

**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, 2019**

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

(State or other jurisdiction of incorporation or
organization)

91-1975651

(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

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 and post such files). Yes ☒ No ☐

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

Large Accelerated Filer	<input type="checkbox"/>	Accelerated Filer	<input type="checkbox"/>
Non-Accelerated Filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

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 is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

At June 30, 2019, 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, 2019) was \$24,657,692.

At March 2, 2020 there were 3,304,526 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 2020 Annual Meeting of Stockholders are incorporated by reference into Part III of this Form 10-K.

LIGHTBRIDGE CORPORATION
FORM 10-K
FOR THE FISCAL YEAR ENDED DECEMBER 31, 2019

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FORWARD-LOOKING STATEMENTS

In addition to historical information, this report 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”, 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 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;
- uncertainties related to conducting business in foreign countries;
- 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;
- the dissolution of our joint venture with Framatome Inc. (“Enfission, LLC”), including associated costs and the timing of the dissolution, our ability to conduct research and development activities in the future within the scope of operations of the joint venture and our retention of certain intellectual property used in the joint venture;
- our ability to attract new customers;
- 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;
- public perception of nuclear energy generally;
- changes in laws, rules, and regulations governing our business;
- development and utilization of, and challenges to, our intellectual property;
- potential and contingent liabilities; and
- the other risks 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 annual report, to conform these statements to actual results or to changes in our expectations, except as required by law.

PART I

ITEM 1. DESCRIPTION OF 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

We are an innovative nuclear fuel technology company. Our goal is to develop and commercialize the next generation of nuclear fuel that could significantly improve the economics, safety, and proliferation resistance of nuclear fuel in existing and new nuclear reactors, large and small, with a meaningful impact on addressing climate change and air pollution. 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.

We believe our metallic fuel offers significant economic and safety benefits over traditional fuel, primarily because of the superior heat transfer properties of all-metal fuel and the resulting lower operating temperature of the 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 with any other nuclear fuel.

We have built a significant portfolio of patents reflecting years of research and development, and we anticipate substantial completion of our research efforts in the coming years and the testing of our fuel through third party vendors and others, including United States 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, 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 currently operating as well as new-build reactors. Our focus on metallic fuel is based on listening to the voices 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 heat energy. That heat is then converted through steam into electricity that is sold. 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 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 of nuclear fuel. Conventional oxide fuel used in existing commercial reactors is nearing the limit of its burnup and power density capability. As a result, further optimization to increase power output from the same core size and improve the economics and safety of nuclear power generation using conventional oxide fuel technologies is limited. A new fuel is needed to bring enhanced performance to reactors; we are developing that new fuel.

As the nuclear industry prepares to meet the increasing global demand for electricity production, longer operating cycles and higher reactor power outputs have become a much sought-after solution for the current and future reactor fleet. We believe our proprietary nuclear fuel designs have the potential to improve the nuclear power industry's economics by:

- 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 pressurized water reactors (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%, or increasing the power potentially up to 17% while retaining an 18-month operating cycle; and
- enabling increased reactor power output via a power uprate (potentially up to a 30% increase) or a longer operating cycle (instead of a power uprate) without changing the core size in new build PWRs.

We believe our fuel designs will allow current and new build nuclear reactors to safely increase power production and reduce operations and maintenance costs on a per kilowatt-hour basis. New build nuclear reactors could also benefit from the reduced upfront capital investment per kilowatt of generating capacity in the case of implementing a power uprate. In addition to projected electricity production cost savings, we believe our technology can result in utilities or countries needing 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, our technology 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 have become increasingly variable with large additions of intermittent renewable generation.

Nuclear Industry and Addressable Market

Overview of the Nuclear Power Industry

Presently, nuclear power provides approximately 4.5% of the world's total energy from all sources, including approximately 10% of the world's electricity. According to the World Nuclear Association, as of March 2020 there were 441 operable nuclear power reactors worldwide, mostly light water reactors, with the most common types being PWRs, including Russian-designed water-water 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.

Due to substantial project risks and the significant upfront capital commitment associated with building new reactors, many nuclear utilities in deregulated markets choose to optimize their existing generating capacity through increasing their capacity utilization factor, power uprates and plant life extensions. We expect this trend to continue, particularly in the mature nuclear markets with significant existing nuclear capacity. We expect most of the new build activity to occur in emerging nuclear markets.

Of the world's existing reactors currently in operation, PWRs (including Russian-designed VVERs) account for more than 60% of the net operating capacity, with BWRs being the second most prevalent and accounting for approximately 15%. Of the nuclear reactors currently under construction, approximately 80% are PWRs (including VVERs) with a rated electric power output of 1,000 megawatts ("MWe") or greater.

Utilities have embraced power uprates as a cost-effective way to increase their generation capacity. While the efforts thus far have occurred mostly in the United States, we believe there is a large, untapped worldwide market for power uprates. The incentive to proceed with longer operating cycles and/or power uprates of up to 10% is significant since there are few changes required to implement the power uprate, and the changes that are required are relatively inexpensive. The limiting factor at the moment is the fuel.

In some instances, utilities will modify and/or replace components in order to accommodate a higher power level. Technical analyses must demonstrate that the proposed plant configuration remains safe and that measures to protect the health and safety of the public continue to be effective. These analyses, which span many technical disciplines, are reviewed and approved by the regulator before a power uprate can be performed.

The utility will conduct an economic analysis to evaluate the potential financial benefits of the proposed uprate. Typically, power uprates enable utilities to increase their generating capacity at a cost significantly less than the cost of building a new plant. In many cases, power uprates can be completed in months as opposed to the several years required for new build, thus the invested dollars begin producing revenue shortly after they are spent. Power uprates, therefore, represent an efficient use of capital.

Most nuclear power plants originally had a licensed lifetime of 25 to 40 years, but engineering assessments have established that many can operate much longer. In the US, approximately 80 reactors have been granted license extensions to continue operating for a total of 59-60 years. Most of the plants that have not already requested a license extension are expected to apply in the near future. A license extension at about the 30-year mark requires additional capital expenditure for the replacement of worn equipment and outdated control systems. Multiple utilities in the United States have stated plans to apply to the NRC for additional 20 years of licensed lifetime, up to a total of 80 years per reactor.

The technical and economic feasibility of replacing major reactor components, such as steam generators in PWRs, has been demonstrated. The increased revenue generated from extending the lifetime of existing plants is attractive to utilities, especially in view of the difficulties in obtaining public acceptance of constructing replacement nuclear capacity.

Almost all of the new build reactor designs are either Generation III or Generation III+ type reactors. The primary difference from second-generation designs is that many incorporate passive or inherent safety features, which require no active controls or operational intervention to avoid accidents in the event of malfunction. Many of these passive systems rely on gravity, natural convection, or resistance to high temperatures.

Target Market for Lightbridge Fuel™

Our target market segments include water-cooled commercial power reactors, such as pressurized water reactors, boiling water reactors, Russian-type VVER reactors, CANDU heavy water reactors, water-cooled small modular reactors, as well as water-cooled research reactors.

Nuclear Power as Clean and Low Carbon Emissions Energy Source

Nuclear power provides clean, reliable baseload electricity. According to the World Nuclear Association (WNA), nuclear power plants produce no greenhouse gas emissions during operation, and over the course of its lifecycle, nuclear produces about the same amount of CO₂ equivalent emissions per unit of electricity as wind. 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, US Energy Information Administration, and World Energy Council.

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 and the current electricity needs of the world with non-emitting or low-emitting power. 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 an essential element of reaching this goal.

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

The nuclear accident at the Fukushima nuclear power plant in Japan following the strong earthquake and massive tsunami that occurred on March 11, 2011 increased public opposition to nuclear power, resulting in a slowdown in, or, in some cases, a complete halt to, new construction of nuclear power plants and an 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 World Nuclear Association. 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.

Anticipated Safety Benefits of Lightbridge Fuel™

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

- Operates at lower operating temperatures than current conventional nuclear fuel, contributing to lower stored energy in the fuel rods;
- Under design basis accidents when there is a loss of coolant in the reactor, does not generate hydrogen gas, which can explode;
- Buys more time to restore active cooling in the reactor during off-normal events;
- Enhances structural integrity of the nuclear fuel; and
- Has lighter and stiffer fuel assembly, which may contribute to improved seismic performance.

Due to the significantly lower fuel operating temperature and higher thermal conductivity, our metallic nuclear fuel rods are also expected to provide major improvements to safety margins during off-normal events. US Nuclear Regulatory Commission licensing processes require engineering analysis of a large break loss-of-coolant accident (LOCA), as well as many 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, unlike conventional uranium dioxide fuel, the cladding of the Lightbridge-designed metallic fuel rods would stay at least 200 degrees below 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 the hydrogen exploding, which is what happened at the Fukushima Daiichi nuclear power plant in Japan in 2011. Lightbridge Fuel™ is designed to prevent hydrogen gas generation in design-basis LOCA situations, which is a major safety benefit.

Lightbridge Spent Fuel – Proliferation Resistance

The April 2018 issue of Nuclear Engineering and Design, a technical journal affiliated with the European Nuclear Society, included an 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.

The Company plans to conduct the initial testing and demonstration of its advanced metallic nuclear fuel in the United States.

Nuclear Utility Fuel Advisory Board (“NUFAB”)

Our NUFAB, formed in 2011, comprises senior fuel managers from electric utilities that account for approximately 50% of installed US nuclear capacity. NUFAB members represent the “voice of the customer” in Lightbridge’s nuclear fuel development and commercialization activities. These members include the following:

- Exelon Generation;
- Dominion Generation;
- Duke Energy; and
- Southern Company.

Development of Lightbridge Fuel™

Recent Developments

- Awarded a voucher from the U.S. Department of Energy’s (DOE) Gateway for Accelerated Innovation in Nuclear (GAIN) program to support development of Lightbridge Fuel™ in collaboration with Idaho National Laboratory (INL). The scope of the project includes experiment design for irradiation of Lightbridge metallic fuel material samples in the Advanced Test Reactor (ATR) at INL. The project is anticipated to commence in the first half of 2020. The total project value is approximately \$846,000, with three-quarters of this amount funded by DOE for the scope performed by INL.
- Demonstrated co-extrusion manufacturing process using surrogate materials to full commercial length for large light water reactors (12-ft long), as well as for small modular reactors (6-ft long). The surrogate materials were designed to simulate the flow stresses, temperatures and extrusion pressures expected in the manufacture of the Lightbridge Fuel™ rods utilizing a uranium-zirconium alloy.
- Expanded our patent portfolio by successfully obtaining 20 new patents in 2019 and as of the filing date an additional 12 patents in the United States and other key foreign countries. The new patents will help safeguard the Company’s intellectual property, which is an integral element of the Company’s plans to monetize Lightbridge Fuel™.

Future Steps Toward the Development and Sale of Nuclear Fuel Assemblies

We anticipate near-term fuel development milestones for Lightbridge Fuel™ over the next 12-24 months will consist of the following:

- Complete the scope of work relating to the recent GAIN Voucher award in collaboration with Idaho National Laboratory;
- Enter into an agreement to manufacture our nuclear fuel material samples for test reactor irradiation;
- Begin the initial demonstration of our manufacturing technology using depleted or natural uranium, and
- Evaluation of our fuel for use in the CANDU reactor market.

The long-term milestones towards development and sale of nuclear fuel assemblies include, among other things, irradiating material samples and/or prototype fuel rods 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, entering into a lead test rod/assembly agreement with a host reactor, 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 predict the timing of the commercialization of our nuclear fuel technology with any accuracy. Accordingly, based on our anticipated schedule, we expect to begin receiving purchase orders for initial reload batches from utilities in about 8 to 10 years, with final qualification (i.e., deployment of fuel in the first reload batch) in a commercial reactor taking place approximately two years thereafter. We will continue to seek development funding contributions or other financing arrangements with utilities and the DOE.

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, events related to the dissolution of our joint venture with Framatome, and the many risks inherent in developing a new type of nuclear fuel.

Future Potential Collaborations and Other Opportunities

In the ordinary course of business, we engage in periodic reviews of opportunities to acquire companies or units within companies to establish new streams of revenue. We will be opportunistic and may also partner or contract with entities that could be synergistic to our fuel business; including doing an acquisition as only one of the ways of lining up what we need to develop, license, and commercialize the fuel.

Competition

To our knowledge, our nuclear fuel technology is the only technology that could be commercially viable in the foreseeable future to increase, in a safe and economically attractive way, power output potentially by up to 17% in existing PWRs and up to 30% in new build PWRs. Due to long product development timelines, significant nuclear regulatory requirements, and our intellectual property, we believe that the barriers to entry are very high for a competitor to our nuclear fuel technology.

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 benefits. While we believe conventional uranium dioxide fuel may be capable of achieving power uprates 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 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 written off, which includes most US 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). After the accident at the Fukushima Daiichi nuclear power plant in March 2011, the US Congress directed the DOE to investigate every aspect of nuclear plant operation including the existing uranium dioxide fuel pellets enveloped by 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”, 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 in ATF demonstration programs in their operating reactors. However, we believe that the ATF concepts may only offer incremental safety and operating improvements over conventional uranium dioxide fuel that could not effectively compete with the safety and economic benefits of our metallic fuel. In addition, some of the ATF concepts may be used in combination with our metallic fuel for additional safety and operating improvements.

Nuclear power faces competition from other sources of electricity, including natural gas, which is currently the cheapest option for power generation in the US and has resulted in some utilities abandoning nuclear power. Other sources of electricity 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 in suitable power reactors. To the extent demand for electricity generated by nuclear power decreases, the potential market for our nuclear fuel technology will decline.

Raw Materials

We do not plan to utilize any raw materials directly in the conduct of our operations. The fuel fabricators which will ultimately fabricate fuel products incorporating our nuclear fuel technology will require 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% is currently limited to small quantities sufficient only for research and testing purposes. Deployment of our fuel will necessitate increasing enrichment level from 5% to 19.75% at enrichment facilities as well as deployment of de-conversion/metallization capability at a commercial scale. 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 and Relationships with Critical Development Partners/Vendors

The sales and marketing of our services and technology internationally may be subject to US export control regulations 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. If authorizations are required and not granted, our international business could be materially affected. Furthermore, the export authorization process is often 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.

In 2015-2016, we received our export controls authorization from the DOE for all of our planned work outside the United States, specifically in France, Germany, Norway, Sweden, and Canada.

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.

Certain Challenges

The ability to unwind our partnership with Framatome in an expeditious manner while minimizing the cost and risk to our intellectual property represents a significant challenge. On November 18, 2019, the Company delivered a notice of termination of the R&D Services Agreement (as amended by Amendment Number One, dated January 25, 2018, and Amendment Number Two, dated June 20, 2018, the "RDSA") to Framatome, thereby terminating the RDSA, due to the Company's assertion of Framatome's uncured material breach of certain material terms of the RDSA. These asserted material breaches relate to Framatome's invoicing obligations, as well as a failure of the escalation process under the RDSA to agree to a budget commitment for 2019-2020. Framatome has contested the Company's right to terminate the RDSA, raised questions as to the Company's rights relating to their co-owned intellectual property and the Company's right to conduct certain research and development activities, and reserved its right to seek compensation from the Company. On this basis and based on the Company's assertion that the conduct of Framatome prevented Enfission from functioning and progressing towards its goals, the Company filed a request for arbitration against Framatome on February 7, 2020. Lightbridge has reduced its research and development activities as it is no longer conducting research and development activities with Framatome and Enfission, and it is currently evaluating various research and development options.

The ability to fabricate the lead test assemblies (LTAs) and a nuclear utility that is willing to accept the LTAs, is required for LTA demonstration in a commercial reactor. In the US, the fabricator and the utility will be primarily responsible for securing necessary regulatory licensing approvals for the LTA operation. To this end, in 2011, we established our NUFAB, as more fully described above, to further strengthen dialogue with nuclear utilities.

Establishment of required supply chain infrastructure to support high assay low enriched uranium (HALEU) metallic 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 currently licensed to handle uranium in oxide form with enrichment up to 5%. 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 go through 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 and spent fuel storage facilities using 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 events. 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 currently planning loop irradiation testing of our metallic fuel samples in a research reactor as part of this effort.

Existing analytical models may be inadequate. 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.

Demonstration of a fabrication process both for semi-scale irradiation fuel samples and subsequently for full-length (12-14 feet) metallic fuel rods for PWR LTAs 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 3.5 to 4.5 meters) PWR metallic fuel rods has yet to be demonstrated. In 2019, we demonstrated co-extrusion of full-length rods using surrogate materials (i.e. without uranium in the rods).

Enfission, LLC

On January 24, 2018 we formed Enfission, a 50/50 joint venture with Framatome Inc., to develop, license, manufacture, and sell nuclear fuel assemblies based on Lightbridge-designed metallic fuel technology and other advanced nuclear fuel intellectual property. Framatome Inc. is a wholly-owned US subsidiary of Framatome SAS, which we refer to individually or collectively in this report, together with their affiliates, as Framatome. Lightbridge owns 50 percent of Enfission's Class A voting membership units and Framatome owns the other 50 percent. Any distributions will be first allocated to cause the capital accounts of the initial members to be equal, then allocated on a 50/50 basis. Enfission is managed by a board of directors composed of six directors, half of whom are appointed by Lightbridge and the other half are appointed by Framatome. The Enfission board acts by majority vote, provided that at least one director appointed by each of Lightbridge and Framatome votes in favor of the action.

Lightbridge was a party to the RDSA, by and among Framatome, Enfission, and the Company. The RDSA, among other things, defines the terms and conditions for joint research and development activities among Framatome, Enfission, and the Company. Section 13.3 of the RDSA provides that any party may terminate the RDSA, by written notice of termination to the other parties to the RDSA, if another party materially breaches a material term or condition of the RDSA and fails to cure such breach within thirty days, or any other mutually agreed upon cure period, of such party's receipt of written notice specifying the breach. Section 5.1(b) of the RDSA, among other things, sets forth a process for the establishment by the Company and Framatome of a yearly budget and provides that if no agreement on the budget is ultimately reached within the specified timelines, the resolution of the budget shall be escalated to the CEO of each party. Section 13.4 of the RDSA provides that any party may terminate the RDSA following a failure of the escalation process under Section 5.1(b) of the RDSA upon ten days' written notice to the other party.

