginning of the year - January 1, 2021 | 515,847 | $ 20.23 | $ 14.51 |
| Granted | 58,164 | 6.72 | 2.58 |
| Exercised | (30,282) | 8.94 | 6.77 |
| Forfeited | (3,997) | 62.52 | 43.63 |
| Expired | (1,019) | 329.81 | 291.73 |
| End of the year - December 31, 2021 | 538,713 | $ 18.51 | $ 12.92 |
| Options exercisable | 526,947 | $ 18.79 | $ 13.11 |

*During the year ended December 31, 2021, the Company received approximately $0.3 million of net proceeds from the exercise of 30,282 stock options.*

*A summary of the status of the Company's non-vested options as of December 31, 2022 and December 31, 2021, and changes during the year ended December 31, 2021 and the year ended December 31, 2022, is presented below:*

| | Shares | Weighted Average Exercise Price | Weighted Average Fair Value Grant Date |
|---|---|---|---|
| Non-vested - December 31, 2020 | 49,726 | $ 9.71 | $ 7.44 |
| Granted | 58,164 | 6.72 | 2.58 |
| Vested | (96,124) | 8.40 | 4.89 |
| Forfeited | — | — | — |
| Non-vested - December 31, 2021 | 11,766 | $ 5.71 | $ 4.25 |
| Granted | 18,852 | 6.17 | 3.98 |
| Vested | (19,228) | 6.17 | 3.90 |
| Forfeited | — | — | — |
| Non-vested - December 31, 2022 | 11,390 | $ 5.69 | $ 4.39 |

*The above tables include intrinsic value is calculated as the difference between the fair value of the Company's common stock options issued and outstanding as the exercise price of December 31, 2022 as follows:*

*i. A total the stock options. The fair value of 325,571 incentive the Company's common stock options is $3.21 and non-qualified 10-year options have been issued, and are outstanding, to the directors, officers, and employees at exercise prices of $3.82 to $75.60 per share. From this total, 127,299 options are held by the Chief Executive Officer, who is also a director, with remaining contractual lives of 2.27 years to 6.92 years. All other options issued to directors, officers, and employees have a remaining contractual life ranging from 2.27 years to 6.92 years.*

*ii. A total of 200,332 non-qualified 2 to 10-year options have been issued, and are outstanding, to consultants at exercise prices of $3.82 to $75.60 $3.89 per share at December 31, 2023 and have a remaining contractual life ranging from 0.36 years to 9.67 years.*



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2022, respectively. As of December 31, 2022 December 31, 2023, there was approximately $42,000 of total unrecognized compensation cost related to non-vested stock options granted under the plans. That cost option awards was $41,600, which is expected to be recognized over a remaining weighted-average vesting period of approximately 2.06 2.0 years.

**Common Stock**

Consultants' Stock Issuances

For the years ended December 31, 2023 and 2022, the Company issued 13,325 shares (with stock options outstanding prices ranging from $4.00 to $5.82 per share) and 10,565 shares of common stock (with stock prices ranging from $4.56 to $8.35 per share), respectively, to its investor relations firm for services provided during the years, recorded to general and administrative expenses. The total stock-based compensation expense recorded for these share issuances was $60,000 for each year with a weighted average grant date fair value of $4.50 per share.

Directors' Stock Issuances

On November 20, 2023, the Board of Directors approved an equity grant valued at December 31, 2022 $240,000 (included in accrued liabilities and 2021, general and administrative expenses) in total to its six directors, which resulted in granting a total of 60,456 shares of common stock, valued on the intrinsic value was approximately $5,000 grant date at $3.97 per share, which vested on January 2, 2024.

On December 15, 2022, the Board of Directors approved an equity grant valued at $200,000 in total to its five independent directors, recorded in general and $238,000, respectively. For those administrative expenses, which resulted in granting a total of 52,085 shares of common stock to the five independent directors, valued on the grant date at $3.84 per share, which vested stock options at December 31, 2022 and 2021, the intrinsic value was approximately $5,000 and $225,000, respectively. on January 3, 2023.



