

LIGHTBRIDGE Corp
Form 10-K
March 23, 2017

**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, 2016**

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**

Edgar Filing: LIGHTBRIDGE Corp - Form 10-K

(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

Common Stock, \$0.001 par value

Name of each exchange on which registered

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 and posted on its corporate Website, if any, every Interactive Data File required to be submitted and posted 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

Edgar Filing: LIGHTBRIDGE Corp - Form 10-K

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K o

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

Large accelerated filer	..	Accelerated filer	..
Non-accelerated filer	..	Smaller reporting company	x

(do not check if smaller reporting company)

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

At June 30, 2016, 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, 2016) was \$10,624,252.

At March 2, 2017 there were 9,468,982 shares of the registrant's common stock issued and outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement for the 2017 Annual Meeting of Stockholders are incorporated herein by reference in Part III of this Annual Report on Form 10-K to the extent stated herein. Such proxy statement will be filed with the Securities and Exchange Commission within 120 days of the registrant's fiscal year ended December 31, 2016.

LIGHTBRIDGE CORPORATION
FORM 10-K
For the Fiscal Year Ended December 31, 2016

TABLE OF CONTENTS

	Page
<u>PART I</u>	
<u>Item 1. Business</u>	4
<u>Item 1A. Risk Factors</u>	17
<u>Item 1B. Unresolved Staff Comments</u>	25
<u>Item 2. Properties</u>	25
<u>Item 3. Legal Proceedings</u>	25
<u>Item 4. Mine Safety Disclosures</u>	25
<u>PART II</u>	
<u>Item 5. Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities</u>	26
<u>Item 6. Selected Financial Data</u>	27
<u>Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations</u>	27
<u>Item 7A. Quantitative and Qualitative Disclosures About Market Risk</u>	40
<u>Item 8. Financial Statements and Supplementary Data</u>	40
<u>Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure</u>	40
<u>Item 9A. Controls and Procedures</u>	40
<u>Item 9B. Other Information</u>	
<u>PART III</u>	
<u>Item 10. Directors, Executive Officers and Corporate Governance</u>	41
<u>Item 11. Executive Compensation</u>	41
<u>Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters</u>	41
<u>Item 13. Certain Relationships and Related Transactions</u>	41
<u>Item 14. Principal Accountant Fees and Services</u>	41
<u>PART IV</u>	
<u>Item 15. Exhibits and Financial Statement Schedules</u>	42
<u>Item 16. Form 10-K Summary</u>	42

Table of Contents

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 (the “Securities Act”) and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). 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”, “p”, “optimistic”, “intend”, “aim”, “will”, or similar expressions which are intended to identify forward-looking statements. Such statements include, among others, (1) those concerning market and business segment growth, demand and acceptance of our nuclear energy consulting services and nuclear fuel technology business, (2) any projections of sales, earnings, revenue, margins or other financial items, (3) any statements of the plans, strategies and objectives of management for future operations, (4) any statements regarding future economic conditions or performance, (5) uncertainties related to conducting business in foreign countries, as well as (6) all assumptions, expectations, predictions, intentions or beliefs about future events. 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 materialize or prove incorrect, could cause the results of the Company to differ materially from those expressed or implied by such forward-looking statements. Given these risks and uncertainties, readers are cautioned not to place undue reliance on such forward-looking statements. Such risks and uncertainties, among others, include:

- our ability to commercialize our nuclear fuel technology,

Most of these factors are beyond our ability to predict or control. 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, except as required by law.

Table of Contents

PART I

Item 1. Description of Business

OVERVIEW OF OUR TWO BUSINESS SEGMENTS

When used in this annual report, the terms “Lightbridge”, “Company”, “we”, “our”, and “us” refer to Lightbridge Corporation and its wholly-owned subsidiaries Lightbridge International Holding, LLC (a Delaware limited liability company) and Thorium Power, Inc. (a Delaware corporation).

Lightbridge is a leading nuclear fuel technology company and we participate in the nuclear power industry in the United States and internationally. Our mission is to be a world leader in the design and commercialization of nuclear fuels that we anticipate will be economically attractive, enhance reactor safety, be proliferation resistant, and produce less waste than current generation nuclear fuels, and to provide world-class strategic advisory services to governments and utilities seeking to develop or expand civil nuclear power programs.

Our business operations can be categorized in two segments:

- (1) Our nuclear fuel technology business segment - we develop next generation nuclear fuel technology that has the potential to significantly increase the power output of commercial reactors, reducing the cost of generating electricity and the amount of nuclear waste on a per-megawatt-hour basis and enhancing reactor safety and the proliferation resistance of spent fuel. Our main focus is on our nuclear fuel technology business segment.
- (2) Our nuclear energy consulting business segment - we provide nuclear power consulting and strategic advisory services to commercial and governmental entities worldwide. Our nuclear consulting business operations are intended to help defray a portion of the costs relating to the development of our nuclear fuel technology.