On October 2, 2019, pursuant to the terms of Section 13.3 of the RDSA, the Company delivered written notice to Framatome, notifying Framatome that the Company asserted that Framatome had materially breached certain material terms of the RDSA, relating to its invoicing obligations under the RDSA, which breach was not cured within the thirty-day cure period. On October 7, 2019, the Company delivered written notice to Framatome formally initiating the escalation process under Section 5.1(b) of the RDSA. The Company and Framatome continued negotiations as the Company sought to resolve issues related to Framatome's compliance with the RDSA and agreement on budget commitments. On October 22, 2019, the Company and Framatome held a CEO-to-CEO meeting as part of the escalation process under Section 5.1(b) of the RDSA, subsequent to which the escalation process failed. As a result, the Board of Directors and the management of the Company determined that it was advisable and in the best interest of the Company and its shareholders to terminate the RDSA in accordance with the termination rights set forth therein. On November 18, 2019, the Company delivered a notice of termination of the RDSA to Framatome, thereby terminating the RDSA, effective immediately. The Company intends to fully avail itself of its rights under the RDSA with respect to the issues that were pending between the Company and Framatome prior to the termination, as well as any issues that arise as a result of the termination of the RDSA. Pursuant to the terms of the RDSA, the Company does not expect to incur any material early termination penalties in connection with the termination of the RDSA. Following the termination of the RDSA, the Company intends to continue to pursue the development of the Lightbridge-designed metallic fuel technology.

On November 23, 2019, in connection with the termination of the RDSA, the Board of Directors and the management of Lightbridge determined that it was advisable and in the best interest of the Company and its shareholders to take the necessary steps to dissolve Enfission. Various corporate and operational matters relating to Enfission are governed pursuant to that certain Operating Agreement by and between Framatome Inc. and the Company, dated January 25, 2018, (as amended by Amendment Number One, dated May 7, 2018, and Amendment Number Two, dated September 13, 2018, the "Joint Venture Operating Agreement"). The Company intends to take the necessary steps to dissolve Enfission pursuant to the terms of the Joint Venture Operating Agreement.

On February 7, 2020, the Company filed a request for arbitration (the "Arbitration Request") in the International Court of Arbitration of the International Chamber of Commerce against Framatome SAS. The Company has undertaken this action in order to obtain, among other things, a declaration that the RDSA was validly terminated and is no longer in force, and to obtain compensation for the damages incurred.

Our Intellectual Property

Our nuclear fuel technologies are protected by multiple US and international patents. Set forth below are the patents, which we consider material to our business based on our current plans. We have previously licensed relevant patents to Enfission for use within its scope of operations.

Country	Application Date	Registration Date	Title	Case Status
Fabrication Method Using the Casting Route				
Belgium	May 11, 2011	October 25, 2017	FUEL ASSEMBLY	Registered
Bulgaria	May 11, 2011	October 25, 2017	FUEL ASSEMBLY	Registered
China	May 11, 2011	March 27, 2018	FUEL ASSEMBLY	Registered
Czech Republic	May 11, 2011	October 25, 2017	FUEL ASSEMBLY	Registered
Europe	May 11, 2011	October 25, 2017	FUEL ASSEMBLY	Registered
Hungary	May 11, 2011	October 25, 2017	FUEL ASSEMBLY	Registered

Country	Application Date	Registration Date	Title	Case Status
Korea	May 11, 2011	November 12, 2019	FUEL ASSEMBLY	Registered
United Kingdom	May 11, 2011	October 25, 2017	FUEL ASSEMBLY	Registered
United States of America	February 20, 2018		FUEL ASSEMBLY	Pending
Korea	November 12, 2019		FUEL ASSEMBLY	Pending
Fabrication Method Using the Powder Metallurgy Route				
Australia	May 11, 2011	July 2, 2015	FUEL ASSEMBLY	Registered
Belgium	May 11, 2011	October 25, 2017	FUEL ASSEMBLY	Registered
Bulgaria	May 11, 2011	April 6, 2016	FUEL ASSEMBLY	Registered
Bulgaria	May 11, 2011	October 25, 2017	FUEL ASSEMBLY	Registered
Canada	May 11, 2011		FUEL ASSEMBLY	Pending
China	May 11, 2011	May 18, 2016	FUEL ASSEMBLY	Registered
China	May 11, 2011	March 27, 2018	FUEL ASSEMBLY	Registered
Czech Republic	May 11, 2011	April 6, 2016	FUEL ASSEMBLY	Registered
Czech Republic	May 11, 2011	October 25, 2017	FUEL ASSEMBLY	Registered
Europe	May 11, 2011	April 6, 2016	FUEL ASSEMBLY	Registered
Europe	May 11, 2011	October 25, 2017	FUEL ASSEMBLY	Registered
Finland	May 11, 2011	April 6, 2016	FUEL ASSEMBLY	Registered
France	May 11, 2011	April 6, 2016	FUEL ASSEMBLY	Registered
Germany	May 11, 2011	April 6, 2016	FUEL ASSEMBLY	Registered
Hungary	May 11, 2011	April 6, 2016	FUEL ASSEMBLY	Registered
Hungary	May 11, 2011	October 25, 2017	FUEL ASSEMBLY	Registered
India	May 11, 2011		FUEL ASSEMBLY	Pending
Japan	May 11, 2011	September 9, 2016	FUEL ASSEMBLY	Registered
Sweden	May 11, 2011	April 6, 2016	FUEL ASSEMBLY	Registered
Turkey	May 11, 2011	April 6, 2016	FUEL ASSEMBLY	Registered
United Kingdom	May 11, 2011	October 25, 2017	FUEL ASSEMBLY	Registered
United States of America	May 11, 2011	July 31, 2018	FUEL ASSEMBLY	Registered
United States of America	February 20, 2018		FUEL ASSEMBLY	Pending
All-Metal Fuel Assembly Design and A Mixed Grid Pattern of Metallic Fuel Rods				
United States of America	November 15, 2013	January 1, 2019	FUEL ASSEMBLY	Registered
Belgium	May 1, 2014	January 31, 2018	FUEL ASSEMBLY	Registered
Bulgaria	May 1, 2014	January 31, 2018	FUEL ASSEMBLY	Registered
Canada	May 1, 2014		FUEL ASSEMBLY	Pending
China	May 1, 2014	November 24, 2017	FUEL ASSEMBLY	Registered
Czech Republic	May 1, 2014	January 31, 2018	FUEL ASSEMBLY	Registered
Eurasian Patent Organization	May 1, 2014	October 31, 2019	FUEL ASSEMBLY	Registered

Country	Application Date	Registration Date	Title	Case Status
Europe	May 1, 2014	January 31, 2018	FUEL ASSEMBLY	Registered
Finland	May 1, 2014	January 31, 2018	FUEL ASSEMBLY	Registered
France	May 1, 2014	January 31, 2018	FUEL ASSEMBLY	Registered
Germany	May 1, 2014	January 31, 2018	FUEL ASSEMBLY	Registered
Hungary	May 1, 2014	January 31, 2018	FUEL ASSEMBLY	Registered
India	May 1, 2014		FUEL ASSEMBLY	Pending
Japan	May 1, 2014	July 13, 2018	FUEL ASSEMBLY	Registered
Korea	May 1, 2014		FUEL ASSEMBLY	Pending
Spain	May 1, 2014	January 31, 2018	FUEL ASSEMBLY	Registered
Sweden	May 1, 2014	January 31, 2018	FUEL ASSEMBLY	Registered
Turkey	May 1, 2014	January 31, 2018	FUEL ASSEMBLY	Registered
Australia	September 16, 2015		NUCLEAR FUEL ASSEMBLY	Pending
Belgium	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
Bulgaria	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
Czech Republic	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
Canada	September 16, 2015		NUCLEAR FUEL ASSEMBLY	Pending
China	September 16, 2015	April 2, 2019	NUCLEAR FUEL ASSEMBLY	Registered
Eurasian Patent Organization	September 16, 2015	December 13, 2019	NUCLEAR FUEL ASSEMBLY	Registered
Europe	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
Finland	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
France	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
Germany	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
Hungary	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
Japan	September 16, 2015		NUCLEAR FUEL ASSEMBLY	Pending
Korea	September 16, 2015		NUCLEAR FUEL ASSEMBLY	Pending
Spain	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
Sweden	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
Turkey	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
United Kingdom	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
All-Metal Fuel Assembly Design (i.e., No Oxide Rods in The Outer Row)				
Canada	December 26, 2007	April 26, 2016	NUCLEAR REACTOR (VARIANTS), FUEL ASSEMBLY CONSISTING OF DRIVER-BREEDING MODULES FOR A NUCLEAR REACTOR (VARIANTS) AND A FUEL CELL FOR A FUEL ASSEMBLY	Registered
United States of America	December 22, 2008	February 14, 2012	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered

Country	Application Date	Registration Date	Title	Case Status
India	December 26, 2007		NUCLEAR REACTOR (VARIANTS), FUEL ASSEMBLY CONSISTING OF DRIVER-BREEDING MODULES FOR A NUCLEAR REACTOR (VARIANTS) AND A FUEL CELL FOR A FUEL ASSEMBLY	Pending
Australia	May 11, 2011	July 2, 2015	FUEL ASSEMBLY	Registered
United States of America	May 11, 2011	July 31, 2018	FUEL ASSEMBLY	Registered
United States of America	November 15, 2013	January 1, 2019	FUEL ASSEMBLY	Registered
Multi-Lobe Metallic Fuel Rod Design				
Australia	December 26, 2007	May 24, 2014	NUCLEAR REACTOR (VARIANTS), FUEL ASSEMBLY CONSISTING OF DRIVER-BREEDING MODULES FOR A NUCLEAR REACTOR (VARIANTS) AND A FUEL CELL FOR A FUEL ASSEMBLY	Registered
Australia	December 26, 2007	August 4, 2016	NUCLEAR REACTOR (VARIANTS), FUEL ASSEMBLY CONSISTING OF DRIVER-BREEDING MODULES FOR A NUCLEAR REACTOR (VARIANTS) AND A FUEL CELL FOR A FUEL ASSEMBLY	Registered
Belgium	December 26, 2007	May 18, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Bulgaria	December 26, 2007	May 18, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Canada	December 26, 2007	April 26, 2016	NUCLEAR REACTOR (VARIANTS), FUEL ASSEMBLY CONSISTING OF DRIVER-BREEDING MODULES FOR A NUCLEAR REACTOR (VARIANTS) AND A FUEL CELL FOR A FUEL ASSEMBLY	Registered
China	December 26, 2007	February 12, 2014	NUCLEAR REACTOR (VARIANTS), FUEL ASSEMBLY CONSISTING OF DRIVER-BREEDING MODULES FOR A NUCLEAR REACTOR (VARIANTS) AND A FUEL CELL FOR A FUEL ASSEMBLY	Registered
China	December 26, 2007	June 23, 2017	NUCLEAR REACTOR (VARIANTS), FUEL ASSEMBLY CONSISTING OF DRIVER-BREEDING MODULES FOR A NUCLEAR REACTOR (VARIANTS) AND A FUEL CELL FOR A FUEL ASSEMBLY	Registered
Czech Republic	December 26, 2007	May 18, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Europe	December 26, 2007	May 18, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Finland	December 26, 2007	May 18, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
France	December 26, 2007	May 18, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered

Country	Application Date	Registration Date	Title	Case Status
Germany	December 26, 2007	May 18, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Hungary	December 26, 2007	May 18, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
India	December 26, 2007		NUCLEAR REACTOR (VARIANTS), FUEL ASSEMBLY CONSISTING OF DRIVER-BREEDING MODULES FOR A NUCLEAR REACTOR (VARIANTS) AND A FUEL CELL FOR A FUEL ASSEMBLY	Pending
Japan	December 26, 2007	August 1, 2014	NUCLEAR REACTOR (VARIANTS), FUEL ASSEMBLY CONSISTING OF DRIVER-BREEDING MODULES FOR A NUCLEAR REACTOR (VARIANTS) AND A FUEL CELL FOR A FUEL ASSEMBLY	Registered
Japan	December 26, 2007	April 22, 2016	NUCLEAR REACTOR (VARIANTS), FUEL ASSEMBLY CONSISTING OF DRIVER-BREEDING MODULES FOR A NUCLEAR REACTOR (VARIANTS) AND A FUEL CELL FOR A FUEL ASSEMBLY	Registered
Korea	December 26, 2007	December 15, 2014	NUCLEAR REACTOR (VARIANTS), FUEL ASSEMBLY CONSISTING OF DRIVER-BREEDING MODULES FOR A NUCLEAR REACTOR (VARIANTS) AND A FUEL CELL FOR A FUEL ASSEMBLY	Registered
Korea	December 26, 2007	April 20, 2015	NUCLEAR REACTOR (VARIANTS), FUEL ASSEMBLY CONSISTING OF DRIVER-BREEDING MODULES FOR A NUCLEAR REACTOR (VARIANTS) AND A FUEL CELL FOR A FUEL ASSEMBLY	Registered
Sweden	December 26, 2007	May 18, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Turkey	December 26, 2007	May 18, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
United Kingdom	December 26, 2007	May 18, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
United States of America	December 22, 2008	February 14, 2012	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Belgium	December 23, 2008	September 21, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Bulgaria	December 23, 2008	September 21, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Czech Republic	December 23, 2008	September 21, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Europe	December 23, 2008	September 21, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered

Country	Application Date	Registration Date	Title	Case Status
Finland	December 23, 2008	September 21, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
France	December 23, 2008	September 21, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Germany	December 23, 2008	September 21, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Hungary	December 23, 2008	September 21, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Spain	December 23, 2008	September 21, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Sweden	December 23, 2008	September 21, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Turkey	December 23, 2008	September 21, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
United Kingdom	December 23, 2008	September 21, 2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
United States of America	March 14, 2011	February 18, 2014	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Australia	December 25, 2008	September 3, 2015	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Belgium	December 25, 2008	February 20, 2019	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Bulgaria	December 25, 2008	April 13, 2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Bulgaria	December 25, 2008	February 20, 2019	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Canada	December 25, 2008	November 29, 2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Canada	December 25, 2008	February 12, 2019	A LIGHT-WATER REACTOR FUEL ASSEMBLY AND FUEL ELEMENT THEREOF	Registered
China	December 25, 2008	June 29, 2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered

Country	Application Date	Registration Date	Title	Case Status
Czech Republic	December 25, 2008	April 13, 2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Czech Republic	December 25, 2008	February 20, 2019	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Europe	December 25, 2008	April 13, 2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Europe	December 25, 2008	February 20, 2019	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Europe	December 25, 2008		FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Pending
Finland	December 25, 2008	April 13, 2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Finland	December 25, 2008	February 20, 2019	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
France	December 25, 2008	April 13, 2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
France	December 25, 2008	February 20, 2019	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Germany	December 25, 2008	April 13, 2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Germany	December 25, 2008	February 20, 2019	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Hungary	December 25, 2008	April 13, 2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Hungary	December 25, 2008	February 20, 2019	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
India	December 25, 2008		FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Pending

Country	Application Date	Registration Date	Title	Case Status
Japan	December 25, 2008	June 5, 2015	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Korea	December 25, 2008	August 18, 2015	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Spain	December 25, 2008	February 20, 2019	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Sweden	December 25, 2008	April 13, 2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Sweden	December 25, 2008	February 20, 2019	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Turkey	December 25, 2008	April 13, 2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Turkey	December 25, 2008	February 20, 2019	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
United Kingdom	December 25, 2008	April 13, 2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
United Kingdom	December 25, 2008	February 20, 2019	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
United States of America	December 25, 2008	May 31, 2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Australia	May 11, 2011	July 2, 2015	FUEL ASSEMBLY	Registered
Australia	May 11, 2011	March 21, 2019	FUEL ASSEMBLY	Registered
Australia	May 11, 2011		FUEL ASSEMBLY	Pending
Belgium	May 11, 2011	October 25, 2017	FUEL ASSEMBLY	Registered
Bulgaria	May 11, 2011	April 6, 2016	FUEL ASSEMBLY	Registered
Bulgaria	May 11, 2011	October 25, 2017	FUEL ASSEMBLY	Registered
Canada	May 11, 2011		FUEL ASSEMBLY	Pending
Canada	May 11, 2011		FUEL ASSEMBLY	Pending
China	May 11, 2011	May 18, 2016	FUEL ASSEMBLY	Registered
Czech Republic	May 11, 2011	April 6, 2016	FUEL ASSEMBLY	Registered

Country	Application Date	Registration Date	Title	Case Status
Czech Republic	May 11, 2011	October 25, 2017	FUEL ASSEMBLY	Registered
Europe	May 11, 2011	April 6, 2016	FUEL ASSEMBLY	Registered
Europe	May 11, 2011	October 25, 2017	FUEL ASSEMBLY	Registered
Finland	May 11, 2011	April 6, 2016	FUEL ASSEMBLY	Registered
France	May 11, 2011	April 6, 2016	FUEL ASSEMBLY	Registered
Germany	May 11, 2011	April 6, 2016	FUEL ASSEMBLY	Registered
Hungary	May 11, 2011	April 6, 2016	FUEL ASSEMBLY	Registered
Hungary	May 11, 2011	October 25, 2017	FUEL ASSEMBLY	Registered
India	May 11, 2011		FUEL ASSEMBLY	Pending
Japan	May 11, 2011	September 9, 2016	FUEL ASSEMBLY	Registered
Japan	May 11, 2011	September 9, 2016	FUEL ASSEMBLY	Registered
Japan	May 11, 2011	April 13, 2018	FUEL ASSEMBLY	Registered
Korea	May 11, 2011	November 12, 2019	FUEL ASSEMBLY	Registered
Sweden	May 11, 2011	April 6, 2016	FUEL ASSEMBLY	Registered
Turkey	May 11, 2011	April 6, 2016	FUEL ASSEMBLY	Registered
United Kingdom	May 11, 2011	October 25, 2017	FUEL ASSEMBLY	Registered
United States of America	May 11, 2011	July 31, 2018	FUEL ASSEMBLY	Registered
United States of America	February 20, 2018		FUEL ASSEMBLY	Pending
Korea	November 12, 2019		FUEL ASSEMBLY	Pending
United States of America	November 15, 2013	January 1, 2019	FUEL ASSEMBLY	Registered
Australia	May 1, 2014	October 11, 2018	FUEL ASSEMBLY	Registered
Australia	May 1, 2014	October 11, 2018	FUEL ASSEMBLY	Registered
Canada	May 1, 2014		FUEL ASSEMBLY	Pending
Eurasian Patent Organization	May 1, 2014	October 31, 2019	FUEL ASSEMBLY	Registered
India	May 1, 2014		FUEL ASSEMBLY	Pending
Japan	May 1, 2014	July 13, 2018	FUEL ASSEMBLY	Registered
Korea	May 1, 2014		FUEL ASSEMBLY	Pending
Australia	December 5, 2019		FUEL ASSEMBLY	Pending
Australia	May 7, 2018		FUEL ASSEMBLY	Pending
Australia	September 16, 2015		NUCLEAR FUEL ASSEMBLY	Pending
Canada	September 16, 2015		NUCLEAR FUEL ASSEMBLY	Pending
China	September 16, 2015	April 2, 2019	NUCLEAR FUEL ASSEMBLY	Registered
China	September 16, 2015		NUCLEAR FUEL ASSEMBLY	Pending
Eurasian Patent Organization	September 16, 2015	December 13, 2019	NUCLEAR FUEL ASSEMBLY	Registered
Eurasian Patent Organization	September 16, 2015		NUCLEAR FUEL ASSEMBLY	Pending
Europe	September 16, 2015		NUCLEAR FUEL ASSEMBLY	Pending
Belgium	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Belgium

Country	Application Date	Registration Date	Title	Case Status
Bulgaria	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
Czech Republic	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
Finland	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
France	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
Germany	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
Hungary	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
Japan	September 16, 2015		NUCLEAR FUEL ASSEMBLY	Pending
Korea	September 16, 2015		NUCLEAR FUEL ASSEMBLY	Pending
Belgium	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Belgium
Bulgaria	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
Czech Republic	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
Finland	September 16, 2015	February 19, 2020	NUCLEAR FUEL ASSEMBLY	Registered
United States of America	September 16, 2015	January 29, 2019	NUCLEAR FUEL ASSEMBLY	Registered
United States of America	January 7, 2019		NUCLEAR FUEL ASSEMBLY	Pending
United States of America	December 28, 2018		FUEL ASSEMBLY	Pending

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

Employees

Our business model is to limit the number of our full-time employees and to rely on individual independent contractors, outside agencies and technical facilities with specific skills to assist with various business functions including, but not limited to, corporate overhead, personnel, research and development, and government relations. This model limits overhead costs and allows us to draw upon resources that are specifically tailored to our internal and external (client) needs. As of December 31, 2019, we had thirteen full-time employees. We utilize a network of independent contractors available for deployment for specialized consulting assignments. We believe that our relationship with our employees and contractors is satisfactory.