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The following table provides certain information with respect to the above-referenced stock options that were outstanding and exercisable at December 31, 2022:

| | Stock Options Outstanding | | | Stock Options Vested | | |
|---|---|---|---|---|---|---|
| Exercise Prices | Weighted Average Remaining Contractual Life -Years | Number of Awards | Weighted Average Exercise Price | Weighted Average Remaining Contractual Life -Years | Number of Awards | Weighted Average Exercise Price |
| $ 3.82-$9.00 | 5.44 | 128,407 | $ 4.81 | 5.10 | 117,017 | $ 4.72 |
| $ 9.01-$12.48 | 5.60 | 116,544 | $ 10.80 | 5.60 | 116,544 | $ 10.80 |
| $ 12.49-$24.00 | 4.12 | 195,090 | $ 14.23 | 4.12 | 195,090 | $ 14.23 |
| $ 24.01-$72.00 | 2.72 | 62,771 | $ 55.07 | 2.72 | 62,771 | $ 55.07 |



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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| $ | 72.01-$75.60 | 2.15 | 23,091 | $ | 75.59 | 2.15 | 23,091 | $ 75.59 |
| | Total | 4.52 | 525,903 | $ | 18.74 | 4.42 | 514,513 | $ 19.03 |

***Common Share Issuances***

***2022***

*For the year ended December 31, 2022, the Company issued 10,565 common shares, respectively, to its investor relations firm for services provided during the year ended December 31, 2022.*

*On December 15, 2022, the Board of Directors approved an equity grant of $200,000 in total to its five directors, which equaled to a total of 52,085 shares of common stock issued to the five directors, valued on the grant date at $3.84 per share and issued on January 3, 2023. As of December 31, 2022, the Company accrued these directors' fees of $200,000 under accrued directors' fees.*

***2021***

*For the year ended December 31, 2021, the Company issued 10,462 common shares to its investor relations firm for services provided during the year ended December 31, 2021.*

*On November 18, 2021, the Board of Directors approved an equity grant of $210,000 in total to its six directors, which equaled to a total of 19,644 shares of common stock issued to the six directors, valued on the grant date at $10.69 per share. There were 13,096 common shares issued to four directors that vested immediately upon issuance and the remaining 6,548 shares of common shares were issued to the two remaining directors that vested on January 1, 2022.*

***Restricted Stock Units Issued and Net Share Settlements for Payments of Withholding Taxes Awards***

*On October 28, 2020, the Compensation Committee of the Board granted from the 2020 Plan time-based restricted stock units ('RSUs") to certain of the Company's executive officers, employees, and consultants. Each RSU represents a contingent right to receive, upon vesting, one share of the Company's common stock. The number of RSUs granted to executive officers, employees and consultants totaled 243,800 shares. These RSUs awards vest in three equal installments on each of the first three annual anniversaries of the grant date, on October 28, 2021, October 28, 2022 and October 28, 2023.*

*On October 28, 2021, the first tranche of 78,617 of total outstanding RSUs vested. Regarding these 78,617 RSUs that vested, the Company withheld 35,304 common shares of the employees at the stock price on the vesting date of $9.93 per share, in order to make payments of withholding taxes of $0.3 million on these vested shares. The Company issued a total of 43,313 shares of common stock, net of the share settlement for the taxes paid upon the vesting of these RSUs, to its employees and one consultant.*

*On November 4, 2021, the Compensation Committee of the Board of Directors approved the accelerated vesting of the remaining 157,233 RSUs outstanding, and all these remaining 157,233 RSUs vested on December 15, 2021. Regarding these 157,233 RSUs vested on December 15, 2021, the Company withheld 70,265 common shares to be issued to the employees, at the stock price on the vesting date 6.74 per share in order to make the payments for withholding taxes of $0.5 million on these vested shares. The Company issued a total of 86,968 shares of common stock, net of share settlement for the taxes paid upon vesting of RSUs, to its employees and one consultant. Total payments for withholding taxes on the net share settlements of vested RSU equity awards for the year ended December 31, 2021 was $0.8 million.*



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***Restricted Stock Units Outstanding***



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*The following summarizes the Company's RSUs activity: restricted stock award activity and the RSA outstanding:*

| | Number of Shares | Weighted Average Grant Date Fair Value |
|---|---|---|
| Total RSUs outstanding at January 1, 2021 | 243,800 | $ 2.69 |
| Total RSUs granted | — | $ — |
| Total RSUs vested (including accelerated vesting) | (235,850) | $ 2.69 |
| Total RSUs forfeited | (7,950) | $ 2.69 |
| Total unvested RSUs outstanding at December 31, 2021 | — | $ — |

| | Number of Shares | Weighted-Average Grant Date Fair Value | Aggregate Intrinsic Value |
|---|---|---|---|
| Outstanding, December 31, 2022 | 416,316 | $ 6.52 | $ 1,619,469 |
| Awards granted | 301,099 | $ 3.91 | |
| Awards vested | (159,727) | $ 7.06 | |
| Awards forfeited | — | $ — | |
| Outstanding, December 31, 2023 | 557,688 | $ 4.95 | $ 1,790,178 |