Financial information about our business segments is included in Part II Item 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations, and Note 12 Business Segment Results, of the Notes to the Consolidated Financial Statements, included in Part II Item 8, Financial Statements of this Annual Report on Form 10-K.

Fuel Technology Business Segment Overview

Since the founding of our company, we have been engaged in the design and development of proprietary, innovative nuclear fuels. This effort has led us to develop a metallic fuel rod design that is at the heart of each of our nuclear fuel products. The Company's efforts are focused on the success of our nuclear fuel.

We are currently focusing our development efforts on all-metal fuel (i.e., non-oxide fuel) for currently operating as well as new build reactors. The Company also owns intellectual property associated with fuel assembly designs for all-uranium seed and blanket fuel for existing plants and new build reactors and thorium-based seed and blanket fuel for both existing and new build reactors. Each of the fuel designs utilizes our metallic fuel rod technology, and each design advances our mission to improve the cost competitiveness, safety, proliferation resistance, and performance of nuclear power generation. The Company's focus on metallic fuel is based on input from nuclear utilities that have expressed interest in the improved economics and enhanced safety that metallic fuel can provide.

In response to the challenges associated with conventional oxide fuels and our analysis that the world cannot meet its climate, air pollution, and energy goals without an increase in nuclear power, we have designed our innovative, proprietary metallic fuels to be capable of significantly higher burnup and power density compared to conventional oxide fuels. The fuel in a nuclear reactor generates heat energy. That heat is then converted through steam into electricity that is sold. 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 approaching the limits 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. As the 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.

Table of Contents

We believe our proprietary nuclear fuel designs have the potential to significantly enhance the nuclear power industry's economics and increase power output by:

- providing an increase in power output of up to 10% while simultaneously extending the operating cycle length from 18 to 24 months in existing pressurized water reactors (including in Westinghouse-type four-loop PWR plants which are currently constrained to an 18-month operating cycle by oxide fuel); or increasing the power up to 17% while retaining an 18-month operating cycle;

There are significant technology synergies among our primary fuel products due to utilization of the proprietary metallic fuel rod technology that is at the core of each of them. Once completed, a full-scale demonstration and qualification of the metallic fuel rod technology will simultaneously advance all of our product families currently under development. Due to the significantly lower fuel operating temperature, our metallic nuclear fuel rods are expected to provide major improvements to safety margins during off-normal events.

We are currently focusing our development efforts on the metallic fuel with a power uprate of up to 10% and a 24-month operating cycle in existing Westinghouse-type four-loop pressurized water reactors in the United States. Those reactors represent a large segment of the global market and comprise our initial target market. Our metallic fuel could also be adapted for use in other types of water-cooled commercial power reactors, such as boiling water reactors, Canada Deuterium Uranium (CANDU) pressurized heavy water reactors, as well as water-cooled small modular reactors.

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. Buildup of hydrogen gas in a nuclear power plant can lead to detonation of the hydrogen. Lightbridge fuel is designed to prevent hydrogen gas generation in design-basis LOCA situations, which is a major safety benefit.

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 addition to the projected electricity production cost savings, we believe that our technology can result in utilities or countries needing to deploy fewer new reactors to generate the same amount of electricity, resulting in significant capital cost savings. For utilities or countries that already have operating reactors, our technology could be utilized to increase the power output of those

reactors as opposed to building new reactors. Further, we believe that the fuel fabrication or manufacturing process for this new fuel design is simpler, which we expect could lower fuel fabrication costs.

Consulting Business Segment Overview

Our business model expanded with the establishment of a consulting business segment in 2007, through which we provide consulting and strategic advisory services to companies and governments planning to create or expand electricity generation capabilities using nuclear power plants. On August 1, 2008, we signed separate consulting services agreements with two government entities: Emirates Nuclear Energy Corporation (ENEC) formed by Abu Dhabi, one of the member Emirates of the United Arab Emirates (UAE), and the Federal Authority for Nuclear Regulation (FANR) formed by the government of the UAE. Under these two original agreements, we have provided consulting and strategic advisory services over a contract term of five years starting from June 23, 2008. The FANR contract had been extended to December 31, 2016 and has now expired, though we continue to provide services to FANR under a subcontract with Lloyds Register Group Limited, a limited company registered in England and Wales. These contracts can each continue to be extended upon agreement by both parties. Substantially all of our consulting business segment revenue is from foreign sources. We have also signed other consulting contracts in 2013 and 2014 with governmental and non-governmental entities to provide various consulting services that ended in 2016.