Available Information

Our internet address is www.ltbridge.com. We make available free of charge on our website 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”). Copies of these reports may also be obtained free of charge by sending written requests to Investor Relations, Lightbridge Corporation, 11710 Plaza America Drive, Suite 2000, Reston, Virginia 20190 USA. 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 of 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 ordinary shares 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”.

Risks Related to the Company

Substantial doubt exists as to our ability to continue as a going concern.

As described in Note 1 of our accompanying consolidated financial statements, our auditors have issued a going concern opinion regarding the Company. This means there is substantial doubt we can continue as an ongoing business for the next twelve months. Our financial statements have been prepared assuming we will continue as a going concern. We have experienced substantial and recurring losses from operations, which losses have caused an accumulated deficit of \$114.1 million as of December 31, 2019.

At December 31, 2019, the Company had approximately \$18.0 million in cash and had a working capital surplus of approximately \$18.1 million. The Company’s net cash used in operating activities during the year ended December 31, 2019 was approximately \$6.7 million, and current projections indicate that the Company will have continued negative cash flows for the foreseeable future. Net losses incurred for the years ended December 31, 2019 and 2018 amounted to approximately \$(10.6) million, \$(15.7) million, respectively.

Our ability to successfully raise sufficient funds, primarily through the sale of equity securities, is uncertain and subject to market conditions generally, the market for our common stock and other risks. There can be no assurances as to the availability or terms upon which capital might be available. These factors, among others, raise substantial doubt about our ability to continue as a going concern. If we are unable to meet our financial obligations, we could be forced to delay, reduce, or cease our operations, including substantially decrease our research and development 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. Our financial statements do not include any adjustments that might result from the outcome of this uncertainty.

We will need to raise significant additional capital in the future to expand our operations and continue our research and development activities and we may be unable to raise such funds when needed or on acceptable terms, and any capital raises may cause significant dilution to our shareholders.

As of December 31, 2019, we had \$18.0 million in cash and equivalents, and as of the date of this filing, we had approximately \$16.5 million in cash and equivalents. We will need to raise significant additional capital in order to continue our research and development activities and fund our operations through commercialization of our nuclear fuel technology. Our current plan is to maximize external funding from third party sources 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. 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.

If 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. If we raise additional funds by issuing equity or securities convertible into equity, further dilution to stockholders may result and new investors could have rights superior to existing stockholders.

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 delay in procuring equipment or in achieving development milestones, or uncertainty in regulatory licensing timelines could result in significant delays and cost overruns. We have come to the point where certain manufacturing equipment and a manufacturing facility are necessary for further development of our fuel; however, we cannot at this stage accurately predict the amount of funding or the time required to successfully manufacture and sell our fuel in the future. 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 fuel; changes in the focus and direction of our research and product development programs; 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 benefits from our nuclear fuel technology may be delayed or never realized.

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

Although our economic model concludes that our fuel technology can provide a significant payback to utilities, it is based upon a number of assumptions that may not prove accurate. If such model is inaccurate, our nuclear fuel product may not provide nuclear utility customers with sufficient economic incentive to switch from existing nuclear fuels, and we would lose or fail to develop customers.

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 test facilities. For example, our proposed metallic fuel uses a helical cruciform form to increase its surface area and shorten the distance for heat generated in the fuel rod to reach water and improve the coolability of 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 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 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 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.

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 up to 5%. Our fuel is in metallic form and is enriched to higher levels which would 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 designed and are currently licensed to handle uranium in oxide form with enrichment up to 5%. 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 go through 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 a 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%, 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, and permanent disposal of spent metallic fuel at a high-level repository. 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.

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 extrusion of a composite solid fuel rod from a metallic matrix containing uranium and zirconium alloy. Fabrication of full-length (approximately 3.5 to 4.5 meters) PWR metallic fuel rods has yet to be demonstrated with our uranium-zirconium metal. There is a risk that the fuel fabrication process utilized to produce one meter long metallic fuel rods may not be adaptable to the fabrication of full-length metallic fuel rods used in commercial reactors.

We serve 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 use our fuels may be delayed and made more costly, and industry acceptance of our 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 US Nuclear Regulatory Commission, 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 US Nuclear Regulatory Commission or its counterparts around the world that could cause development program schedule delays. Entities within the nuclear industry may be hesitant to be the first to use our fuel, which has little or no history of successful commercial use. Furthermore, our fuel development timeline relies on the relevant nuclear regulator to accept and approve technical information and documentation about our fuel that is generated during the research and development 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.

Events related to our Enfission joint venture could adversely affect our future operations.

The Enfission joint venture is currently inactive and we intend to dissolve this joint venture as soon as practical. Under the Joint Venture Operating Agreement, neither we nor Framatome are in a position to unilaterally control or dissolve the joint venture, and our ability to engage in research activities within the scope of operations of the joint venture may be impaired until such time as the joint venture is dissolved. Our inability to dissolve the joint venture or resolve the continuing deadlock could adversely impact the operations and future profitability of Lightbridge, including the Company's ability to conduct research and development activities within the scope of operations of Enfission in the near term or at all, as well as delaying the commercialization of the nuclear fuel incorporating our technology for certain markets. See "Certain Challenges – The ability to unwind our partnership with Framatome in an expeditious manner while minimizing the cost and risk to our intellectual property represents a significant challenge." under Part I. Item 1. *Business*.

On February 7, 2020, we filed an Arbitration Request in the International Court of Arbitration of the International Chamber of Commerce against Framatome SAS to resolve issues arising out of our assertion that there are material breaches on the part of Framatome under the RSDA. This arbitration may increase our expenses and prevent our officers and directors from focusing their time and effort entirely on our business, which could have a material adverse effect on our financial statements. Additionally, a ruling by the arbitrator adverse to our position could have a material negative impact on our future business and financial statements.

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 major nuclear accident that occurred at the Fukushima nuclear power plant in Japan beginning on March 11, 2011 increased public opposition 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, an early shut down of existing power plants, or a dampening of the favorable regulatory climate needed to introduce new nuclear technologies. In addition, 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 World Nuclear Association. 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. This has diminished the number of consulting opportunities that we could compete on globally, at least in the near-term. Furthermore, nuclear fuel fabrication and the use of new nuclear fuels in reactors must be licensed by the US Nuclear Regulatory Commission 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.

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 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 nuclear power plants in such markets. This could reduce the size of the potential markets for both our fuel technology and our consulting services.

In addition, many states and the federal government 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 may be adversely affected by uncertainty in the global financial markets and worldwide economic downturn.

Our future results may be adversely affected by the worldwide economic downturn, continued volatility or further deterioration in the debt and equity capital markets, inflation, deflation, or other adverse economic conditions that may negatively affect us. At present, it is likely that we will require additional capital in the near future in order to fund our operations. Due to the above listed factors, we cannot be certain that additional funding will be available on terms that are acceptable to us, or at all.

We rely upon certain members of our senior management, including Seth Grae, Andrey Mushakov, and Larry Goldman and the loss of any of Mr. Grae, Mr. Mushakov, or Mr. Goldman or any of our management team would have an adverse effect on the Company.

Our success depends upon certain members of our senior management, including Seth Grae, our Chief Executive Officer, Mr. Andrey Mushakov, our Executive Vice President - Nuclear Operations, and Larry Goldman, our Chief Financial Officer. Mr. Grae's and Mr. Mushakov's knowledge of the nuclear power industry, their network of key contacts within that industry and in governments and, in particular, their expertise in the potential markets for our technologies, are critical to the implementation of our business model. Mr. Grae, Mr. Mushakov, or Mr. Goldman are likely to be significant factors in our future growth and success. The loss of services by either Mr. Grae, Mr. Mushakov, or Mr. Goldman could have a material adverse effect on our business, results of operations or financial condition. Also, we rely heavily on other members of our management team and our inability to hire, retain, and motivate adequate numbers of consultants and managers could adversely affect our ability to meet client needs and to continue the development of our fuel designs.

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

Our future success depends in part on our ability to contract with, hire, integrate, 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 competences and implement human resource solutions to recruit or improve these competences, 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.

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

The sales and marketing of our services and technology internationally may be subject to US and France export control regulations and the export control laws of other countries. Governmental authorizations may be required before we can export our services or technology. If authorizations are required and not granted, our international business could be materially affected. The export authorization process is often 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.

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 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 operative in 1958, has closed and will not reopen, so it will not be available for further testing of our fuel designs. The Company has identified alternative options to generate the irradiation data we need to support regulatory licensing of our lead test assembly operation in a commercial reactor but pursuing such alternatives to the Halden research reactor may 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 delayed, perhaps indefinitely, which would adversely affect our business, financial condition, and results of operations.

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. 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 US Department of Energy (“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 US 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 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. We do not know how successful we would be should we choose to assert our patents 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 of term of patent protection we may have for our products. Changes in either 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.

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 products and technologies. 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 recently 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 has illegally obtained and is using trade secrets is expensive, time consuming and uncertain. In addition, non-US courts are sometimes less willing than US 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.

If we infringe or are alleged to infringe intellectual property rights of 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 may own or control these patents and patent applications in the United States and elsewhere. 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 fuel design or a component thereof 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 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.

Applicable Russian intellectual property law may be inadequate to protect some of our intellectual property, which could have a material adverse effect on our business.

Intellectual property rights are evolving in Russia, and are trending towards international norms, but are by no means fully developed. 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. If the application of Russian laws to some of our intellectual property rights proves inadequate, then 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. 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.

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 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 fuel products require high-assay low enriched uranium (HALEU) in metallic form, enriched between 5% and 19.75%, with presently no commercial supply of HALEU available in the US. Currently HALEU can only be sourced in limited quantities from the DOE.

Recently, major commercial enrichment companies, such as Urenco have expressed interest in supplying HALEU. Several Urenco enrichment facilities are already licensed to produce uranium at enrichments above 5% U235, in line with today's nuclear industry market requirements. Urenco is now exploring the construction of a dedicated HALEU unit at the Urenco USA facility. Urenco is progressing the design engineering and related licensing activities to support this project.

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 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 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 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.

Disruptions from cybersecurity events may jeopardize the security of information 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 significant financial and technological resources and therefore may be even more difficult to detect. We 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.

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 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. We believe that 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.

Risks related to the ownership of our common stock

We have issued preferred stock with rights senior to our common stock.

Approximately 3.4 million shares of our Series A and Series B preferred stock were issued and outstanding at December 31, 2019. We can issue additional shares of 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 then current stockholders and could adversely affect the market price of our common stock.

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 its performance.

Our inability to comply with the listing requirements of the Nasdaq Capital Market will 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.

ITEM 1B. UNRESOLVED STAFF COMMENTS

Not applicable.

ITEM 2. PROPERTIES

Our office space is located at 11710 Plaza America Drive, Suite 2000 Reston, VA 20190 USA. The term of the lease extends through December 31, 2020. We are obligated to pay approximately \$15,000 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. For a description of legal proceedings involving the Company, see the information set forth below and under Litigation in Note 6. 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.

Filing of Arbitration - Framatome

On February 7, 2020, we filed a request for arbitration (the “Arbitration Request”) in the International Court of Arbitration of the International Chamber of Commerce against Framatome. We took this action in order to obtain, inter alia, a declaration that the R&D Services Agreement, dated November 14, 2017, by and among Framatome, Enfission, and the Company (as amended by Amendment Number One, dated January 25, 2018, and Amendment Number Two, dated June 20, 2018, the “RDSA”) was validly terminated and is no longer in force, and to obtain compensation for the damages incurred due to Framatome’s uncured material breach of certain material terms of the RDSA. These material breaches relate to Framatome’s invoicing obligations, as well as a failure of the escalation process under the RDSA to agree to a budget commitment for 2019-2020.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

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

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

Holder

As of March 2, 2020, our common stock was held by approximately 82 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

We have never paid dividends. While any future dividends will be determined by our 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, 8742 Lucent Blvd., Suite 225, Highlands Ranch, Colorado, 80129. Its telephone number is 800-962-4284 and facsimile is 303-262-0604.

Recent Sales of Unregistered Securities

We did not sell any securities without registration under the Securities Act during the fiscal year ended December 31, 2019 other than as previously disclosed in the Company's quarterly reports on Form 10-Q and current reports on Form 8-K.

ITEM 6. SELECTED FINANCIAL INFORMATION.

Not applicable

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 — 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 two years presented in our consolidated financial statements. Except to the extent that differences among our operating segments are material to an understanding of our business as a whole, we present the discussion in the MD&A on a consolidated basis; and
- Liquidity, Capital Resources, and Financial Position — an analysis of our cash flows, and an overview of our financial position.

Overview of Our Business and Recent Developments

Our Business

Financial information is included in Part II. Item 8. *Financial Statements and Supplementary Data*, of this Annual Report on Form 10-K.

Our goal is to develop and commercialize innovative, proprietary nuclear fuel designs, which we expect will significantly enhance the nuclear power industry's economics due to higher power output and improved safety margins.

Our metallic fuel can be used in different types of water-cooled commercial power reactors, such as pressurized water reactors, boiling water reactors, Russian-type VVER reactors, CANDU heavy water reactors, water-cooled small modular reactors, as well as water-cooled research reactors.

We have obtained patent validation in key countries and will continue to seek patent validation in key countries that either currently operate or are expected to build and operate a large number of suitable nuclear power reactors.

We expect to generate license revenues from nuclear fuel fabricators in the future.

We have incurred net losses and negative cash flows from operations and expect this to continue in the next several years. In 2020, we will continue to evaluate spending to reduce expenses with the overall goal of commercializing our fuel at the lowest cost, in order to maximize our shareholders' value. Our current primary source of funding is our at-the-market (ATM) financing arrangement with Stifel, Nicolaus & Company. See Note 9. Stockholders' Equity and Stock-Based Compensation 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 ATM financing.

Recent Developments

On December 20, 2019 we announced an award voucher from the U.S. Department of Energy's Gateway for Accelerated Innovation in Nuclear (GAIN) program to support development of Lightbridge Fuel™ in collaboration with Idaho National Laboratory (INL). The scope of the project includes experiment design for irradiation of Lightbridge metallic fuel material samples in the Advanced Test Reactor (ATR) at INL. The project is anticipated to commence in the first half of 2020. The total project value is approximately \$846,000, with three-quarters of this amount funded by DOE for the scope performed by INL. This was the very first direct award to Lightbridge from the DOE, which demonstrates the DOE's commitment to funding nuclear energy innovation from American companies.

Filing of Arbitration - Framatome

On February 7, 2020, we filed a request for arbitration (the “Arbitration Request”) in the International Court of Arbitration of the International Chamber of Commerce against Framatome. We took this action in order to obtain, inter alia, a declaration that the R&D Services Agreement, dated November 14, 2017, by and among Framatome, Enfission, and the Company (as amended by Amendment Number One, dated January 25, 2018, and Amendment Number Two, dated June 20, 2018, the “RDSA”) was validly terminated and is no longer in force, and to obtain compensation for the damages incurred. We anticipate our general and administrative costs will increase in 2020 due to this action.

See Part I. Item 3. *Legal Proceedings*, for more information.

Consolidated Results of Operations

The following table presents our historical operating results as a percentage of revenues for the years indicated:

	Years Ended December 31,		Changes 2019 vs 2018	
	2019	2018		
Revenues	\$ -	\$ -	\$ -	- %
Operating Expenses				
General and administrative	5,697,469	6,715,378	(1,017,909)	-15 %
Research and development expenses	2,676,156	3,458,377	(782,221)	-23 %
Total Operating Expenses	\$ 8,373,625	\$ 10,173,755	\$ (1,800,130)	-18 %
Other Operating Income and (Loss)				
Other income from joint venture	\$ 715,126	\$ 1,056,551	\$ (341,425)	-32 %
Equity in loss from joint venture	(3,321,737)	(5,835,263)	(2,513,526)	-43 %
Total Other Operating Income and (Loss)	\$ (2,606,611)	\$ (4,778,712)	\$ (2,172,101)	-45 %
Total Operating Loss	\$ (10,980,236)	\$ (14,952,467)	\$ (3,972,231)	-27 %
Other Income and (Expenses)	\$ 393,112	\$ (723,641)	\$ 1,116,753	154 %
Net Loss Before Income Taxes	\$ (10,587,124)	\$ (15,676,108)	\$ (5,088,984)	-32 %

Revenue

The market for nuclear industry consulting services is competitive, fragmented, and subject to rapid change. Our main business is developing our nuclear fuel. We may pursue some consulting services opportunities in the future, but we have further increased the focus and resources of the Company to the fuel division and away from consulting. There was no revenue for the years ended December 31, 2019 and 2018.