***Restricted Stock AwardsIssued The intrinsic value is calculated as the fair value of the Company's common stock. The fair value of the Company's common stock is $3.21 and Net Share Settlements for Payments $3.89 per share at December 31, 2023 and 2022, respectively. The fair value of Withholding Taxes****the RSAs vested in 2023 was $0.6 million. As of December 31, 2023, all the outstanding restricted stock units are unvested. As of December 31, 2023, total unrecognized compensation cost related to restricted stock units was $2.6 million, which is expected to be recognized over a remaining weighted-average vesting period of 2.1 years.*

*2023 Transactions*

*On November 18, 2021 May 3, 2023, the Board of Directors approved an a RSA equity grant valued at $120,000 to one new officer of the Company, which resulted in the issuance of a total of 35,088 shares of common stock to the new officer, valued on the grant date at $3.42 per share and issued on May 3, 2023. These RSAs vest annually in equal installments over three years. These 35,088 shares were included in the total outstanding common shares at December 31, 2023 and compensation expense will be recognized straight line over the three-year vesting period.*



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*On November 20, 2023, the Board of Directors approved a RSA equity grant of approximately $2 million $1.1 million, which equaled equated to a total of 188,588 266,011 RSAs granted to all of its employees and two consultants, valued at the stock price on the grant date of $10.69 $3.97 per share. These RSAs awards contained a performance-based accelerated vesting provision and a service-based vesting provision, with the service-based vesting provision being one-third vesting on each of the first three anniversaries of the date of grant. The Company did not meet the performance-based vesting provision. Therefore, these RSAs awards vest annually in three equal installments on each of the first three annual anniversaries of the grant date on November 18, 2022, November 18, 2023 and November 18, 2024. There was an additional performance-based RSA grant on November 18, 2021 of approximately $2 million, which equaled to a total 188,588 shares, with vesting only upon the Company completing a business acquisition in 2022, with the target's historical financials meeting certain financial performance metrics. The Company did not meet this milestone and these 188,588 RSAs expired at December 31, 2022 and were returned back to the stock plan. anniversary.*

*On November 18, 2022 November 18, 2023, the first tranche, or 62,862. 62,864 of the total outstanding RSAs vested. Regarding these 62,862 188,588 RSAs that vested, the were granted on November 18, 2021 vested. These RSAs vest annually with a three-year straight line vesting period. The Company withheld 21,794 21,854 common shares of the employees at the stock price on the vesting date of $4.80 per share, in order to make payments of for withholding taxes of $0.1 million on these vested shares. The Company issued a total of 41,068 41,010 shares of common stock, net of the this share settlement for the taxes due and paid upon the vesting of these RSAs to its employees employees. The common shares withheld became available for reissuance under the 2020 Plan.*

*On December 15, 2023, 96,863 of the total 290,590 RSAs that were granted on December 15, 2022 vested. These RSAs vest annually with a three-year straight line vesting period. The Company withheld 38,746 common shares to make payments for withholding taxes of $0.1 million on these vested shares. The Company issued a total of 58,117 shares of common stock, net of this share settlement for the taxes due and consultants. paid upon the vesting of these RSAs, to its employees. The common shares withheld became available for reissuance under the 2020 Plan.*

*2022 RSA Transactions*

*On December 15, 2022, the Board of Directors approved an equity grant of approximately $1.4 million, which equaled to a total of 290,590 RSAs to all of its employees and two consultants, valued at the stock price on the grant date of $4.71 per share. These RSAs awards vest annually in three equal installments on each of the first three annual anniversaries of the grant date on December 15, 2023, December 15, 2024 anniversary.*

*RSA Summary – 2023 and December 15, 2025. 2022*

*As of December 31, 2022 December 31, 2023 and 2021, 2022, there were 416,316 RSAs 557,688 and 188,588 416,316 RSAs included in the total issued and outstanding common shares, respectively and compensation stock, respectively. Compensation expense is recognized in a straight line over the three-year vesting period. A total of $0.7 million $1.2 million and $0.1 million $0.7 million of compensation expense were was recorded for the year ended December 31, 2022 December 31, 2023 and 2021, respectively. 2022, respectively, for the RSAs.*



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***Stock-Based Compensation Expense***

***Stock Options***

*The following summarizes assumptions were used in the Black-Scholes pricing model to determine the fair value of stock options granted:*

| | 2023 | 2022 |
|---|---|---|
| Expected volatility | 68.13% to 95.7% | 97.58% to 115.37% |
| Risk free interest rate | 4.21% to 5.12% | 1.02% to 3.28% |
| Dividend yield rate | — | — |
| Expected term | 1 – 6 years | 2 – 6 years |
| Closing price per share – common stock | $4.31 to $4.35 | $5.93 to $6.27 |