Table of Contents

NEXT GENERATION NUCLEAR FUEL FOR THE NUCLEAR INDUSTRY

Research and Development Project Schedule

We currently anticipate that we, working in collaboration with our development partners/vendors and in certain cases contingent upon execution of collaborative research and development agreements with them will be able to:

- Perform in-reactor and out-of-reactor experiments in 2017-2020;
- Develop analytical models in 2017-2018 for our metallic fuel technology that can be used for reactor analysis and regulatory licensing;
- Have semi-scale metallic fuel samples fabricated in 2019-2020 for irradiation testing in a test reactor environment under prototypic commercial reactor conditions;
- Establish a pilot-scale fuel fabrication facility and demonstrate full-length fabrication of our metallic fuel rods in 2019-2020; and
- Begin lead test assembly (LTA) operation in a full-size commercial light water reactor as soon as 2023-2024, which involves testing a limited number of full-scale fuel assemblies in the core of a commercial nuclear power plant over three 18-month cycles.

Accordingly, based on our current estimated schedule, a purchase order for an initial reload batch placed by a utility is expected as soon as 2026-2027 (after two 18-month cycles of LTA operation), with final qualification (i.e., deployment of fuel in the first reload batch) in a commercial reactor expected as soon as 2028-2029. In the interim, we expect to enter into a joint venture or a different commercial arrangement with one or more major fuel fabricators to complete the development, demonstration, regulatory licensing, and commercial deployment of our patented nuclear fuel technology. In addition, we intend to seek prepayment or other financing arrangements with utilities tied to LTA contracts.

OUR BUSINESS STRATEGY – NUCLEAR FUEL TECHNOLOGY BUSINESS SEGMENT

We intend to license our intellectual property for nuclear fuel designs to existing major nuclear fuel fabricators which have fuel supply contracts with utilities that own and operate nuclear power plants worldwide. We believe that such partnering will allow us to take advantage of the existing customer base of fuel fabricators, thus enabling our fuel products to achieve higher market penetration rates in a relatively short period of time. We are currently pursuing a

research, development, and demonstration strategy aimed at generating sufficient interest and confidence in our fuel technology among major fuel fabricators with a view to entering into a commercial arrangement with one or more of them in 2017-2018.

We anticipate that the following factors will play a key role in structuring a technology license agreement with a major fuel supplier:

- Sharing of future fuel development costs;

Our commercialization efforts are based on a multi-prong approach that we believe will increase the likelihood of success:

1. Approach major fuel fabricators (push marketing strategy to our direct licensing customers)
2. Early outreach to nuclear power utilities (pull marketing strategy to the customers of the fuel fabricators); and
3. Generate public, industry, and government awareness of our fuel technologies

We are putting a significant amount of effort into reaching out to major fuel fabricators. Our ultimate commercial success depends on how soon and what kind of a commercial arrangement we are able to negotiate with one or more of these potential partners. As a result, building relationships with these potential partners and keeping them up-to-date on our fuel technology demonstration progress through ongoing dialogue are the essential elements of our commercialization strategy.

Table of Contents

COMPETITION, CURRENT STATUS AND CHALLENGES OF OUR NUCLEAR FUEL RESEARCH AND DEVELOPMENT WORK

COMPETITION

To our knowledge, our nuclear fuel development project is the only program that could be commercially viable to increase, in a safe and economically attractive way, power output 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 segment.

Competition with respect to the design of commercially viable nuclear fuel products is limited to conventional uranium oxide fuels, which, as discussed above, 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 oxide fuel may be capable of achieving power uprates of up to 10% in existing PWRs, 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 oxide fuel raises 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 (most US nuclear power plants fall into this category).

Due to poor economics, nuclear utilities may be reluctant to embrace that route as a way to increase power output by up to 10%, which could lead to greater opportunities for use of Lightbridge's nuclear fuel.

There are several major companies that collectively fabricate a large majority of the fuel used in the world's commercial nuclear power plants, including both Western-type PWRs and boiling water reactors (BWRs), as well as Russian-type VVERs. To the extent that these companies currently own and may in the future develop new nuclear fuel designs that can be used in the same types of reactors as those targeted by us, they can be viewed as potential competitors. However, our commercialization strategy is not to compete with these major fuel fabricators, but rather to partner with one or more of these companies through technology license arrangements to extend their fuel offerings to their customers with our fuel technologies. For this reason, we consider these companies as potential partners or licensees as opposed to competitors.