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 decreased by approximately \$1.0 million for the year ended December 31, 2019, as compared to the year ended December 31, 2018. There was a decrease in stock-based compensation of approximately \$1.0 million due to the decrease in stock option expense for prior stock option awards, and a decrease in professional fees of approximately \$0.2 million due to decrease in legal fees, accounting fees and other professional fees, which was offset by an increase in employee compensation and employee benefits of approximately \$0.2 million due to an increase in the number of employees. Total stock-based compensation included in general and administrative expenses was approximately \$0.4 million and \$1.4 million for the year ended December 31, 2019 and 2018, respectively.

See Note 9. Stockholders' Equity and Stock-Based Compensation 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 more information regarding our stock-based compensation.

Research and Development

Corporate research and development expenses consist primarily of compensation and related fringe benefits including stock-based compensation and related allocable overhead costs for the research and development of our fuel, including work performed and billed to our Enfission joint venture. Total research and development expenses decreased by approximately \$0.8 million for the year ended December 31, 2019, as compared to the year ended December 31, 2018.

There was a decrease in professional fees of approximately \$0.1 million, a decrease in stock-based compensation of approximately \$0.6 million due to the decrease in stock option expense for prior stock option awards, and a decrease in employee compensation and employee benefits in supporting research and development activities for Enfission of approximately \$0.2 million, which was offset by an increase in consulting fees of approximately \$0.1 million. Total stock-based compensation included in research and development expenses was approximately \$0.4 million and \$1.0 million for the year ended December 31, 2019 and 2018, respectively.

Due to the nature of these research and development expenditures, cost and schedule estimates are inherently uncertain and can vary significantly as new information and the outcome of these research and development activities become available. For 2020, we anticipate a significant decrease of research and development activities due to budgetary constraints.

Other Operating Income and (Loss) – Related Party

Reported in other operating income is other income for activities performed by our employees and consultants billed to the Enfission joint venture for research and development work and our share of the allocated loss in Enfission. Total other operating income and (loss) decreased by approximately \$2.2 million for the year ended December 31, 2019, as compared to the year ended December 31, 2018.

Other income from the Enfission joint venture for the years ended December 31, 2019 and 2018 was approximately \$0.7 million and \$1.1 million, respectively. Equity in loss from the Enfission joint venture for the year ended December 31, 2019 and 2018 was \$3.3 million and \$5.8 million, respectively, which consists of our share of the allocated loss in Enfission. The decrease in the share of loss in Enfission was due to less research and development expenses incurred by Enfission due to the Enfission board of directors not agreeing on a 2019 research and development budget, which resulted in a decrease in the loss allocated to Lightbridge for the year ended December 31, 2019.

Other Income (Expenses)

There was a net decrease in other expenses of approximately \$1.1 million. This change was due to a decrease in amortization of deferred financing costs of approximately \$1.0 million due to the write-off of the deferred financing costs in the first quarter of 2018 for the expired equity line option agreement, and an increase of \$0.1 million 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, 2019, as compared to the year ended December 31, 2018.

Provision for Income Taxes

We incurred a pre-tax net loss for both 2019 and 2018. We reviewed all sources of income for purposes of recognizing the deferred tax assets and concluded a full valuation allowance for 2019 and 2018 was necessary. Therefore, we did not have a provision for taxes for both years ended December 31, 2019 and 2018.

See Note 8. 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.

LIQUIDITY, CAPITAL RESOURCES AND FINANCIAL POSITION

At December 31, 2019, we had cash and cash equivalents of approximately \$18.0 million, as compared to approximately \$24.6 million at December 31, 2018, decreased by approximately \$6.6 million. The cash inflow of approximately \$3.8 million resulted from net proceeds from the sale of approximately 0.5 million shares of common stock during the year ended December 31, 2019. This cash inflow was offset by net cash used in operating activities of approximately \$6.7 million and our cash used in investing activities for our capital investment in Enfission and patent filing costs of approximately \$3.8 million. We used cash during the year ended December 31, 2019 primarily to fund our research and development expenses and general and administrative expenses. We did not have any consulting revenue for the year ended December 31, 2019 and presently do not expect to have consulting revenue for the next 12 months.

We currently project a negative cash flow from operations averaging approximately \$0.8 million per month for our general and administrative and corporate research and development expenses, for total expected expenditures of approximately \$9.6 million for the next 12 months. In addition, we currently anticipate the amount of cash outlays to third parties for research and development expenditures, for our nuclear fuel products to be approximately \$1.5 million to \$2 million over the next 12 to 15 months. We believe that while our cash at December 31, 2019 exceeds our budgeted expenditures through the first quarter of 2021 there is only a small margin for miscalculations in budget estimates in meeting our budget 12 months from the issuance of these financial statements. Accordingly, budget variances in the projection of our planned operations, plus any additional expenditures that might result from additional legal costs and unexpected fees relating to arbitration with our joint venture partner, raise substantial doubt about our ability to continue as a going concern.

We can provide no assurances about meeting our budgeted expenditures regarding our future research and development efforts for the next 12 months and beyond, as well as predicting future market trends in nuclear power that can affect the future sale of our nuclear fuel. Furthermore, any negative results from our research and development may require us to increase our research and development spending to achieve our desired milestones in developing our nuclear fuel. There can be no assurance that the Enfission arbitration will not affect our ability to continue to advance our research and development efforts. These additional capital needs relate to the development, manufacturing, and commercialization of our nuclear fuel assemblies. We have the ability to delay or reduce incurring certain operating expenses, including research and development expenses, in the next 12 to 15 months, which could reduce our cash flow shortfall, if needed.

To maintain our Nasdaq listing, we executed a one-for-twelve reverse stock split of our issued and outstanding common stock, which became effective on October 21, 2019. On November 4, 2019, we received written notification from the Nasdaq Listing Qualifications Staff indicating that we regained compliance with the minimum bid price requirement for continued listing on the Nasdaq Capital Market. The current primary sources of cash available to us for the next 12 months are potential funding from equity investments, including our ATM financing arrangement. We have no debt or debt credit lines and we have financed our operations to date through our prior years' consulting revenue margins and the sale of our preferred stock and common stock. Management believes that public or private equity investments will be available in the 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.

Short-Term and Long-Term Liquidity Sources

As discussed above, we will seek new financing bringing us additional sources of capital, depending on the capital market conditions of our common stock, over the next 12 months. There can be no assurance that these additional sources of capital will be made available to us. The primary potential sources of cash that may be available to us are as follows:

- Equity or debt investment from third party investors in Lightbridge; and
- Strategic investment to support the remaining research and development activities required to further enhance and complete the development of our fuel products to a commercial stage.

In support of our long-term business with respect to our fuel technology business, we endeavor to create strategic alliances with other parties during the next three years, to support the remaining research and development activities that is 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.

See Note 9. Stockholders' Equity and Stock-Based Compensation 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 prior financings.

The following table provides detailed information about our net cash flows for the years ended December 31, 2019 and 2018.

Cash Flow

	Year Ended December 31,	
	2019	2018
	(rounded in millions)	
Net cash used in operating activities	\$ (6.7)	\$ (7.4)
Net cash used in investing activities	\$ (3.8)	\$ (5.8)
Net cash provided by financing activities	\$ 3.8	\$ 33.3
Net cash (outflow) inflow	\$ (6.7)	\$ 20.1

Operating Activities

The decrease in our cash used in operating activities in 2019 of approximately \$0.7 million was primarily due to a decrease in our operating expenses and net loss and the change in working capital items as explained below.

Cash used in operating activities in the year ended December 31, 2019 consisted of net loss adjusted for non-cash (income) expense items such as stock-based compensation, amortization of deferred financing costs and equity in loss from the Enfission joint venture, as well as the effect of changes in working capital. Cash used in operating activities in the year ended December 31, 2019 consisted of a net loss of approximately \$10.6 million and net adjustments to net loss for non-cash income items or a negative cash flow offset (decrease to cash flow used in operating activities) totaling approximately \$4.1 million, consisting of non-cash adjustments for stock-based compensation of approximately \$0.8 million and equity in loss from the Enfission joint venture of approximately \$3.3 million. Total cash used in operating working capital totaled approximately \$0.3 million, which was primarily due to an increase in other receivables from the Enfission joint venture.

Investing Activities

Net cash used in our investing activities for the year ended December 31, 2019, as compared to net cash used in our investing activities in 2018, decreased by approximately \$2.0 million. The decrease was due primarily to reduced spending for investment in the Enfission joint venture of approximately \$2.0 million. The spending for patent application costs were approximately the same for the year ended December 31, 2019. These applications are filed for new developments resulting from our research and development activities. We anticipate these patent costs to increase in the future periods due to the continuing research and development work we plan to perform on our all-metal fuel design, unless our planned research and development work is affected by the Enfission arbitration.

Financing Activities

Net cash provided by our financing activities for the year ended December 31, 2019, as compared to net cash provided by our financing activities for the year ended December 31, 2018 decreased by approximately \$29.5 million. The decrease was primarily due to a decrease in the net proceeds from the issuance of our common stock of approximately \$25.6 million in 2019 as compared to 2018 and a decrease in the proceeds from the issuance of our Series A Preferred Stock of approximately \$3.9 million.

Critical Accounting Policies and Estimates

The preparation of financial statements and related disclosures in conformity with US generally accepted accounting principles (“GAAP”) and the Company’s discussion and analysis of its financial condition and operating results require the Company’s management to make judgments, assumptions, and estimates that affect the amounts reported in its consolidated financial statements and accompanying notes. 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 describes the significant accounting policies and methods used in the preparation of our consolidated financial statements.

Our management expects to make judgments and estimates about the effect of matters that are inherently uncertain. As the number of variables and assumptions affecting the future resolution of the uncertainties increase, these judgments become even more subjective and complex. Although we believe that our estimates and assumptions are reasonable, actual results may differ significantly from these estimates. Changes in estimates and assumptions based upon actual results may have a material impact on our results of operation and/or financial condition. We have identified certain accounting policies that we believe are most important to the understanding of our current financial condition and results of operations.

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 recognizing the related cost in the 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 US 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 US 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.

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

- expected term;
- volatility;
- dividend yield;
- risk-free interest rate; and
- forfeiture rates.

These assumptions are based on historical information and judgment regarding market factors and trends. If actual results differ from our assumptions and judgments used in estimating these factors, future adjustments to these estimates may be required.

Investment in Enfission – Equity Method

As of January 24, 2018, we own a 50% interest in Enfission – accounted for using the equity method of accounting. Enfission is deemed to be a variable interest entity (“VIE”) under the VIE model of consolidation because it currently does not have sufficient funds to finance its operations and will require significant additional equity or subordinated debt financing. We have determined that we are not the primary beneficiary of the VIE since we do not have the power to direct the activities that most significantly impact the VIE’s performance.

In determining whether we are the primary beneficiary and whether we have the right to receive benefits or the obligation to absorb losses that could potentially be significant to the VIE, we evaluate all our economic interests in the entity, regardless of form. This evaluation considers all relevant factors of the entity’s structure including the entity’s capital structure, contractual rights to earnings (losses) as well as other contractual arrangements that have potential to be economically significant. We are not the primary beneficiary since the major decision making for all significant economic activities require the approval of both us and Framatome. Changes in the operating agreement may affect the evaluation of who is a primary beneficiary of the VIE.

Intangibles

As presented on the accompanying balance sheet, we had patents with a book value of approximately \$1.8 million and \$1.6 million as of December 31, 2019 and 2018, respectively. There are many assumptions and estimates that may directly impact the results of impairment testing, including an estimate of future expected revenues, earnings, and cash flows, and discount rates applied to such expected cash flows to estimate fair value. We have the ability to influence the outcome and ultimate results based on the assumptions and estimates we choose for testing. To mitigate undue influence, we set criteria that are reviewed and approved by various levels of management. The determination of whether or not intangible assets have become impaired involves a significant level of judgment in the assumptions.

Changes in our strategy or market conditions could significantly impact these judgments and require adjustments to recorded amounts of intangible assets.

Research and development expenses

Research expenses are recognized as expenses when incurred. Costs incurred on development projects are recognized as intangible assets as of the date as of which it can be established that it is probable that future economic benefits attributable to the asset will flow to us considering its commercial feasibility. This is generally the case when regulatory approval for commercialization is achieved and costs can be measured reliably. Given the current stage of the development of our products, no development expenditures have yet been capitalized.

Loss Contingency

Our loss contingency analysis contains uncertainties because it requires management to assess the degree of probability of an unfavorable outcome and to make a reasonable estimate of the amount of potential loss for both Lightbridge and the outcome of the joint venture arbitration.

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.

Off Balance Sheet Arrangements

We do not have any off-balance sheet arrangements that have or are reasonably likely to have a current or future effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity or capital expenditures or capital resources that is material to an investor in our securities.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURE ABOUT MARKET RISK

Not applicable.

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, 2019 and 2018 begins on page 52 of this Report.

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

None

ITEM 9A. CONTROLS AND PROCEDURES EVALUATION OF DISCLOSURE CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

The Company maintains disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”)) that are designed to provide reasonable assurance that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is (a) recorded, processed, summarized and reported, within the time periods specified in the SEC’s rules and forms, and (b) accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure. In designing and evaluating such controls and procedures, the Company recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives.

Our management, under the supervision and with the participation of our principal executive officer and principal financial officer, evaluated the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the period covered by this report. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of December 31, 2019.

Management’s Report on Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rules 13a-15(f) and 15d-15(f). Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in the *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles in the United States of America. Our internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the Company’s assets that could have a material effect on the 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 assessed the effectiveness of our internal control over financial reporting as of December 31, 2019. Based on this assessment, management, with the participation of our Chief Executive Officer and Chief Financial Officer, determined that as of December 31, 2019, the Company's internal control over financial reporting was effective.

This Annual Report on Form 10-K does not include an attestation report of the Company's independent public accounting firm regarding internal control over financial reporting. Management's report was not subject to attestation by the Company's independent public accounting firm pursuant to rules of the Securities and Exchange Commission that permit the Company to provide only management's report in this Annual Report on Form 10-K.

Remediation of Previously Identified Material Weakness

Management has concluded that the material weakness in internal control over financial reporting described in Part I, Item 4, Control and Procedures in our Quarterly Report on Form 10-Q for the period ended September 30, 2019 has been remediated as of December 31, 2019. As described in the Form 10-Q, management enhanced our existing control process that entails a detailed review of the allocation of our proportionate share of the equity loss reported in our investee's (Enfission) financial statements to the financial statement balances of our investee. Management has evaluated these enhanced controls and has concluded they are designed and operating effectively.

Changes in Internal Control Over Financial Reporting

Other than the changes resulting from the remediation activities described above, there were no changes in the Company's internal control over financial reporting during the fourth quarter of 2019 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

None

PART III

Item 10. Directors and Executive Officers of the Registrant

The information required by Item 10 of Part III will be included in our Proxy Statement relating to the 2020 Annual Meeting of Stockholders and is incorporated herein by reference.

Item 11. Executive Compensation

Summary Compensation Table

Information required by Item 11 of Part III will be included in our Proxy Statement relating to the 2020 Annual Meeting of Stockholders and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Shareholders The information required by

Information required by Item 12 of Part III will be included in our Proxy Statement relating to the 2020 Annual Meeting of Stockholders and is incorporated herein by reference.

Item 13. 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 2020 Annual Meeting of Stockholders and is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services

Information required by Item 14 of Part III will be included in our Proxy Statement relating to the 2020 Annual Meeting of Stockholders and is incorporated herein by reference.