*Total non-cash stock-based compensation expense recorded related to options granted and restricted stock awards included in the Company's RSAs activity: consolidated statements of operations for the years ended December 31, 2023 and 2022 are as follows (rounded in millions):*

| | Number of Shares | Weighted Average Grant Date Fair Value |
|---|---|---|
| Total RSAs outstanding at January 1, 2022 | 377,176 | $ 10.69 |
| Total RSAs granted | 290,590 | $ 4.71 |
| Total RSAs vested | (62,862) | $ 10.69 |
| Total performance-based RSAs expired | (188,588) | $ 10.69 |
| Total unvested RSAs outstanding at December 31, 2022 | 416,316 | $ 6.52 |

| | Year Ended December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Research and development expenses | $ 0.2 | $ — |
| General and administrative expenses | 1.1 | 0.8 |
| Total stock-based compensation expense | $ 1.3 | $ 0.8 |

***Note 9. Defined Contribution 401K Retirement Plan***

*The Company has an established 401k retirement plan for its employees. The Company matches employee contributions to the plan 100%, with immediate vesting. The Company contributed approximately $0.2 million and $0.1 million to the 401k plan for the years ended December 31, 2023 and 2022, respectively.*



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***Note 10. Related Party Transactions***

*On February 9, 2022, the Company entered into an agreement with We Don't Have Time Inc. (WDHT), an organization with a social media network platform dealing with the climate crisis, pursuant to which WDHT provides a variety of climate-change related consulting services to the Company and the Company pays a monthly membership fee of $1,200 to WDHT. Dr. Chakraborty, a member of the Company's Board of Directors, is also the CEO of WDHT's US division. For the years ended December 31, 2023 and 2022, the Company incurred $14,400, respectively, in dues paid to WDHT. This agreement was terminated on January 1, 2024.*

***Note 11. Subsequent Events***

***ATM Sales***

*Sales of common stock under the Company's ATM from January 1, 2024 to March 4, 2024 amounted to approximately 179,000 shares, which resulted in total net proceeds of approximately $0.6 million.*



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*Scheduled vesting for outstanding RSAs with service conditions at December 31, 2022 is as follows:*

| | Year Ending December 31, | | | |
|---|---|---|---|---|
| | **2023** | **2024** | **2025** | **Total** |
| Scheduled vesting | 159,727 | 159,726 | 96,863 | 416,316 |

*As of December 31, 2022, there was approximately $2.6 million of total unrecognized compensation cost related to these unvested RSAs compensation arrangements. The compensation expense will be recognized on a straight-line basis over the three-year vesting period and the total unrecognized compensation is expected to be recognized over a weighted-average period of 2.43 years.*

*The components of total stock-based compensation expense included in the Company's consolidated statements of operations for the years ended December 31, 2022 and 2021 are as follows (rounded in millions):*

| | Years Ended December 31, | |
|---|---|---|
| | **2022** | **2021** |
| Research and development expenses | $ — | $ — |
| General and administrative expenses | 0.8 | 0.8 |
| Total stock-based compensation expense | $ 0.8 | $ 0.8 |

***Note 9. Related Party Transactions***

*On February 9, 2022, the Company entered into an agreement with We Don't Have Time Inc. ("WDHT"), an organization with a social media network platform dealing with the climate crisis, pursuant to which WDHT will provide a variety of climate-change related consulting services to the Company and the Company agreed to pay a monthly membership fee of $1,200 to WDHT through and including December 2022. Dr. Chakraborty, a member of the Company's Board of Directors, is also the CEO of*



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*WDHT US division. For the year ended December 31, 2022, the Company incurred $14,400, respectively, in dues paid to WDHT.*

*In addition, for the year ended December 31, 2022, the Company incurred $105,000 in fees to WDHT to attend conferences in which the Company participated with WDHT to promote the Company's nuclear fuel.*

***Note 10. Subsequent Events***

***ATM Sales***

*Sales under the ATM that were made from January 1, 2023 to the date of the filing of these financial statements were approximately 0.2 million common shares that totaled net proceeds of approximately $0.7 million.*



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***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.*

***LIGHTBRIDGE CORPORATION***

*Date: March 30, 2023 March 4, 2024*

*By: /s/ Seth Grae*

*Seth Grae*

*Chief Executive Officer,*

*President and Director*



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***POWER OF ATTORNEY***

*KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Seth Grae and Larry Goldman, jointly and severally, his or her attorney-in-fact, with the power of substitution, for him or her in any and all capacities, to sign any amendments to this Annual Report on Form 10-K and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that each of said attorneys-in-fact, or his or her substitute or substitutes, may do or cause to be done by virtue hereof.*

*In accordance with 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 on the dates indicated.*

| ***Signature*** | ***Title*** | ***Date*** |
|---|---|---|



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| | | |
|---|---|---|
| /s/ Seth Grae<br>Seth Grae | Chief Executive Officer, President, and Director<br>(Principal Executive Officer) | March 30, 2023 4, 2024 |
| /s/ Larry Goldman<br>Larry Goldman | Chief Financial Officer, and Treasurer<br>(Principal Financial and Accounting Officer) | March 30, 2023 4, 2024 |
| /s/ Thomas Graham, Jr.<br>Thomas Graham, Jr. | Director | March 30, 2023 4, 2024 |
| /s/ Sweta Chakraborty<br>Sweta Chakraborty | Director | March 30, 2023 4, 2024 |
| /s/ Jesse Funches<br>Jesse Funches | Director | March 30, 2023 4, 2024 |
| /s/ Sherri Goodman<br>Sherri Goodman | Director | March 4, 2024 |
| /s/ Daniel Magraw<br>Daniel B. Magraw | Director | March 30, 2023 4, 2024 |
| /s/ Mark Tobin<br>Mark Tobin | Director | March 30, 2023 4, 2024 |



***EXHIBIT 3.1 23.1***

***ARTICLES OF INCORPORATION***

***OF***



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***LIGHTBRIDGE CORPORATION***

*As amended through October 27, 2022*

*1. **Name of Corporation.** The name of this corporation is Lightbridge Corporation.*

*2. **Resident Agent.** The resident agent of this corporation in Nevada is CSC Services Of Nevada, Inc. whose address is 2215-B Renaissance Drive, Las Vegas, Clark County, Nevada 89119.*

*3. **Purposes; Powers.** The purposes for which the corporation is formed and its powers are:*

*3.1 To conduct such business as is lawful.*

*3.2 To purchase, acquire, hold, mortgage, sell, let, lease or otherwise dispose of or deal in real or personal property of every kind, character and description, and to erect, manage, care for, maintain, extend or alter buildings or structures of any kind or character on real property.*

*3.3 To purchase or otherwise acquire, hold and/or reissue the shares of its capital stock.*

*3.4 To raise, borrow and secure the payment of money in any lawful manner, including the issue and sale or other disposition of bonds, warrants, debentures, obligations, negotiable and transferable instruments and evidences of indebtedness of all kinds, whether secured by mortgage, pledge, deed of trust, or otherwise, and incur debt in the purchase or acquisition of property, businesses, rights or franchises, or for additional working capital or for any other object connected with its business or affairs, without limit as to amount.*

*3.5 To enter into, make, perform and carry out contracts of every sort and kind with any person, firm, association, corporation, private, public or municipal or body politic.*

*3.6 To guarantee any dividends or bonds or contracts or other obligations.*

*3.7 To have one or more offices or agencies and keep such books of the company outside of Nevada as are not required by law to be kept in Nevada.*

*4. **Authorized Capital.** The aggregate number of shares that the corporation will have authority to issue is thirty-five million (35,000,000), of which twenty-five million (25,000,000) shares will be common stock, with a par value of $0.001 per share, and ten million (10,000,000) shares will be preferred stock, with a par value of $0.001 per share. This preferred stock may be divided into and issued in series, each of which shall be so designated as to distinguish the shares thereof from the shares of all other series and classes. The board of directors of the corporation is authorized, within any limitations prescribed by law, to fix and determine the designations, qualifications, preferences, limitations and terms of the shares of any series of preferred stock.*

*5. **Stock Nonassessable.** The capital stock of this corporation shall not be subject to assessment to pay the debts of the corporation, and in this particular the Articles of Incorporation shall not be subject to amendment.*

*6. **Board of Directors.** The members of the governing board shall be styled "Directors" and their number shall not be less than one (1) nor more than fifteen (15).*

*7. **Liability of Directors and Officers.** No director or officer shall have personal liability to the corporation or its shareholders for damages for breach of fiduciary duty as a director or officer, but nothing herein shall eliminate or limit the liability of a director or officer for: 7.1 Acts or omissions not in good faith; 7.2 Acts or omissions which involve intentional misconduct, fraud or violation of law; 7.3 Acts or omissions in breach of the director's or officer's duty of loyalty to the corporation or its shareholders; 7.4 Acts or omissions from which the director or officer derived an improper personal benefit; or 7.5 Payment of dividends in violation of law.*

*8. **Indemnification.** The corporation shall indemnify, to the full extent and in the manner permitted under the laws of Nevada and any other applicable laws, any person made or threatened to be made a party to an action or proceeding, whether*