PART IV**Item 15. 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, 2019 and 2018
 - Consolidated Statements of Operations for the Years Ended December 31, 2019 and 2018
 - Consolidated Statements of Cash Flows for the Years Ended December 31, 2019 and 2018
 - Consolidated Statements of Changes in Stockholders' Equity for the Years Ended December 31, 2019 and 2018
 - Notes to Consolidated Financial Statements
 - Report of BDO USA, LLP dated March 4, 2020 on the Company's financial statements filed as a part hereof for the fiscal years ended December 31, 2019 and 2018. 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 the Company 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).
3.1	Articles of Incorporation of the Company, as amended (incorporated by reference to Exhibit 3.1 to the Form 10-Q filed by the Company on November 5, 2019).
3.4	Amended and Restated Bylaws of the Company (incorporated by reference to Exhibit 3.1 to the Form 8-K filed by the Company on August 29, 2016).
3.5	Certificate of Designation of Non-Voting Series A Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to the Form 8-K filed by the Company on August 3, 2016).
3.6	Certificate of Amendment to the Certificate of Designation of Non-Voting Series A Convertible Preferred Stock (incorporated by reference to Exhibit 3.2 to the Form 8-K filed by the Company on January 30, 2018).
3.7	Certificate of Designation of Non-Voting Series B Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to the Form 8-K filed by the Company on January 30, 2018).
4.1	Form of Common Stock Purchase Warrant (incorporated by reference to Exhibit 4.1 to the Form 8-K filed by the Company on October 22, 2013).
4.2	Form of Common Stock Purchase Warrant, as amended (incorporated by reference to Exhibit 4.1 to the Form 8-K filed by the Company on July 7, 2016).
4.3*	Description of Securities

<u>10.1‡</u>	<u>R&D Services Agreement between the Company and Framatome Inc. (as successor to AREVA NP SAS), dated November 14, 2017 (incorporated by reference to Exhibit 10.1 to the Form 8-K/A filed by the Company on March 5, 2018).</u>
<u>10.2‡</u>	<u>Amendment Number One to the R&D Services Agreement, deemed effective January 25, 2018, among the Company, Framatome SAS, and Enfission, LLC (incorporated by referenced to Exhibit 10.1 to the Form 10-Q filed by the Company on November 9, 2018).</u>
<u>10.3‡</u>	<u>Amendment Number Two to the R&D Services Agreement, deemed effective June 20, 2018, among the Company, Framatome SAS, and Enfission, LLC (incorporated by referenced to Exhibit 10.2 to the Form 10-Q filed by the Company on November 9, 2018).</u>
<u>10.4‡</u>	<u>Co-ownership Agreement between the Company and Framatome Inc. (as successor to AREVA NP SAS), dated November 14, 2017 (incorporated by reference to Exhibit 10.2 to the Form 8-K/A filed by the Company on March 5, 2018).</u>
<u>10.5</u>	<u>Intellectual Property Annex between the Company and Framatome Inc. (as successor to AREVA NP SAS), dated November 14, 2017 (incorporated by reference to Exhibit 10.3 to the Form 8-K/A filed by the Company on March 5, 2018).</u>
<u>10.6‡</u>	<u>Operating Agreement of Enfission, LLC, dated January 25, 2018 (incorporated by reference to Exhibit 10.1 to the Form 8-K/A filed by the Company on March 5, 2018).</u>
<u>10.7</u>	<u>Amendment Number One to the Operating Agreement of Enfission, LLC, deemed effective May 7, 2018, between the Company and Framatome Inc. (incorporated by referenced to Exhibit 10.3 to the Form 10-Q filed by the Company on November 9, 2018).</u>
<u>10.8‡</u>	<u>Amendment Number Two to the Operating Agreement of Enfission, LLC, deemed effective January 25, 2018, between the Company and Framatome Inc. (incorporated by referenced to Exhibit 10.4 to the Form 10-Q filed by the Company on November 9, 2018).</u>
<u>10.9</u>	<u>Investors Rights Agreement, dated August 2, 2016, between the Company and General International Holdings, Inc. (incorporated by reference to Exhibit 10.1 to the Form 8-K filed by the Company on August 3, 2016).</u>
<u>10.10</u>	<u>Investors Rights Agreement, dated January 30, 2018, between the Company and investors identified therein (incorporated by reference to Exhibit 10.1 to the Form 8-K filed by the Company on January 30, 2018).</u>
<u>10.12**</u>	<u>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).</u>
<u>10.13**</u>	<u>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).</u>
<u>10.14**</u>	<u>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).</u>
<u>10.15**</u>	<u>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).</u>
<u>10.16**</u>	<u>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).</u>
<u>10.17**</u>	<u>Form of Performance Share Unit Agreement under the 2015 Equity Incentive Plan (incorporated by reference to Exhibit 99.5 to the Company's Registration Statement on Form S-8, File No. 333-218796, filed on June 16, 2017).</u>
<u>10.18**</u>	<u>Form of Restricted Stock Award Agreement for Employees under the 2015 Equity Incentive Plan (incorporated by reference to Exhibit 99.6 to the Company's Registration Statement on Form S-8, File No. 333-218796, filed on June 16, 2017).</u>
<u>10.19**</u>	<u>Form of Restricted Stock Award Agreement for Non-Employee Directors under the 2015 Equity Incentive Plan (incorporated by reference to Exhibit 99.7 to the Company's Registration Statement on Form S-8, File No. 333-218796, filed on June 16, 2017).</u>
<u>10.20**</u>	<u>Stock Option Agreement, dated July 14, 2009, between the Company and Seth Grae (incorporated by reference to Exhibit 10.1 to the Form 8-K filed by the Company on July 20, 2009).</u>

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<u>10.21**</u>	<u>Independent Director Contract, dated August 21, 2006, between the Company and Victor Alessi (incorporated by reference to Exhibit 10.1 to the Form 8-K filed by the Company on August 25, 2006).</u>
<u>10.22**</u>	<u>Independent Director Contract, dated October 10, 2013, between the Company and Kathleen Kennedy Townsend (incorporated by referenced to Exhibit 10.5 to the Form 10-K filed by the Company on March 27, 2014).</u>
<u>10.23**</u>	<u>Independent Director Contract, dated October 23, 2006, between the Company and Daniel B. Magraw (incorporated by reference to Exhibit 10.2 to the Form 8-K filed by the Company on October 23, 2006).</u>
<u>10.24**</u>	<u>Employment Agreement, dated August 8, 2018, between the Company and Seth Grae (incorporated by referenced to Exhibit 10.2 to the Form 10-Q filed by the Company on August 9, 2018).</u>
<u>10.25**</u>	<u>Employment Agreement, dated August 8, 2018, between the Company and Andrey Mushakov (incorporated by referenced to Exhibit 10.3 to the Form 10-Q filed by the Company on August 9, 2018).</u>
<u>10.26**</u>	<u>Employment Agreement, dated August 8, 2018, between the Company and Larry Goldman (incorporated by referenced to Exhibit 10.4 to the Form 10-Q filed by the Company on August 9, 2018).</u>
<u>10.27**</u>	<u>Form of Indemnification Agreement (August 2018) (incorporated by referenced to Exhibit 10.5 to the Form 10-Q filed by the Company on August 9, 2018).</u>
<u>21.1</u>	<u>Subsidiaries of the Company (incorporated by reference to Exhibit 21.1 to the Form 10-K filed by the Company on March 15, 2016).</u>
<u>23.1*</u>	<u>Consent of BDO USA, LLP.</u>
<u>23.2*</u>	<u>Consent of BDO USA, LLP, regarding report in Exhibit 99.1.</u>
<u>31.1*</u>	<u>Rule 13a-14(a)/15d-14(a) Certification — Principal Executive Officer.</u>
<u>31.2*</u>	<u>Rule 13a-14(a)/15d-14(a) Certification — Principal Financial Officer and Principal Accounting Officer.</u>
<u>32*</u>	<u>Section 1350 Certifications.</u>
<u>99.1*</u>	<u>Audited Financial Statements of Enfission, LLC for 2019 and for the Period from Inception (January 24, 2018) to December 31, 2018, with Report of Independent Auditor.</u>
<u>101*</u>	The following materials from Lightbridge Corporation’s Annual Report on Form 10-K for the year ended December 31, 2019, formatted in 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.

* Filed or furnished herewith

** Indicates management contract or compensatory plan or arrangement.

‡ Certain portions of this exhibit have been omitted by redacting a portion of text (indicated by asterisks in the text).

Item 16. Form 10–K Summary

None.

LIGHTBRIDGE CORPORATION
DECEMBER 31, 2019 and 2018

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Report of Independent Registered Public Accounting Firm

Shareholders and Board of Directors
Lightbridge Corporation
Reston, Virginia

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Lightbridge Corporation and subsidiaries (the “Company”) as of December 31, 2019 and 2018, the related consolidated statements of operations, 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, 2019 and 2018, and the results of their operations and their cash flows for each of the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Going Concern Uncertainty

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company has suffered recurring losses from operations, negative cash flows from operations and has an accumulated deficit that raises substantial doubt about its ability to continue as a going concern. Management’s plans in regard to these matters are also described in Note 1. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

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.

/s/ BDO USA, LLP

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

Philadelphia, Pennsylvania

March 18, 2020

LIGHTBRIDGE CORPORATION
CONSOLIDATED BALANCE SHEETS

	December 31,	December 31,
	2019	2018
ASSETS		
Current Assets		
Cash and cash equivalents	\$ 17,958,989	\$ 24,637,295
Other receivable from joint venture	400,000	93,253
Prepaid expenses and other current assets	47,371	36,745
Total Current Assets	18,406,360	24,767,293
Other Assets		
Patent costs	1,798,484	1,577,421
Total Other Assets	1,798,484	1,577,421
Total Assets	<u>\$ 20,204,844</u>	<u>\$ 26,344,714</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current Liabilities		
Accounts payable and accrued liabilities	\$ 350,299	\$ 258,056
Investee losses in excess of investment	—	218,263
Total Current Liabilities	350,299	476,319
Commitments and contingencies - Note 6		
Stockholders' Equity		
Preferred stock, \$0.001 par value, 10,000,000 authorized shares		
Convertible Series A preferred shares, 757,770 shares and 813,624 shares issued and outstanding at December 31, 2019 and 2018, respectively (liquidation preference \$2,636,764 and \$2,640,862 at December 31, 2019 and 2018, respectively)	757	813
Convertible Series B preferred shares, 2,666,667 shares issued and outstanding at December 31, 2019 and 2018 (liquidation preference \$4,569,180 and \$4,262,855 at December 31, 2019 and 2018, respectively)	2,667	2,667
Common stock, \$0.001 par value, 8,333,333 authorized, 3,252,371 shares and 2,738,508 shares issued and outstanding as of December 31, 2019 and 2018, respectively	3,252	2,738
Additional paid-in capital	133,932,615	129,359,799
Accumulated deficit	(114,084,746)	(103,497,622)
Total Stockholders' Equity	19,854,545	25,868,395
Total Liabilities and Stockholders' Equity	<u>\$ 20,204,844</u>	<u>\$ 26,344,714</u>

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

LIGHTBRIDGE CORPORATION
CONSOLIDATED STATEMENTS OF OPERATIONS

	Years Ended December 31,	
	2019	2018
Revenue	\$ —	\$ —
Operating Expenses		
General and administrative	5,697,469	6,715,378
Research and development expenses	2,676,156	3,458,377
Total Operating Expenses	8,373,625	10,173,755
Other Operating Income and (Loss)		
Other income from joint venture	715,126	1,056,551
Equity in loss from joint venture	(3,321,737)	(5,835,263)
Total Other Operating Income and (Loss)	(2,606,611)	(4,778,712)
Total Operating Loss	\$ (10,980,236)	\$ (14,952,467)
Other Income and (Expenses)		
Interest income	393,112	258,795
Financing costs	—	(982,436)
Total Other Income and (Expenses)	393,112	(723,641)
Net Loss Before Income Taxes	(10,587,124)	(15,676,108)
Income Taxes	—	—
Net Loss	\$ (10,587,124)	\$ (15,676,108)
Accumulated Preferred Stock Dividend	(490,117)	(461,187)
Deemed additional dividend on preferred stock dividend due to the beneficial conversion feature	(209,698)	(187,892)
Deemed dividend on issuance on Series B convertible preferred stock due to the beneficial conversion feature	—	(2,624,836)
Net Loss Attributable to Common Shareholders	\$ (11,286,939)	\$ (18,950,023)
Net Loss Per Common Share		
Basic and Diluted	\$ (3.63)	\$ (8.54)
Weighted Average Number of Common Shares Outstanding	3,107,580	2,219,687

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

LIGHTBRIDGE CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Years Ended	
	December 31,	
	2019	2018
Operating Activities		
Net Loss	\$(10,587,124)	\$(15,676,108)
Adjustments to reconcile net loss from operations to net cash used in operating activities		
Stock-based compensation	822,820	2,379,905
Write off of deferred financing costs	—	982,436
Equity in loss from joint venture	3,321,737	5,835,263
Changes in operating working capital items		
Accounts receivable - fees and reimbursable project costs	—	10,400
Other receivable from joint venture	(306,747)	(93,253)
Prepaid expenses and other current assets	(10,626)	33,322
Accounts payable and accrued liabilities	92,243	(893,154)
Net Cash Used in Operating Activities	(6,667,697)	(7,421,189)
Investing Activities		
Investment in joint venture	(3,540,000)	(5,617,000)
Patent costs	(221,063)	(209,729)
Net Cash Used in Investing Activities	(3,761,063)	(5,826,729)
Financing Activities		
Net proceeds from the issuance of common stock	3,750,454	29,469,814
Net proceeds from the issuance of preferred stock	—	3,900,001
Net Cash Provided by Financing Activities	3,750,454	33,369,815
Net (Decrease) Increase in Cash and Cash Equivalents	(6,678,306)	20,121,897
Cash and Cash Equivalents, Beginning of Year	24,637,295	4,515,398
Cash and Cash Equivalents, End of Year	<u>\$ 17,958,989</u>	<u>\$ 24,637,295</u>
Supplemental Disclosure of Cash Flow Information		
Cash paid during the year		
Interest paid	<u>\$ —</u>	<u>\$ —</u>
Income taxes paid	<u>\$ —</u>	<u>\$ —</u>
Non-Cash Financing Activities		
Deemed dividend on issuance Series B convertible preferred stock due to beneficial conversion feature	<u>\$ —</u>	<u>\$ 2,624,836</u>
Accumulated preferred stock dividend	<u>\$ 699,815</u>	<u>\$ 649,079</u>
Conversion of Series A convertible preferred stock to common stock and payment of paid-in-kind dividends to Series A preferred stockholder	<u>\$ 187,890</u>	<u>\$ 206,376</u>

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

LIGHTBRIDGE CORPORATION
CONSOLIDATED STATEMENT OF CHANGES IN STOCKHOLDERS' EQUITY
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018

	Series A Preferred Stock		Series B Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Equity
	Shares	Amount	Shares	Amount	Shares	Amount			
Balance - December 31, 2017	1,020,000	\$ 1,020	—	\$ —	1,061,475	\$ 1,062	\$ 93,614,215	\$ (87,821,514)	\$ 5,794,783
Conversion of Preferred Shares to Common Shares	(206,376)	(206)	—	—	19,618	19	187	—	—
Shares issued payment of Series A PS dividend	—	(1)	—	—	61	—	1	—	—
Issuance of Preferred stock	—	—	2,666,667	2,667	—	0	3,897,334	—	3,900,001
Cashless exercise of stock warrants	—	—	—	—	41,387	41	(41)	—	—
Shares issued - equity line	—	—	—	—	48,330	48	712,180	—	712,228
Shares issued - registered ATM offering - net of offering costs	—	—	—	—	1,567,637	1,568	28,756,018	—	28,757,586
Stock-based compensation	—	—	—	—	—	—	2,379,905	—	2,379,905
Net loss	—	—	—	—	—	—	—	(15,676,108)	(15,676,108)
Balance - December 31, 2018	813,624	\$ 813	2,666,667	\$ 2,667	2,738,508	\$ 2,738	\$ 129,359,799	\$ (103,497,622)	\$ 25,868,395
Conversion of Preferred Shares to Common Shares	(55,854)	(56)	—	—	5,800	6	50	—	—
Shares issued - registered offerings - net of offering costs	—	—	—	—	508,063	508	3,749,946	—	3,750,454
Stock-based compensation	—	—	—	—	—	—	822,820	—	822,820
Net loss	—	—	—	—	—	—	—	(10,587,124)	(10,587,124)
Balance - December 31, 2019	<u>757,770</u>	<u>\$ 757</u>	<u>2,666,667</u>	<u>\$ 2,667</u>	<u>3,252,371</u>	<u>\$ 3,252</u>	<u>\$ 133,932,615</u>	<u>\$ (114,084,746)</u>	<u>\$ 19,854,545</u>

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

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 and commercializing next generation nuclear fuel technology.

Reverse Stock Split

Effective October 21, 2019, the Company conducted a one-for-twelve reverse stock split of our issued and outstanding common stock and have retroactively adjusted our common shares outstanding, stock options, warrants amounts outstanding and per share information contained in these consolidated financial statements.

The one-for-twelve reverse stock split automatically converted every twelve shares of the Company’s outstanding common stock prior to the effectiveness of the reverse stock split into one share of common stock. As a result, the number of common shares issued and outstanding at December 31, 2018 decreased from 32,862,090 shares to 2,738,508 shares. Our authorized capital of 100,000,000 shares of common stock with a par value of \$0.001, was decreased to 8,333,333 shares of common stock authorized with a par value of \$0.001. Accordingly, stockholders’ equity reflects the reverse stock split by reclassifying from common stock to additional paid-in capital in an amount equal to the par value of the decreased shares resulting from the reverse stock split. The par value per share was not adjusted as a result of the one-for-twelve reverse stock split.

No fractional shares were issued in the reverse stock split. Stockholders who would have otherwise held fractional shares received a whole share in respect of such fractional shares. The reverse stock split did not impact any stockholder’s percentage ownership of the Company, subject to the treatment of fractional shares. The reverse stock split was undertaken to increase the market price per share of the Company’s common stock to allow the Company to regain compliance with the Nasdaq continued listing standards relating to minimum closing bid price per share requirements.

Basis of presentation

Going Concern and Liquidity

These consolidated financial statements have been prepared on the assumption that the Company is a going concern, which contemplates the realization of its assets and the settlement of its liabilities in the normal course of operations. At December 31, 2019, the Company had approximately \$18.0 million in cash and had a working capital surplus of approximately \$18.1 million. The Company’s net cash used in operating activities during the year ended December 31, 2019 was approximately \$6.7 million, and current projections indicate that the Company will have continued negative cash flows until the commercialization of its nuclear fuel. Net losses incurred for the years ended December 31, 2019 and 2018 amounted to approximately \$(10.6) million, \$(15.7) million, respectively. As of December 31, 2019, the Company has an accumulated deficit of approximately \$114.1 million, representative of recurring losses since inception. The Company has incurred recurring losses since inception because it is a development stage nuclear fuel development company. The Company expects to continue to incur losses due to future costs and expenses related to the Company’s research and development expenses and general and administrative expenses.

While the Company’s cash at December 31, 2019 exceeds its budgeted expenditures by approximately \$4.0 million through the first quarter of 2021, there is only a small margin for miscalculations in meeting the Company’s budget estimates 12 months from the issuance of these financial statements. Accordingly, budget variances in the projection of the Company’s planned operations, plus any additional expenditures that may result from potential additional legal costs and other unexpected fees and outcomes relating to arbitration with its joint venture partner (see Note 11. Subsequent Events), raise substantial doubt about the Company’s ability to continue as a going concern.

The amount of cash and cash equivalents on the balance sheet as of the date of this filing is approximately \$16.5 million. The Company also may consider other plans to fund operations including: (1) raising additional capital through equity issuances, debt financings; (2) additional funding through new relationships to help fund future research and development costs; and (3) other sources of capital. The Company may issue securities, including common stock, preferred stock, and stock purchase contracts through private placement transactions or registered public offerings, pursuant to its registration statement on Form S-3 filed with the SEC on March 15, 2018 and declared effective on March 23, 2018. There can be no assurance as to the availability or terms upon which financing and capital might be available. The Company's future liquidity needs, and ability to address those needs, will largely be determined by the success of the development of its nuclear fuel, key nuclear development and regulatory events, and its business decisions in the future. These consolidated financial statements do not include any adjustments related to the carrying values and classifications of assets and liabilities that would be necessary, should the Company be unable to continue as a going concern.

Equity Method Investment – Enfission, LLC - Joint Venture with Framatome Inc.