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*criminal, civil, administrative or investigative, by reason of the fact that he is or was a director or officer of this corporation or served any other enterprise as a director or officer at the request of this corporation; such right of indemnification shall also be applicable to the executors, administrators and other similar legal representative of any such director or officer. The provisions of this Section shall be deemed to be a contract between the corporation and each director and officer who serves in such capacity at any time while this Section is in effect, and any repeal or modification of this Section shall not affect any rights or obligations then existing with respect to any state of facts then existing or any action, suit or proceeding brought based in whole or in part upon any such state of facts. The foregoing rights of indemnification shall not be deemed exclusive of any other rights to which any director or officer or his legal representative may be entitled apart from the provisions of this Section.*

*9. **Perpetual Existence.** This corporation shall have perpetual existence.*

*10. **By-Laws.** The Board of Directors is expressly authorized and empowered to adopt, amend or repeal the By-Laws of this corporation.*

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**EXHIBIT 23.1**

**Consent of Independent Registered Public Accounting Firm**

*Lightbridge Corporation*
*Reston, Virginia*

*We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 333-254702) and Form S-8 (No. (No.333-274743, No. 333-254717, No. 333-229138, No. 333-218796, and No. 333-135842) of Lightbridge Corporation of our report dated March 30, 2023 March 4, 2024, relating to the consolidated financial statements, which appears in this Annual Report on Form 10-K.*

*/s/ BDO USA, LLP P.C.*

*Philadelphia, Pennsylvania*
*March 30, 2023 4, 2024*
*font>*

**EXHIBIT 31.1**

**Certification of Principal Executive Officer**

*I, Seth Grae, certify that:*

1. *I have reviewed this Annual Report on Form 10-K of Lightbridge Corporation;*

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



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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 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:*

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

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

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

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

5. *The registrant's other certifying officer(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*

*By:* */s/ Seth Grae*

*Name:* *Seth Grae*

*Title:* *Chief Executive Officer, President and Director*



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*(Principal Executive Officer)*

*TTOM:*

***EXHIBIT 31.2***

***Certification of Principal Financial Officer***

*I, Larry Goldman, certify that:*

1. *I have reviewed this Annual Report on Form 10-K of Lightbridge Corporation;*

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

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

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

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

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

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

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

5. *The registrant's other certifying officer(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):*



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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 March 4, 2024*

*By: /s/ Seth Grae*

*Name: Seth Grae*

*Title: Chief Executive Officer, President, and Director*

*(Principal Executive Officer)*

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***EXHIBIT 31.2***

***Certification of Principal Financial Officer***

*I, Larry Goldman, certify that:*

1. *I have reviewed this Annual Report on Form 10-K of Lightbridge Corporation;*

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

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

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

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

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



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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 4, 2024*

*By: /s/ Larry Goldman*

*Name: Larry Goldman*

*Title: Chief Financial Officer and Treasurer*

*(Principal Financial and Accounting Officer)*

*N*

***EXHIBIT 32***

***Section 1350 Certifications***

***STATEMENT FURNISHED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002***

*The undersigned, the Chief Executive Officer and Chief Financial Officer of Lightbridge Corporation, each hereby certifies, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to his knowledge on the date hereof:*

1. *the Annual Report on Form 10-K of Lightbridge Corporation for the year ended December 31, 2022 December 31, 2023, filed on the date hereof with the Securities and Exchange Commission (the Report), fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and*

2. *the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of Lightbridge Corporation.*

*Date: March 30, 2023 March 4, 2024*

*By: /s/ Seth Grae*



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Name: Seth Grae

Title: Chief Executive Officer, President, and Director

(Principal Executive Officer)

By: /s/ Larry Goldman

Name: Larry Goldman

Title: Chief Financial Officer, and Treasurer

(Principal Financial and Accounting Officer)

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**EXHIBIT 97.1**

**Lightbridge Corporation**

**Incentive Compensation Recovery Policy**

The Board of 6 Directors of Lightbridge Corporation (the "Company") is adopting this Incentive Compensation Recovery Policy (this "Policy") to provide for the recovery of certain incentive compensation in the event of an Accounting Restatement.

Statement of Policy

In the event that the Company is required to prepare an Accounting Restatement, except as otherwise set forth in this Policy, the Company shall recover, reasonably promptly, the Excess Incentive Compensation received by any Covered Executive during the Recoupment Period.