In January 2018, Lightbridge and Framatome Inc., a subsidiary of Framatome SAS (formerly part of AREVA SAS), finalized and launched Enfission, LLC ("Enfission"), a 50-50 joint venture company, to develop, license, and sell nuclear fuel assemblies based on Lightbridge-designed metallic fuel technology and other advanced nuclear fuel intellectual property. Framatome SAS and Framatome Inc. (collectively "Framatome") is a global leader in designing, building, servicing, and fueling reactor fleet and advancing nuclear energy and is majority owned by Électricité de France, the world's largest owner and operator of nuclear power plants. Lightbridge and Framatome began joint fuel development and regulatory licensing work under previously signed agreements initiated in March 2016. The joint venture, Enfission, is a Delaware-based limited liability company that was formed on January 24, 2018.

Management has determined that its investment in Enfission should be accounted for under the equity method of accounting. Under the equity method of accounting, an investee company's accounts are not reflected within the Company's consolidated balance sheets and consolidated statements of operations; however, the Company's share of the losses of the investee company is reported in the "Equity in loss from joint venture" line item in the consolidated statements of operations, and the Company's carrying value in an equity method investee company is reported in the "Investment in joint venture" or "Investee losses in excess of investment" line item in the consolidated balance sheets.

The Company allocates income or loss utilizing the hypothetical liquidation book value ("HLBV") method, based on the change in each JV member's claim on the net assets of the JV's operating agreement at period end after adjusting for any distributions or contributions made during such period. The Company uses this method because of the difference between the distribution rights and priorities set forth in the Enfission operating agreement and what is reflected by the underlying percentage ownership interests of the joint venture.

The Company evaluates on a quarterly basis, whether our investment accounted for under the equity method of accounting has an other than temporary impairment ("OTTI"). An OTTI occurs when the estimated fair value of an investment is below the carrying value and the difference is determined not likely to be recoverable. This evaluation requires significant judgment regarding, but not limited to, the severity and duration of the impairment; the ability and intent to hold the security until recovery; financial condition, liquidity, and near-term prospects of the issuer; specific events; and other factors.

Accounting Policies and Pronouncements

Basis of Consolidation

These consolidated financial statements include the accounts of Lightbridge, a Nevada corporation, and our 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.

The Company owns a 50% interest in Enfission; accounted for using the equity method of accounting (see Note 3. Investment in Joint Venture (Investee Losses in Excess of Investment)). Enfission is deemed to be a variable interest entity ("VIE") under the VIE model of consolidation because it does not have sufficient funds to finance its operations. The Company has determined that it is not the primary beneficiary of the VIE since it does not have the power to direct the activities that most significantly impact the VIE's performance.

In determining whether the Company is the primary beneficiary and whether it has the right to receive benefits or the obligation to absorb losses that could potentially be significant to the VIE, the Company evaluates all its economic interests in the entity, regardless of form. This evaluation considers all relevant factors of the entity's structure including the entity's capital structure, contractual rights to earnings (losses) as well as other contractual arrangements that have potential to be economically significant. The Company is not the primary beneficiary since the major decision making for all significant economic activities require the approval of both the Company and Framatome. The significant economic activities identified were financing activities, research and development activities, licensing activities, manufacturing of fuel assembly product activities, and marketing and sales activities. The evaluation of each of these factors in reaching a conclusion about the potential significance of our economic interests and control is a matter that requires the exercise of management judgment.

Use of Estimates and Assumptions

The preparation of these consolidated financial statements, in conformity with accounting principles generally accepted in the United States of America, 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.

Significant Estimates

These accompanying consolidated financial statements include some amounts that are based on management's best estimates and judgments. The most significant estimates relate to valuation of stock grants and stock options, impairment evaluation of the equity method investment, the valuation allowance on deferred tax assets, 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. It is also reasonably possible that the actual grant date value of the stock options vested might have been materially different than the estimated value.

Fair Value of Financial Instruments

The Company's consolidated financial instruments consist principally of cash and cash equivalents, accounts receivable, and accounts payable. The fair value of a financial instrument is the amount that would be received in an asset sale or paid to transfer a liability in an orderly transaction between unaffiliated market participants. 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.

Certain Risks, Uncertainties and Concentrations

The Company is an early stage company and will need additional funding by way of strategic alliances, government grants, further offerings of equity securities, an offering of debt securities, or a financing through a bank in order to support the remaining research and development activities required to further enhance and complete the development of its fuel products to a commercial stage.

The Company participates in a government-regulated industry. Our operating results are affected by a wide variety of factors including decreases in the use or public favor of nuclear power, the ability of our technology to safeguard the production of nuclear power, the ability to receive the required approval from the nuclear regulatory commission for utilities to use our fuel and our ability to safeguard our patents and intellectual property from competitors. Due to these factors, the Company may experience substantial period-to-period fluctuations in our future operating results. Potentially, a loss of a key officer, key management, and other personnel could impair our ability to successfully execute our business strategy, particularly when these individuals have acquired specialized knowledge and skills with respect to nuclear power and our operations.

Our future operations and earnings may depend on the results of the Company's operations outside the United States, including some of its research and development activities. There can be no assurance that the Company will be able to successfully continue to conduct such operations, and a failure to do so would have a material adverse effect on the Company's research and development 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, competition, changes in government regulations and support for nuclear power, changes in accounting and taxation standards, inability to achieve overall long-term goals, future impairment charges, and global or regional catastrophic events. The Company may be subject to various additional political, economic, and other uncertainties.

Cash and Cash Equivalents

The Company may at times invest its excess cash in savings accounts and US Treasury Bills. It classifies all highly liquid investments with stated maturities of three months or less from date of purchase as cash equivalents and all 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 2019 and 2018. The Company buys and holds short-term US Treasury Bills from Treasury Direct to maturity. US Treasury Bills totaled approximately \$9.0 million and \$10.0 million at December 31, 2019 and 2018, respectively. The remaining \$9.0 million and \$14.6 million at December 31, 2019 and 2018, respectively, are on deposit with one notable financial institution. Total cash and cash equivalents held, as reported on the accompanying consolidated balance sheets, totaled approximately \$18.0 million and \$24.6 million at December 31, 2019 and 2018, respectively.

Other Receivable from Joint Venture

The Company records its receivable from Enfission, LLC at the invoiced amount. The Company determined that no bad debt reserve needed to be recorded at December 31, 2019 and 2018.

Patents and Legal Costs

Patents are stated on the accompanying consolidated balance sheets at cost. Patent costs consist primarily of legal fees and application costs for filing and pursuing patent applications. The costs of the patents, once placed in service, will be amortized on a straight-line basis over their estimated useful lives or the remaining legal lives of the patents, whichever is shorter. The amortization periods for our patents can range between 17 and 20 years if placed into service at the beginning of their legal lives. Our patents have not been placed in service for the years ended December 31, 2019 and 2018.

Legal costs are expensed as incurred except for legal costs to file for patent protection, which are capitalized and reported as patents on the accompanying consolidated balance sheets.

Impairment of long-lived assets

Long-lived assets of the Company are reviewed for impairment whenever events or circumstances indicate that the carrying amount of assets may not be recoverable. The Company recognizes an impairment loss when the sum of expected undiscounted future cash flows is less than the carrying amount of the asset. The amount of impairment is measured as the difference between the asset's estimated fair value and its book value. The Company did not consider it necessary to record any impairment charges for the years ended December 31, 2019 and 2018.

Research, Development and Related Expenses

These costs are charged to operations in the period incurred and are shown on a separate line on the accompanying consolidated statements of operations.

Government grants received in the future that are paid directly to a government entity performing the research and development work, are credited to the amounts due to that government entity during the period in which the expenditure to which they relate is incurred and are not recorded as grant income.

Leases

In 2019, the Company adopted ASU 2016-02, Leases (Topic 842), which requires recognition of most lease arrangements on the balance sheet. 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.

Beneficial Conversion Feature of Convertible Preferred Stock

The Company accounts for the beneficial conversion feature on its convertible preferred stock in accordance with ASC 470-20, *Debt with Conversion and Other Options*. The Beneficial Conversion Feature (“BCF”) of convertible preferred stock is normally characterized as the convertible portion or feature that provides a rate of conversion that is below market value or in-the-money when issued. The Company records a BCF related to the issuance of convertible preferred stock when issued. Beneficial conversion features that are contingent upon the occurrence of a future event are recorded when the contingency is resolved.

To determine the effective conversion price, the Company first allocates the proceeds received to the convertible preferred stock and then uses those allocated proceeds to determine the effective conversion price. If the convertible instrument is issued in a basket transaction (i.e. issued along with other freestanding financial instruments), the proceeds should first be allocated to the various instruments in the basket. The intrinsic value of the conversion option should be measured using the effective conversion price for the convertible preferred stock on the proceeds allocated to that instrument. The effective conversion price represents proceeds allocable to the convertible preferred stock divided by the number of shares into which it is convertible. The effective conversion price is then compared to the per share fair value of the underlying common shares on the commitment date. The accounting for a BCF requires that the BCF be recognized by allocating the intrinsic value of the conversion option to additional paid-in capital, resulting in a discount on the convertible preferred stock. This discount should be accreted from the date on which the BCF is first recognized through the earliest conversion date for instruments that do not have a stated redemption date. The intrinsic value of the BCF is recognized as a deemed dividend on convertible preferred stock over a period specified in the guidance. In the case of both the Series A and Series B preferred shares, the holders of the shares had the right to convert beginning at the date of issuance with the result that the accretion of the related BCF was recognized immediately at issuance.

When the Company’s preferred stock has dividends that are paid-in-kind (“PIK”) (i.e. the holder is paid in additional shares or liquidation/dividend rights), and either (1) neither the Company nor the holder has the option for the dividend to be paid in cash, or (2) the PIK amounts do not accrue to the holder if the instrument is converted prior to the PIK amount otherwise being accrued or due, additional BCF is recognized as dividends accrue to the extent that the per share fair value of the underlying common shares at the commitment date exceeds the conversion price.

Common Stock Warrants

The Company accounts for common stock warrants as either equity instruments or derivative liabilities depending on the specific terms of the warrant agreement. Common stock warrants are accounted for 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 the scope exception for treatment as a derivative. Warrant instruments that could potentially require “net cash settlement” in the absence of express language precluding such settlement are initially classified as derivative liabilities at their estimated fair values, regardless of the likelihood that such instruments will ever be settled in cash.

Commitments and Contingencies

The Company follows Subtopic 450-20 of the FASB ASC to report accounting for contingencies. Certain conditions may exist as of the date the consolidated financial statements are issued, which may result in a loss to the Company, but which will only be resolved when one or more future events occur or fail to occur. The Company assesses such contingent liabilities, and such assessment inherently involves an exercise of judgment.

If the assessment of a contingency indicates that it is probable that a material loss has been incurred and the amount of the liability can be estimated, then the estimated liability would be accrued in the Company's consolidated financial statements. If the assessment indicates that a potentially material loss contingency is not probable but is reasonably possible, or is probable but cannot be estimated, then the nature of the contingent liability, and an estimate of the range of possible losses, if determinable and material, would be disclosed.

Loss contingencies considered remote are generally not disclosed unless they involve guarantees, in which case the guarantees would be disclosed. The Company's legal costs associated with contingent liabilities are recorded to expense as incurred.

Stock-Based Compensation

The stock-based compensation expense incurred by Lightbridge 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 the options is measured at the grant date. Under ASC 718 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." Our consultants do not meet the employer-employee relationship as defined by the IRS and therefore were accounted for under ASC 505-50. On July 1, 2018, the Company adopted ASU 2018-07, *Compensation – Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting*. Beginning with the adoption of ASU 2018-07 options granted to our consultants are accounted for in the same manner as options issued to employees.

Awards with service-based vesting conditions only – Expense 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 will be 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 over the requisite service period basis until a higher performance-based condition is met, if applicable.

Awards with market-based vesting conditions – Expense 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 will accelerate 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 has elected to use the 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. Shares that are issued to officers on the exercise dates of their stock options may be issued net of the minimum statutory withholding requirements to be paid by us on behalf of our employees. As a result, the actual number of shares issued will be fewer than the actual number of shares exercised under the stock option.

Recently Adopted Accounting Pronouncements

ASU 2018-09, Codification Improvements — This ASU represents changes in various Subtopics to clarify, correct errors, or make minor improvements. The amendments are not expected to have a significant effect on current accounting practice. Subtopics impacted by this ASU that are relevant to the Company include *Subtopic 220-10 Income Statement — Reporting Comprehensive Income-Overall*, *Subtopic 718-740 Compensation — Stock Compensation-Income Taxes*, *Subtopic 805-740 Business Combinations — Income Taxes*, and *Subtopic 820-10 Fair Value Measurement-Overall*. Many of the amendments within this ASU do not require transition and are effective upon issuance. However, some were not effective until fiscal years beginning after December 15, 2018. The amendments within this ASU did not have a material impact on the Company's consolidated financial statements or related footnote disclosures.

In June 2018, the FASB issued ASU 2018-07, *Compensation - Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting* ("ASU 2018-07"). ASU 2018-07 expands the guidance in Topic 718 to include share-based payments for goods and services to non-employees and generally aligns it with the guidance for share-based payments to employees. The amendments are effective for fiscal years beginning after December 15, 2018, including interim periods within that fiscal year, which was adopted by the Company on July 1, 2018. The adoption of this ASU did not have a significant impact upon on the Company's consolidated financial statements or related footnote disclosures.

Leases — In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*. ASU 2016-02 amends existing lease accounting guidance and requires recognition of most lease arrangements on the balance sheet. The adoption of this standard did not result in the Company recognizing a right-of-use asset representing its rights to use the underlying asset for the lease term with an offsetting lease liability. ASU 2016-02 is effective for fiscal years beginning after December 15, 2018, with early adoption permitted. The adoption of this standard did not have a material impact on the Company's financial position, results of operations or cash flows.

Recent Accounting Pronouncements – To Be Adopted

ASU 2018-13, Fair Value Measurement (Topic 820): Disclosure Framework — Changes to the Disclosure Requirements for Fair Value Measurement — This ASU modifies the disclosure requirements on fair value measurements in Topic 820, including the removal, modification to, and addition of certain disclosure requirements. This ASU will be effective for fiscal years beginning after December 15, 2019 with early adoption permitted. The majority of the disclosure changes are to be applied on a prospective basis. The Company does not expect this ASU to have a significant impact on the Company's fair value disclosures and no future impact is expected to the Company's consolidated financial statements.

Intangibles, Goodwill and Other — In January 2017, the FASB issued ASU 2017-04, *Intangibles – Goodwill and Other (Topic 350) – Simplifying the Test for Goodwill Impairment*. To simplify the subsequent measurement of goodwill, ASU 2017-04 eliminates Step 2 from the goodwill impairment test. In computing the implied fair value of goodwill under Step 2, an entity had to perform procedures to determine the fair value at the impairment testing date of its assets and liabilities following the procedure that would be required in determining the fair value of assets acquired and liabilities assumed in a business combination. Instead, ASU 2017-04 requires an entity to perform its annual, or interim, goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. An entity should recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value; however, the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. ASU 2017-04 also eliminates the requirements for any reporting unit with a zero or negative carrying amount to perform a qualitative assessment and, if it fails that qualitative test, to perform Step 2 of the goodwill impairment test. Therefore, the same impairment assessment applies to all reporting units. An entity is required to disclose the amount of goodwill allocated to each reporting unit with a zero or negative carrying amount of net assets. An entity still has the option to perform the qualitative assessment for a reporting unit to determine if the quantitative impairment test is necessary. ASU 2017-04 is effective for fiscal years beginning after December 15, 2019. The Company will adopt ASU 2017-04 commencing in the first quarter of fiscal 2020. The Company does not believe this standard will have a material impact on its consolidated financial statements or related footnote disclosures.

The Company does not believe that other standards, which have been issued but are not yet effective, will have a significant impact on its consolidated financial statements.

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 except that it does not include unvested common shares subject to repurchase or cancellation. Diluted net income per share is computed using the weighted-average number of common shares and, if dilutive, potential common shares outstanding during the year. Potential common shares consist of the incremental common shares issuable upon the exercise of stock options, warrants, and unvested common shares subject to repurchase or cancellation. The dilutive effect of outstanding stock options, and warrants is not reflected in diluted earnings per share because the Company incurred net losses for the years ended December 31, 2019 and 2018, and the effect of including these potential common shares in the net loss per share calculations would be anti-dilutive, therefore not included in the calculations.

The following table sets forth the computation of the basic and diluted loss per share (rounded in millions except shares outstanding and per share amounts):

	<u>2019</u>	<u>2018</u>
Numerator:		
Net loss attributable to common stockholders	\$ (11.3)	\$ (19.0)
Denominator:		
Weighted-average common shares outstanding	3,107,580	2,219,687
Basic and diluted net loss per share	\$ (3.63)	\$ (8.54)

Note 3. Investment in Joint Venture (Investee Losses in Excess of Investment)***Current Status of the Joint Venture***

Pursuant to the Enfission operating agreement, both partners agreed that Enfission would serve as an exclusive vehicle to develop, license, and sell nuclear fuel assemblies based on Company-designed metallic fuel technology and other advanced nuclear fuel intellectual property licensed to Enfission by the Company and Framatome or their affiliates. The joint venture built upon the joint fuel development and regulatory licensing work under previously signed agreements initiated in March 2016.

On November 18, 2019, the Company delivered a notice of termination of the R&D Services Agreement to the Board of Directors of Enfission, dated November 14, 2017, by and among Framatome, Enfission and our Company (as amended by Amendment Number One, dated January 25, 2018, and Amendment Number Two, dated June 20, 2018, the “RDSA”), which, among other things, defined the terms and conditions for joint research and development activities among Framatome, Enfission, and our Company, thereby terminating the RDSA, effective immediately. On November 23, 2019, in connection with the termination of the RDSA, the Board of Directors and the management of Lightbridge determined that it is advisable and in the best interest of the Company and its shareholders to take the necessary steps to dissolve Enfission. Various corporate and operational matters relating to Enfission are governed pursuant to the Enfission Operating Agreement. The Company intends to take the necessary steps to dissolve the joint venture. Enfission is not conducting R&D services at December 31, 2019 and as of the date of this filing. Enfission’s Board of Directors has not approved a formal dissolution plan at December 31, 2019 or as of the date of this filing (see Note 11. Subsequent Events).

The Enfission operating agreement provided that Lightbridge and Framatome each hold 50% of the total issued Class A voting membership units of the joint venture.

The Company's equity in losses in excess of its investment are accounted for under the equity method consisted of the following as of December 31, 2019 and 2018 (rounded in millions):

	December 31, 2019	December 31, 2018
Enfission, LLC		
Ownership Interest	50 %	50 %
Carrying Amount		
Total contributions	\$ 9.2	\$ 5.6
Less: Share of the loss in investment in Enfission	(9.2)	(5.8)
Equity losses in excess of investment	\$ —	\$ (0.2)

The Company invested approximately \$9.2 million in Enfission and Framatome invested approximately \$2.9 million of equity for the period from January 24, 2018 (date of inception of Enfission) to December 31, 2019. The cash balance in Enfission at December 31, 2019 was approximately \$1.0 million. During the year ended December 31, 2019, Enfission incurred a loss of approximately \$5.5 million, and accordingly, the Company recorded its share of the loss in investment in Enfission, in accordance with the provisions in the joint venture operating agreement, of approximately \$3.3 million.

As of December 31, 2019, the Company's total equity share of the joint venture accumulated losses is limited to the total equity contributions Lightbridge made since January 24, 2018 according to the Enfission joint-venture operating agreement. It stated that at no time during the term of the company or upon dissolution or liquidation of the company shall a member with a deficit balance in its capital account have any obligation to Enfission or to the other members of Enfission to restore such deficit capital balance, to the fullest extent permitted by applicable law and to the provisions of the joint venture operating agreement. The Company had not separately guaranteed any obligations of Enfission. The Company does not expect to provide additional equity contributions in 2020 nor for the foreseeable future until Enfission is dissolved.

Summarized balance sheet information for the Company's equity method investee, Enfission, as of December 31, 2019 and 2018 is presented in the following table (rounded in millions):

	December 31, 2019	December 31, 2018
Assets		
Cash	\$ 1.0	\$ 0.7
Other current assets	—	0.7
Total assets	<u>\$ 1.0</u>	<u>\$ 1.4</u>
Liabilities and equity		
Total liabilities	\$ 2.1	\$ 1.9
Equity	(1.1)	(0.5)
Total liabilities and equity	<u>\$ 1.0</u>	<u>\$ 1.4</u>

Summarized statement of operations information for the Company's equity method investee, Enfission, is presented in the following table for the year ended December 31, 2019 and for the period from January 24, 2018 (Date of Inception) to December 31, 2018 (rounded in millions):

	For the Year Ended December 31, 2019	For the period from January 24, 2018 (Date of Inception) to December 31, 2018
Net revenues	\$ 0.0	\$ 0.0
Research and development expenses	4.2	6.6
Administrative expenses	1.3	1.1
Total Operating Loss	\$ 5.5	\$ 7.7
Loss from operations	\$ 5.5	\$ 7.7
Net loss	<u>\$ 5.5</u>	<u>\$ 7.7</u>

As of December 31, 2019 and 2018, the total receivable due from Enfission was approximately \$0.4 million and \$0.1 million, respectively, which represents management and administrative services, consulting fees and reimbursable expenses Lightbridge charged to Enfission (see Note 10. Related Party Transactions). In January 2020, the Company received payment of the total receivable due from Enfission of \$0.4 million.

Disputed Framatome Invoices

Included in the total liabilities of Enfission of \$2.1 million above, are certain invoices for research and development work submitted by Framatome in 2019, totaling approximately \$1.3 million at December 31, 2019. These invoices have been disputed and remain unpaid as of the date of this filing. There are various disagreements between Framatome and Lightbridge regarding these disputed Framatome invoices. It is expected that these disputes will be resolved through either further negotiations by the joint venture partners or in arbitration (see Note 11. Subsequent Events). The Company had not separately guaranteed any obligations of Enfission at December 31, 2019 and is not obligated under the joint venture operating agreement to fund its deficit capital account balance in Enfission.

Note 4. Patents

Patents represent legal fees and filing costs that are capitalized and will be amortized over their estimated useful lives of 17 to 20 years or their remaining legal lives, whichever is shorter, after they are placed in service. For the years ended December 31, 2019 and 2018, the Company capitalized approximately \$0.2 million each year, for patent filing costs. The total investment in patents was approximately \$1.8 million and \$1.6 million as of December 31, 2019 and 2018, respectively.

No amortization expense of patents was recorded in either of the years ended December 31, 2019 and 2018. These patents were not placed in service for the years ended December 31, 2019 and 2018, or in prior years.

Note 5. Accounts Payable and Accrued Liabilities

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

	December 31, 2019	December 31, 2018
Trade payables	\$ 0.3	\$ 0.1
Accrued expenses	0.1	0.2
Total	<u>\$ 0.4</u>	<u>\$ 0.3</u>

Note 6. Commitments and Contingencies**Commitments*****Operating Leases***

The Company leases office space for a 12-month term with a monthly payment of approximately \$15,000 per month for office rent. The term of the lease was renewed on January 1, 2020 and extends through December 31, 2020.

The future minimum lease payments required under the non-cancellable operating leases for 2020 total approximately \$180,000.

Contingency***Litigation***

A former Chief Financial Officer of the Company filed a complaint against the Company with the US Occupational Safety and Health Administration (“OSHA”) on March 9, 2015. This complaint was dismissed by OSHA in January 2018 without any findings against the Company. On March 14, 2018 an appeal was filed. The Company has and will continue to vigorously defend this appeal and believes that this appeal hearing will not result in any findings against the Company. On September 6, 2019, the Company filed a motion for summary decision seeking a decision in its favor as a matter of law. There has been no decision on this motion as of the date of these consolidated financial statements. As of December 31, 2019, and 2018, legal fees of approximately \$6,000 and \$4,000 were owed, respectively, and are expected to be paid in full by the Company’s insurance carriers.

Note 7. Research and Development Costs

Lightbridge total corporate research and development costs, included in the caption research and development expenses in the accompanying consolidated statement of operations amounted to approximately \$2.7 million and \$3.5 million for the years ended December 31, 2019 and 2018, respectively. See Note 10. Related Party Transactions regarding consulting fees charged to Enfission for research and development expenses incurred by Lightbridge on behalf of Enfission.

On December 19, 2019 the Company was awarded a voucher from the U.S. Department of Energy's (DOE) Gateway for Accelerated Innovation in Nuclear (GAIN) program to support development of Lightbridge Fuel in collaboration with Idaho National Laboratory (INL). The scope of the project includes experiment design for irradiation of Lightbridge metallic fuel material samples in the Advanced Test Reactor (ATR) at INL. The project is anticipated to commence in the first half of 2020. The total project value is approximately \$846,000, with three-quarters of this amount funded by DOE for the scope performed by INL. No payments related to the voucher were received by INL for the year ended December 31, 2019.

Note 8. Income Taxes

On December 22, 2017, the US enacted the Tax Cuts and Jobs Act (the "Tax Act"), which significantly changed US tax law. The Act lowered the Company's US statutory federal income tax rate from 35% to 21% effective January 1, 2018, while also imposing a deemed repatriation tax on previously deferred foreign income. The Tax Act also created a new minimum tax on certain future foreign earnings. The Tax Act will impact the Company's income tax expense (benefit) from continuing operations in future periods (approximate 26% effective combined federal and state corporate tax rate). The Company has recorded a full valuation allowance on its net deferred tax assets, therefore any impact on the value of the Company's deferred tax assets will be offset by a change in the valuation allowance.

The 2019 and 2018 annual effective tax rate is estimated to be a combined 26% for the combined US federal and state statutory tax rates. The Company reviews tax uncertainties in light of changing facts and circumstances and adjust them accordingly. As of December 31, 2019 and 2018, there were no tax contingencies or unrecognized tax positions recorded.

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 26% effective tax rate) as of December 31, 2019 and 2018, respectively, are as follows:

Deferred Tax Assets (rounded in millions)

	2019	2018
Capitalized start-up costs	\$ 0.4	\$ 0.5
Stock-based compensation	3.0	2.9
Partnership basis differences	(0.3)	—
Net operating loss carry-forward	22.3	19.7
Research and development tax credits	0.3	0.2
Less: valuation allowance	(25.7)	(23.3)
Total	\$ —	\$ —

The Company has a net operating loss carry-forward for federal and state tax purposes of approximately \$87.8 million at December 31, 2019, that is potentially available to offset future taxable income. The TaxAct changes the rules on NOL carryforwards. The 20-year limitation was eliminated for losses incurred after January 1, 2018, giving the taxpayer the ability to carry forward losses indefinitely. However, NOL carry forward arising after January 1, 2018, will now be limited to 80% of taxable income. The \$87.8 million available at December 31, 2019 includes \$25.1 million of post 2017 NOLs without expiration dates and \$62.7 million of pre-2018 NOLs expiring from 2021 to 2037. The NOL's expiring in the next 5 years total approximately \$0.4 million.

For financial reporting purposes, no deferred tax asset was recognized because at December 31, 2019 and 2018, management estimates that it is more likely than not that substantially all of the net operating losses will expire unused. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences are deductible. The timing and manner in which the Company can utilize our net operating loss carryforward and future income tax deductions in any year may be limited by provisions of the Internal Revenue Code regarding the change in ownership of corporations. Such limitation may have an impact on the ultimate realization of our carryforwards and future tax deductions. Section 382 of the Internal Revenue Code ("Section 382") imposes limitations on a corporation's ability to utilize net operating losses if it experiences an "ownership change." In general terms, an ownership change may result from transactions increasing the ownership of certain stockholders in the stock of a corporation by more than 50 percentage points over a three-year period. 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. Upon review of the ownership shifts, there has not been an ownership change as defined under Section 382.

The reconciliation between income taxes (benefit) at the US and State statutory tax rates of approximately 26% and the amount recorded in the accompanying consolidated financial statements is as follows (rounded in millions):

	December 31, 2019	December 31, 2018
Tax benefit at US federal statutory rates	\$ (2.2)	\$ (3.3)
Tax benefit at state statutory rates	(0.1)	(0.7)
Tax benefit from federal and state R&D tax credits	(0.1)	(0.2)
Increase (decrease) in valuation allowance	2.4	4.2
Total provision for income tax benefit	\$ —	\$ —

Note 9. Stockholders' Equity and Stock-Based Compensation

At December 31, 2019, the Company had 3,252,371 common shares outstanding, also outstanding were warrants relating to 70,361 shares of common stock, stock options relating to 518,551 shares of common stock, 757,770 shares of Series A convertible preferred stock convertible into 63,148 shares of common stock (plus accrued dividends of \$556,390 relating to an additional 16,890 common shares), and 2,666,667 shares of Series B convertible preferred stock convertible into 222,222 shares of common stock (plus accrued dividends of \$569,181, relating to an additional 31,621 common shares), all totaling, 4,175,164 shares of common stock and all common stock equivalents, including accrued preferred stock dividends, outstanding at December 31, 2019.

At December 31, 2018, there were 2,738,508 common shares outstanding, and there were also outstanding warrants relating to 70,361 shares of common stock, stock options relating to 467,013 shares of common stock, 813,624 shares of Series A convertible preferred stock convertible into 67,802 shares of common stock (plus accrued dividends of \$407,382 relating to an additional 12,367 common shares), and 2,666,667 shares of Series B convertible preferred stock convertible into 222,222 shares of common stock (plus accrued dividends of \$262,856, relating to an additional 14,603 common shares), all totaling 3,592,876 shares of common stock and all common stock equivalents, including accrued preferred stock dividends, outstanding at December 31, 2018.

Common Stock Equity Offerings

ATM Offerings

On May 28, 2019, the Company entered into an at-the-market equity offering sales agreement (“2019 ATM”) with Stifel, Nicolaus & Company, Incorporated (“Stifel”), 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. 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, as amended, pursuant to the Company’s effective shelf registration statement on Form S-3 (File No. 333-223674) filed on March 15, 2018 and declared effective March 23, 2018. Due to the offering limitations currently applicable to the Company under General Instruction I.B.6. of Form S-3 and the Company’s public float as of May 28, 2019, and in accordance with the terms of the sales agreement, the Company may offer and sell shares of its common stock having an aggregate offering price of up to \$13,500,000 through this prospectus supplement.

On March 30, 2018, the Company entered into an at-the-market issuance sales agreement with B. Riley FBR, Inc. (“B. Riley”) that superseded the prior at-the market agreement with B. Riley (collectively “2018 ATM”), pursuant to which the Company could issue and sell shares of its common stock from time to time through B. Riley as the Company’s sales agent. Effective March 29, 2019, the Company and B. Riley terminated this 2018 ATM agreement.

Sales under the 2019 ATM and under the 2018 ATM for the year ended December 31, 2019 were 508,063 shares (pre-split: approximately 6.1 million shares). Net proceeds received from the ATM sales during the year ended December 31, 2019 were \$3.8 million. The Company records its ATM sales on a settlement date basis.

Sales under the 2018 ATM for the year ended December 31, 2018 were 1,567,637 shares (pre-split: approximately 18.8 million shares). Net proceeds received from the ATM sales during the year ended December 31, 2018 were \$28.8 million.

Preferred Stock Equity Offerings

Series B Preferred Stock - Securities Purchase Agreement

On January 30, 2018, the Company issued 2,666,667 shares of newly created Non-Voting Series B Convertible Preferred Stock (the “Series B Preferred Stock”) and associated warrants to purchase up to 55,555 shares of the Company’s common stock to the several purchasers for approximately \$4.0 million or approximately \$1.50 per share of Series B Preferred Stock and associated warrant. Dividends accrue on the Series B Preferred Stock at the rate of 7% per year and will be paid in-kind through an increase in the liquidation preference per share. The liquidation preference, initially \$1.50 per share of Series B Preferred Stock, is the base that is also used to determine the number of common shares into which the Series B Preferred Stock will convert as well as the calculation of the 7% dividend. Each share of Series B Preferred Stock is convertible at the option of the holder into such number of shares of the Company’s common stock equal to the liquidation preference divided by the conversion price of \$18 per share subject to adjustments in the case of stock splits and stock dividends.

Holders of the Series B Preferred Stock are also entitled to participating dividends whenever dividends in cash securities (other than shares of the Company's common stock paid on shares of common stock) or property are paid on common shares or shares of Series A Preferred Stock. The amount of the dividends will equal the amount to which the holder would be entitled if all shares of Series B Preferred Stock had been converted to common stock immediately prior to the record date.

The warrants had a per share of common stock exercise price of \$22.50. The warrants were exercisable upon issuance and expired six months after issuance on July 30, 2018. Warrants were also issued to the investment bank who introduced these investors, which were subsequently transferred to the principal of the investment bank, entitling the holder to purchase 11,119 common shares in the Company at an exercise price of \$18 per share, up to and including January 30, 2021. On February 6, 2017 the Company entered into an agreement with this investment bank. The agreement calls for monthly retainer payments of \$15,000, which are credited against any transaction introductory fee earned by the investment bank. This agreement calls for a 7% transaction introductory fee and warrants equal to 5% of the total transaction amount, at a strike price equal to the offering price for a three-year term.

The holders of the Series B Preferred Stock have no voting rights. In addition, as long as the shares of Series A Preferred Stock are outstanding, the Company may not take certain actions without first having obtained the affirmative vote or waiver of the holders of a majority of the outstanding shares of Series B Preferred Stock. The Company has the option at any time after August 2, 2019 to redeem some or all of the outstanding Series B Preferred Stock for an amount in cash equal to the liquidation preference plus the amount of any accrued but unpaid dividends of the Series B Preferred Stock being redeemed. The holders of the Series B Preferred Stock do not have the ability to require the Company to redeem the Series B Preferred Stock. The Company has not redeemed any of the outstanding Series B Preferred Stock during the year ended December 31, 2019.

The Company has the option of forcing the conversion of all or part of the Series B Preferred Stock if at any time the average closing price of the Company's common stock for a thirty-trading day period is greater than \$65.88 prior to August 2, 2019 or greater than \$98.82 at any time. The Company can exercise this option only if it also requires the conversion of the Series A Preferred Stock in the same proportion as it is requiring of the Series B Preferred Stock. The Company did not force the conversion of any of the outstanding Series B Preferred Stock during the year ended December 31, 2019.

Of the \$4.0 million proceeds, approximately \$0.3 million was allocated to the warrants with the remaining \$3.7 million allocated to the Series B Preferred Stock. The Series B Preferred Stock was initially convertible into 2,666,667 shares of common stock (now convertible into 222,222 shares of common stock when adjusted for the one-for-twelve reverse stock split on October 21, 2019). The average of the high and low market prices of the common stock on January 30, 2018, the date of the closing of the sale of the preferred stock, was approximately \$28.08 per share. At \$28.08 per share the common stock into which the Series B Preferred Stock was initially convertible was valued at approximately \$6.2 million. This amount was compared to the \$3.6 million of proceeds allocated to the Series B Preferred Stock to indicate that a BCF of approximately \$2.6 million existed at the date of issuance, which was immediately accreted as a deemed dividend because the conversion rights were immediately effective. This deemed dividend is included on the statement of operations for the year ended December 31, 2018.

Additionally, comparison of the original \$1.50 conversion price prior to the one-for-twelve reverse stock split on October 21, 2019 of the PIK dividends to the \$2.34 commitment date fair value per share on January 30, 2018 indicates that each PIK dividend will accrete \$0.84 of BCF as an additional deemed dividend for every \$1.50 of PIK dividend accrued. Total deemed dividends for this PIK dividend for the years ended December 31, 2019 and 2018 were approximately \$0.2 million and \$0.1 million, respectively.

The accumulated dividend (unpaid) at December 31, 2019 and 2018 was approximately \$0.6 million and \$0.3 million, respectively. The Series B Preferred Shares outstanding as of December 31, 2019 was 2,666,667 shares with an aggregate liquidation preference of approximately \$4.6 million, including accumulated dividends, while the Series B Preferred Shares outstanding as of December 31, 2018 was 2,666,667 shares with an aggregate liquidation preference of approximately \$4.3 million, including accumulated dividends.