This Policy applies to all Incentive Compensation received during the Recoupment Period by a person (a) after beginning service as a Covered Executive, (b) who served as a Covered Executive at any time during the performance period for that Incentive Compensation and (c) while the Company has a class of securities listed on the Nasdaq Stock Market LLC ("Nasdaq") or another national securities exchange or association. This Policy may therefore apply to a Covered Executive even after that person that is no longer a Company employee or a Covered Executive at the time of recovery.

Incentive Compensation is deemed "received" for purposes of this Policy in the fiscal period during which the financial reporting measure specified in the Incentive Compensation award is attained, even if the payment or issuance of such Incentive Compensation occurs after the end of that period. For example, if the performance target for an award is based on total stockholder return for the year ended December 31, 2023, the award will be deemed to have been received in 2023 even if paid in 2024.

Exceptions

The Company is not required to recover Excess Incentive Compensation pursuant to this Policy to the extent the Compensation Committee (the "Committee") makes a determination that recovery would be impracticable for one of the following reasons (and the applicable procedural requirements are met):

(a) after making a reasonable and documented attempt to recover the Excess Incentive Compensation, which documentation will be provided to Nasdaq to the extent required, the Committee determines that the direct expenses that would be paid to a third party to assist in enforcing this Policy would exceed the amount to be recovered;

(b) based on a legal opinion of counsel acceptable to Nasdaq, the Committee determines that recovery would violate a home country law adopted prior to November 28, 2022; or



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*(c) the Committee determines that recovery would likely cause an otherwise tax-qualified retirement plan, under which benefits are broadly available to employees of the Company, to fail to meet the requirements of 26 U.S.C. 401(a)(13) or 26 U.S.C. 411(a) and regulations thereunder.*



*Definitions*

"*Accounting Restatement*" *means an accounting restatement due to the material noncompliance of the Company with any financial reporting requirement under the securities laws, including any required accounting restatement to correct an error in previously issued financial statements that is material to the previously issued financial statements, or that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period. For the avoidance of doubt, restatements that do not represent the correction of an error are not Accounting Restatements, including, without limitation, restatements resulting solely from: retrospective application of a change in generally accepted accounting principles; retrospective revisions to reportable segment information due to a change in the structure of the Company's internal organization; retrospective reclassifications due to discontinued operations; retrospective applications of changed in reporting entity, such as from a reorganization of entities under common control; retrospective adjustments to provisional amounts in connection with prior business combinations; and retrospective revisions for stock splits, reverse stock splits, stock dividends or other changes in capital structure.*

"*Covered Executive*" *shall mean the Company's Chief Executive Officer, President, Chief Financial Officer, principal accounting officer (or if there is no such accounting officer, the controller), any vice-president of the Company in charge of a principal business unit, division, or function, any other officer who performs a policy-making function for the Company, and any other person who performs similar policy-making functions for the Company.*

"*Excess Incentive Compensation*" *means the amount of Incentive Compensation received during the Recoupment Period by any Covered Executive that exceeds the amount of Incentive Compensation that otherwise would have been received by such Covered Executive if the determination of the Incentive Compensation to be received had been determined based on restated amounts in the Accounting Restatement and without regard to any taxes paid.*

"*Incentive Compensation*" *means any compensation (including cash and equity compensation) that is granted, earned, or vested based wholly or in part upon the attainment of a financial reporting measure. For purposes of this definition, a "financial reporting measure" is (i) any measure that is determined and presented in accordance with the accounting principles used in preparing the Company's financial statements and any measure derived wholly or in part from such measures, or (ii) the Company's stock price and/or total shareholder return. A financial reporting measure need not be presented within the financial statements or included in a filing with the Securities and Exchange Commission. Incentive Compensation subject to this Policy may be provided by the Company or subsidiaries or affiliates of the Company.*

"*Recoupment Period*" *means the three completed fiscal years preceding the Trigger Date, and any transition period (that results from a change in the Company's fiscal year) of less than nine months within or immediately following those three completed fiscal years, provided that any transition period of nine months or more shall count as a full fiscal year.*

"*Trigger Date*" *means the earlier to occur of: (a) the date the Board of Directors, the Audit Committee (or such other committee of the Board as may be authorized to make such a conclusion), or the officer or officers of the Company authorized to take such action if action by the Board of Directors is not required concludes, or reasonably should have concluded, that the*



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*Company is required to prepare an Accounting Restatement; or (b) the date a court, regulator, or other legally authorized body directs the Company to prepare an Accounting Restatement; in the case of both (a) and (b) regardless of if or when restated financial statements are filed.*

*Administration*

*This Policy is intended to comply with Nasdaq Listing Rule 5608, Section 10D of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and Rule 10D-1(b)(1) as promulgated under the Exchange Act, and shall be interpreted in a manner consistent with those requirements. The Committee has full authority to interpret and administer this Policy. The Committee's determinations under this Policy shall be final and binding on all persons, need not be uniform with respect to each individual covered by the Policy, and shall be given the maximum deference permitted by law.*



*The Committee has the authority to determine the appropriate means of recovering Excess Incentive Compensation based on the particular facts and circumstances, which could include, but is not limited to, seeking direct reimbursement, forfeiture of awards, offsets against other payments, and forfeiture of deferred compensation (subject to compliance with Section 409A of the Internal Revenue Code).*

*Subject to any limitations under applicable law, the Committee may authorize any officer or employee of the Company to take actions necessary or appropriate to carry out the purpose and intent of this Policy, provided that no such authorization shall relate to any recovery under this Policy that involves such officer or employee.*

*If the Committee cannot determine the amount of excess Incentive Compensation received by a Covered Executive directly from the information in the Accounting Restatement, such as in the case of Incentive Compensation tied to stock price or total stockholder return, then it shall make its determination based on its reasonable estimate of the effect of the Accounting Restatement and shall maintain documentation of such determination, including for purposes of providing such documentation to Nasdaq.*

*Except where an action is required by Nasdaq Listing Rule 5608, Section 10D of the Exchange Act or Rule 10D-1(b)(1) promulgated under the Exchange Act to be determined in a different matter, the Board may act to have the independent directors of the Board administer this policy in place of the Committee.*

*No Indemnification or Advancement of Legal Fees*

*Notwithstanding the terms of any indemnification agreement, insurance policy, contractual arrangement, the governing documents of the Company or other document or arrangement, the Company shall not indemnify any Covered Executive against, or pay the premiums for any insurance policy to cover, any amounts recovered under this Policy or any expenses that a Covered Executive incurs in opposing Company efforts to recoup amounts pursuant to the Policy.*

*Non-Exclusive Remedy; Successors*

*Recovery of Incentive Compensation pursuant to this Policy shall not in any way limit or affect the rights of the Company to pursue disciplinary, legal, or other action or pursue any other remedies available to it. This Policy shall be in addition to, and is not intended to limit, any rights of the Company to recover Incentive Compensation from Covered Executives under any legal remedy available to the Company and applicable laws and regulations, including but not limited to the Sarbanes-Oxley Act of 2002, as amended, or pursuant to the terms of any other Company policy, employment agreement, equity award agreement, or similar agreement with a Covered Executive.*



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*This Policy shall be binding and enforceable against all Covered Executives and their successors, beneficiaries, heirs, executors, administrators, or other legal representatives.*

*Amendment*

*This Policy may be amended from time to time by the Committee or the Board of Directors.*

*Effective Date*

*This Policy shall apply to any Incentive Compensation received on or after October 2, 2023.*

***Adopted by the Board of Directors of Lightbridge Corporation on October 26, 2023***



***Form of Acknowledgment***

*By my signature below, I hereby acknowledge that I have read and understand the Lightbridge Corporation Incentive Compensation Recovery Policy (the "Policy") adopted by Lightbridge Corporation (the "Company"), and that I consent and agree to abide by its provisions and further agree that (defined terms used but not defined in this Acknowledgment shall have the meanings set forth in the Policy):*

*1. The Policy shall apply to any Incentive Compensation as set forth in the Policy and all such Incentive Compensation shall be subject to recovery under the Policy;*

*2. Any applicable award agreement or other document setting forth the terms and conditions of any Incentive Compensation granted to me by the Company or its affiliates shall be deemed to include the restrictions imposed by the Policy and shall be deemed to incorporate the Policy by reference, and in the event of any inconsistency between the provisions of the Policy and the applicable award agreement or other document setting forth the terms and conditions of any Incentive Compensation granted to me, the terms of the Policy shall govern unless the terms of such other agreement or other document would result in a greater recovery by the Company;*

*3. In the event it is determined by the Company that any amounts granted, awarded, earned or paid to me must be forfeited or reimbursed to the Company, I will promptly take any action necessary to effectuate such forfeiture and/or reimbursement;*

*4. I acknowledge that, notwithstanding any indemnification agreement or other arrangement between the Company and me, the Company shall not indemnify me against, or pay the premiums for any insurance policy to cover, losses incurred under the Policy, unless securities laws and Nasdaq rules change to allow indemnification;*

*5. The Policy may be amended from time to time in accordance with its terms; and*

*6. This Acknowledgment and the Policy shall survive and continue in full force and in accordance with its terms, notwithstanding any termination of my employment with the Company and its affiliates.*

*Signature: _____*

*Print Name: _____*

*Date: _____*



*;QMq**f*



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