Series A Preferred Stock - Securities Purchase Agreement

On August 2, 2016, the Company issued 1,020,000 shares of newly created Non-Voting Series A Convertible Preferred Stock (the “Series A Preferred Stock”) to General International Holdings, Inc. for \$2.8 million or approximately \$2.75 per share. Dividends accrue on the Series A Preferred Stock at the rate of 7% per year and will be paid in-kind through an increase in the liquidation preference per share. The liquidation preference, initially \$2.7451 per share of Series A Preferred Stock, is the base that is also used to determine the number of common shares into which the Series A Preferred Stock will convert as well as the calculation of the 7% dividend. Each share of Series A Preferred Stock is convertible at the option of the holder into such number of shares of the Company’s common stock equal to the liquidation preference divided by the conversion price of \$32.94 per share subject to adjustments in the case of stock splits and stock dividends.

Holders of the Series A Preferred Stock are also entitled to participating dividends whenever dividends in cash securities (other than shares of the Company’s common stock) or property are paid on common shares. The amount of the dividends is the amount to which the holder would be entitled if all shares of Series A Preferred Stock had been converted to common stock immediately prior to the record date.

The Company has the option of forcing the conversion of the Series A Preferred Stock if the trading price for the Company’s common stock is more than two times the applicable conversion price (approximately \$32.94 per share) before August 2, 2019, or if the trading price is more than three times the applicable conversion price. The Company has not redeemed any of the outstanding Series A Preferred Stock during the year ended December 31, 2019.

The Series A Preferred Stock was initially convertible into 1,020,000 shares of common stock (now convertible into 85,000 common shares when adjusted for the one-for-twelve reverse stock split on October 21, 2019). The average of the high and low market prices of the common stock on August 6, 2016, the date of the closing of the sale of the Series A Preferred Stock, was approximately \$39.78 per share. At \$39.78 per share the common stock into which the Series A Preferred Stock was initially convertible was valued at approximately \$3.4 million. This amount was compared to the \$2.8 million of proceeds of the Series A Preferred Stock to indicate that a BCF of approximately \$0.6 million existed at the date of issuance in 2016, which was immediately accreted as a deemed dividend because the conversion rights were immediately effective.

Additionally, comparison of the \$2.7451, original conversion price of the PIK dividends prior to the one-for-twelve reverse stock split on October 21, 2019, to the \$3.315 commitment date fair value per share indicates that each PIK dividend will accrete \$0.5699 of BCF as an additional deemed dividend for every \$2.7451 of PIK dividend accrued. Total deemed dividends for this PIK dividend for the years ended December 31, 2019 and 2018 were approximately \$38,000 and \$41,000, respectively.

The holders of the Series A Preferred Stock have no voting rights. In addition, as long as 255,000 shares of Series A Preferred Stock are outstanding, the Company may not take certain actions without first having obtained the affirmative vote or waiver of the holders of a majority of the outstanding shares of Series A Preferred Stock. The Company has the option at any time after August 2, 2019 to redeem some or all of the outstanding Series A Preferred Stock for an amount in cash equal to the liquidation preference plus the amount of any accrued but unpaid dividends of the Series A Preferred Stock being redeemed. The holders of the Series A Preferred Stock do not have the ability to require the Company to redeem the Series A Preferred Stock.

On April 30, 2018, the holder of the Series A Preferred Shares converted 111,260 preferred shares into 10,407 common shares.

On September 30, 2018, the holder of the Series A Preferred Shares were issued 61 common shares in payment of the dividend for the month of April 2018. On the same date, the holder of the Series A Preferred Shares converted 95,116 preferred shares into 9,211 common shares.

On April 16, 2019, the holder of the Series A Preferred Shares converted 27,747 preferred shares into the 2,782 common shares.

On October 8, 2019, the holder of the Series A Preferred Shares converted 28,107 preferred shares into the 2,922 common shares.

The accumulated dividend (unpaid) at December 31, 2019 and 2018 was approximately \$0.6 million and \$0.4 million, respectively. The Series A Preferred Shares outstanding as of December 31, 2019 was 757,770 shares with an aggregate liquidation preference of approximately \$2.6 million, including accumulated dividends, while the Series A Preferred Shares outstanding as of December 31, 2018 was 813,624 shares with an aggregate liquidation preference of approximately \$2.6 million, including accumulated dividends.

Warrants

	December 31, 2019	December 31, 2018
Outstanding Warrants		
Issued to Investors on October 25, 2013, entitling the holders to purchase 20,833 common shares in the Company at an exercise price of \$138.00 per common share up to and including April 24, 2021. In 2016, 4,954 of these warrants were exchanged for common stock, and all remaining warrant holders agreed to new warrant terms, which excluded any potential net cash settlement provisions in exchange for a reduced exercise price of \$75.00 per share.	13,665	13,665
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 up to and including May 16, 2022. On June 30, 2016, the warrant holders agreed to new warrant terms, which excluded any potential net cash settlement provisions in order to classify them as equity in exchange for a reduced exercise price of \$75.00 per share.	45,577	45,577
Issued to an investment bank and subsequently transferred to a principal of the investment bank regarding the Series B Preferred Stock investment on January 30, 2018, entitling the holder to purchase 11,119 common shares in the Company at an exercise price of \$18.00 per share, up to and including January 30, 2021.	11,119	11,119
Total	70,361	70,361

Stock-based Compensation – Stock Options

2015 Equity Incentive Plan

On March 25, 2015, the Compensation Committee and Board of Directors approved the Lightbridge Corporation 2015 Equity Incentive Plan (the “2015 Plan”) to authorize grants of (a) Incentive Stock Options, (b) Non-qualified Stock Options, (c) Stock Appreciation Rights, (d) Restricted Awards, (e) Performance Share Awards, and (f) Performance Compensation Awards to the employees, consultants, and directors of the Company. The shares available for award under the 2015 plan are subject to equitable adjustment for the October 21, 2019 reverse stock split described in Note 1. The 2015 Plan initially authorized a total of 50,000 shares to be available for grant under the 2015 Plan, of which the amount was increased to 116,667 shares in May 2016, 241,667 shares in May 2017, and 525,000 shares in May 2018. Lightbridge’s policy is to utilize stock reserved for issuance under the 2015 Plan for issuing shares upon share option exercise.

Short-Term Non-Qualified Option Grants

On December 2, 2019, the Compensation Committee of the Board granted 86,982 short-term incentive stock options and non-qualified stock options under the 2015 Equity Incentive Plan to employees, consultants, and directors of the Company. All of these stock options vested immediately, with a strike price of \$3.82, which was the closing price of the Company's stock on December 2, 2019. These options have a 10-year contractual term, with a fair market value of approximately \$2.59 per option with an expected term of 5 years. During the year ended December 31, 2019, the Company issued 4,247 stock options to a consultant.

Long-Term Non-Qualified Option Grants

In August 2018, the Compensation Committee of the Board of Directors granted long-term non-qualified stock options relating to 146,066 shares to employees, consultants, and directors of the Company. These stock options have a strike price of \$10.80. Out of this total, approximately 128,355 stock options were issued to employees and consultants. These non-qualified stock options contain service, performance, and market conditions of which one must be achieved in order for the options to vest. The service condition vests one-third annually over a 3-year period with accelerated vesting of these options occurring upon applicable performance or market conditions being satisfied by certain milestone dates. Accelerated vesting of these option grants to employees and consultants would occur upon achievement of either of the following performance and market-based milestones:

1. The Company's closing stock price is above \$36 per share for 10 consecutive trading days by December 31, 2019.
2. The Company secures at least \$5 million of funding from the Department of Energy by June 30, 2019.

The remaining approximately 17,711 stock options were service based options issued to the directors of the Company that vest over a one-year period on the anniversary date of the grant. All options granted have a 10-year contractual term. During the year ended December 31, 2018, the Company also issued 2,638 stock options to a consultant.

The 2019 options issued for the employees, directors, and consultants of the Company were assigned a fair value of \$2.59 per share (total fair value of \$0.2 million). The value was determined using Black-Scholes pricing model. The following assumptions were used in the Black-Scholes pricing model:

Expected volatility	86 %
Risk free interest rate	1.65 %
Dividend yield rate	0 %
Weighted average years	5 years
Closing price per share – common stock	\$ 3.82

In accordance with ASC 718, the 2018 stock option awards with service, market and performance conditions for the employees and consultants were assigned a fair value of \$8.28 per share and the awards with service conditions for the directors of the Company were assigned a fair value of \$8.40 per share (total fair value of \$1.2 million). The value was determined using a Monte Carlo simulation. The following assumptions were used in the Monte Carlo simulation model:

Expected volatility	90 %
Risk free interest rate	2.84 %
Dividend yield rate	0 %
Weighted average years	9.8 months
Closing price per share – common stock	\$ 10.56

The weighted average years remaining of expected life was itself calculated based on a Monte Carlo simulation under which it was assumed that the options would be exercised, if vested, when the stock reached a price of \$54, otherwise they would be exercised at expiration, if in the money. The Company determined that it was not probable that the outcome of the above performance-based milestone (i.e., DOE funding) would be met prior to the annual vesting dates. In accordance with ASC 718-10-55-104 the Company then based the amortization period for the compensation expense on the shorter of the explicit service periods or the "derived service period" based solely on the market condition.

Total stock options outstanding at December 31, 2019 and 2018 under the 2006 Stock Plan and 2015 Plan were 518,551 and 467,013, of which 433,678 and 327,928 of these options were vested at December 31, 2019 and 2018, respectively.

The components of stock-based compensation expense included in the Company's consolidated statements of operations for the years ended December 31, 2019 and 2018 are as follows (rounded to the nearest thousand):

	Year ended December 31,	
	2019	2018
Research and development expenses	\$ 398,000	\$ 966,000
General and administrative expenses	425,000	1,414,000
Total stock-based compensation expense	<u>\$ 823,000</u>	<u>\$ 2,380,000</u>

Stock option transactions to the employees, directors and consultants are summarized as follows for the year ended December 31, 2019:

	Options Outstanding	Weighted Average Exercise Price	Weighted Average Grant Date Fair Value
Beginning of the year	467,013	\$ 32.64	\$ 23.52
Fraction option shares to options holders due to the one-for-twelve reverse stock split on October 21, 2019	99	32.64	23.52
Adjusted beginning of the year	467,112	32.64	23.52
Granted	91,229	4.03	2.74
Exercised	—	—	—
Forfeited	(18,180)	34.34	25.56
Expired	(21,610)	167.52	116.81
End of the year	<u>518,551</u>	<u>\$ 21.99</u>	<u>\$ 15.89</u>
Options exercisable	<u>433,678</u>	<u>\$ 24.19</u>	<u>\$ 17.39</u>

Stock option transactions of the employees, directors, and consultants are summarized as follows for the year ended December 31, 2018:

	Options Outstanding	Weighted Average Exercise Price	Weighted Average Grant Date Fair Value
Beginning of the year	331,407	\$ 42.96	\$ 29.88
Granted	148,704	10.80	8.40
Exercised	—	—	—
Forfeited	(11,998)	13.20	9.96
Expired	(1,100)	367.20	253.56
End of the year	467,013	\$ 32.64	\$ 23.52
Options exercisable	327,928	\$ 42.00	\$ 29.88

A summary of the status of the Company's non-vested options as of December 31, 2019 and 2018, and changes during the years ended December 31, 2019 and 2018, is presented below:

	Shares	Weighted Average Exercise Price	Weighted- Average Fair Value Grant Date
Non-vested – December 31, 2017	128,561	\$ 18.96	\$ 13.20
Granted	148,705	10.80	8.40
Vested	(126,183)	18.96	15.24
Forfeited	(11,998)	13.20	9.96
Non-vested – December 31, 2018	139,085	\$ 10.92	\$ 6.48
Fraction option shares to non-vested options holders due to the one-for-twelve reverse stock split on October 21, 2019	8	10.92	6.48
Adjusted non-vested – December 31, 2018	139,093	10.92	6.48
Granted	91,229	4.03	2.74
Vested	(145,449)	6.65	4.91
Forfeited	—	—	—
Non-vested – December 31, 2019	84,873	10.73	5.15

The above tables include options issued and outstanding as of December 31, 2019 as follows:

- i) A total of 9,638 non-qualified 10-year options have been issued, and are outstanding, to advisory board members at exercise prices of \$8.28 to \$336.60 per share.
- ii) A total of 473,814 incentive stock options 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 \$519.00 per share. From this total, 129,121 options are outstanding to the Chief Executive Officer, who is also a director, with remaining contractual lives of 0.2 years to 9.9 years. All other options issued to directors, officers, and employees have a remaining contractual life ranging from 0.2 years to 9.9 years.
- iii) A total of 35,099 non-qualified 10-year options have been issued, and are outstanding, to consultants at exercise prices of \$3.82 to \$519.00 per share.

As of December 31, 2019, there was approximately \$41,000 of total unrecognized compensation cost related to non-vested share-based compensation arrangements granted under the plans. That cost is expected to be recognized over a weighted-average period of approximately 2.08 years. For stock options outstanding at December 31, 2019, the intrinsic value was \$59,148. For stock options outstanding at December 31, 2018, the intrinsic value was \$0.

The following table provides certain information with respect to the above-referenced stock options that were outstanding and exercisable at December 31, 2019:

Exercise Prices	Stock Options Outstanding				Stock Options Vested		
	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-\$12.48	9.22	225,937	\$ 8.07		9.40	143,696	\$ 6.57
\$ 12.49-\$24.00	7.57	199,790	\$ 14.19		7.56	197,158	\$ 14.21
\$ 24.01-\$72.00	5.89	65,333	\$ 55.07		5.89	65,333	\$ 55.07
\$ 72.01-\$240.00	5.32	24,526	\$ 75.59		5.32	24,526	\$ 75.59
\$ 240.01-\$519.00	0.63	2,965	\$ 435.67		0.63	2,965	\$ 435.67
Total	7.93	518,551	\$ 21.99		7.74	433,678	\$ 24.19

The following table provides certain information with respect to the above-referenced stock options that were outstanding and exercisable at December 31, 2018:

Exercise Prices	Stock Options Outstanding				Stock Options Vested		
	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
\$ 10.80-\$12.48	9.60	134,700	\$ 10.80		—	—	\$ —
\$ 12.49-\$24.00	8.57	213,361	\$ 14.16		8.56	208,976	\$ 14.16
\$ 24.01-\$72.00	6.86	67,799	\$ 55.08		6.86	67,799	\$ 55.08
\$ 72.01-\$240.00	4.16	41,778	\$ 89.76		4.16	41,778	\$ 89.76
\$ 240.01-\$519.00	0.72	9,375	\$ 353.52		0.72	9,375	\$ 353.52
Total	8.07	467,013	\$ 32.64		7.42	327,928	\$ 42.00

Note 10. Related Party Transactions

The Company invested approximately \$3.5 million in Enfission during the year ended December 31, 2019 and invested approximately \$5.6 million in Enfission from Enfission's date of inception of January 24, 2018 to December 31, 2018. The Company entered into a management and administrative services agreement with Enfission on January 25, 2018 whereby the Company provided four of its personnel to Enfission, at a rate of \$100,000 per person per year, for a total charge to Enfission of \$400,000 in 2018. This \$400,000 amount charged to Enfission was recorded as a \$200,000 reduction of general and administrative expenses and a \$200,000 reduction of research and development expenses for each of the years ended December 31, 2019 and 2018.

The Company also provided research and development consulting services and management services to Enfission. The total consulting services was \$0.7 million and \$1.1 million for the years ended December 31, 2019 and 2018, respectively, recorded under the caption "Other income from joint venture" in the accompanying consolidated statement of operations.

As of December 31, 2019 and 2018, the total receivable due from Enfission was approximately \$0.4 million and \$0.1 million, respectively, which represents management and administrative services, consulting fees and reimbursable expenses Lightbridge charged to Enfission.

Note 11. Subsequent Events

The Company has evaluated subsequent events from December 31, 2019 to the date the financial statements were issued and has determined the following items to disclose.

Conversion of Series A Preferred Shares to Common Shares

On February 10, 2020, the holder of the Series A Preferred Shares converted 11,875 preferred shares into 1,254 common shares.

Filing of Arbitration - Framatome

On February 7, 2020, the Company has filed a request for arbitration (the "Arbitration Request") in the International Court of Arbitration of the International Chamber of Commerce against Framatome. The Company has undertaken this action in order to obtain, inter alia, a declaration that the RDSA dated November 14, 2017, by and among Framatome, Enfission and the Company (as amended by Amendment Number One, dated January 25, 2018, and Amendment Number Two, dated June 20, 2018, the RDSA was validly terminated and is no longer in force, and to obtain compensation for the damages incurred.

As disclosed at Note 3. Investment in Joint Venture (Investee Losses in Excess of Investment), on November 18, 2019, the Company delivered a notice of termination of the RDSA to Framatome, thereby terminating the RDSA, based on the Company's assertion that Framatome materially breached certain material terms of the RDSA, relating to its invoicing obligations, as well as a failure of the escalation process under the RDSA to agree to a budget commitment for 2019-2020. Framatome has contested the Company's right to terminate the RDSA, raised questions as to the Company's rights relating to their co-owned intellectual property and the Company's right to conduct certain research and development activities, and reserved its right to seek compensation from the Company. On this basis and based on the Company's assertion that the conduct of Framatome prevented Enfission from functioning and progressing towards its goals, the Company filed a request for arbitration against Framatome on February 7, 2020. Lightbridge has reduced its research and development activities as it presently focuses on research and development outside the scope of operations of Enfission. The Company is currently evaluating various research and development options.

Adoption of 2020 Stock Plan

On March 9, 2020, the Board of Directors adopted the Company's 2020 Equity Incentive Plan (the "2020 Plan"). The 2020 Plan will become effective upon adoption of the 2020 Plan by the Shareholders at the Annual Shareholder Meeting in 2020.

ATM Sales

Sales under the 2019 ATM that were made from February 24, 2020 to March 13, 2020 were approximately 0.1 million shares that totaled net proceeds of approximately \$0.4 million.

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 18, 2020

By: /s/ Seth Grae

Seth Grae
Chief Executive Officer,
President and Director

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 March 18, 2020.

<u>Signature</u>	<u>Title</u>
<u>/s/ Seth Grae</u> Seth Grae	Chief Executive Officer, President and Director (Principal Executive Officer)
<u>/s/ Larry Goldman</u> Larry Goldman	Chief Financial Officer, and Treasurer (Principal Financial and Accounting Officer)
<u>/s/ Thomas Graham, Jr.</u> Thomas Graham, Jr.	Director
<u>/s/ Victor Alessi</u> Victor Alessi	Director
<u>/s/ Kathleen Kennedy Townsend</u> Kathleen Kennedy Townsend	Director
<u>/s/ Daniel Magraw</u> Daniel B. Magraw	Director