CURRENT STATUS

Government 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 plans 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 approval from the US Department of Energy for all of our planned work in France, 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.

Table of Contents

CHALLENGES

- *Collaboration with a fuel fabricator that can fabricate the 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 a Nuclear Utility Fuel Advisory Board (NUFAB) to further strengthen dialogue with global nuclear utilities. Separately, we are in the process of finalizing our joint venture with AREVA NP to complete the development, demonstration, regulatory licensing, and commercial deployment of our metallic nuclear fuel in most types of reactors that are currently in operation or are under construction.*

SOURCES AND AVAILABILITY OF RAW MATERIALS

We intend that our fuel technology development business will become a licensing business, as we plan to license our metallic fuel technology to fuel fabricators. We do not plan to utilize any raw materials in the conduct of our operations. The fuel fabricators which will ultimately fabricate our fuel products 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.

OVERVIEW OF THE NUCLEAR POWER INDUSTRY

Potential Market

Presently, nuclear power provides approximately 7% of the world's energy, including approximately 11% of the world's electricity. According to the World Nuclear Association, as of March 1, 2017 there were approximately 447 operable nuclear power plants worldwide, mostly light water reactors, with the most common types being PWRs, BWRs, and VVER reactors (a Russian equivalent of PWRs). Nuclear power provides a non-fossil fuel, low-carbon energy solution that can meet baseload electricity needs.

Table of Contents

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 half of the net operating capacity, with BWRs being the second most prevalent and accounting for another 20%.

Of the nuclear reactors currently under construction, over 80% are either PWRs or 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, there is a large, untapped worldwide market for power uprates. There are over 200 PWRs operating outside the United States. If all of these plants had their power increased by 10%, the aggregate generating capacity would increase by about 20,000 MWe. This is equivalent to about 12 new 1,200 MWe reactors. The incentive to proceed with power uprates at the 10% level 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. We believe that our metallic fuel rod technology will enable the 10% increase in power along with extending the fuel cycle to 24 months, and can be used to support even greater power increases up to 30%.

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.

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, there is a large, untapped worldwide market for power uprates.

There are about 150 PWRs operating outside the United States. If all of these plants had their power increased by 10%, the aggregate generating capacity would increase by about 14,500 MWe. This is equivalent to about 12 new 1,200 MWe reactors. The incentive to proceed with power uprates at the 10% level 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. We believe that our metallic fuel rod technology will enable the 10% increase in power along with extending the fuel cycle to 24 months, and can be used to support even greater power increases up to 30%.

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 60 reactors have been granted license extensions to continue operating for a total of 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.

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.

Table of Contents

Influence of Natural Gas Prices in the United States

Natural gas is currently the cheapest option for power generation in the US, which is causing some utilities to abandon plans for nuclear and other power sources. The abundance of cheap natural gas may adversely affect the markets for nuclear power uprates.

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 in some countries, 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. This has diminished the number of consulting opportunities that we could compete for globally, at least in the near-term. 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 (“WNA”). At the same time, the event has brought a greater emphasis on safety to the forefront that may be beneficial to us because our metallic fuel provides improved safety and fuel performance during normal operation and design-basis accidents.

Our Initial Target Market

Presently, we are targeting Western-type PWR reactors with a net capacity of 900 MWe or more that will be under 40 years of age by 2025. These reactors represent the largest market segment, both in terms of operating reactors and new build units under construction or planned. Our technology is applicable to many more reactors than those included in our initial target market. The initial target market was selected as we believe that it represents the largest commercial market segment with the highest potential for return on investment in the near-term.

Based on the WNA’s reactor database, we estimate that the current size of our initial target market is approximately 157 gigawatts electric, or GWe, of net generating capacity. We estimate the size of our target market to expand to 252 GWe by 2025 and 266 GWe by 2035.

Within the identified potential target market, France, China, the United States, and Korea represent the largest market segment, accounting for over 70% of the total projected target market size in 2035. We believe that it is important for us, through technology license arrangements with major fuel vendors, to ultimately secure a footing in one or more of these countries in order to achieve meaningful market penetration rates.

OUR INTELLECTUAL PROPERTY

Our nuclear fuel technologies are protected by multiple US and international patents. Our current patent portfolio is comprised of the following patents:

Country	Application Registration		Title	Case
	Date	Date		Status
Granted US Patents				
United States of America	12/26/2007	2/18/2014	NUCLEAR REACTOR (ALTERNATIVES), FUEL ASSEMBLY OF SEED-BLANKET SUBASSEMBLIES FOR NUCLEAR REACTOR (ALTERNATIVES), AND FUEL ELEMENT FOR FUEL ASSEMBLY	Registered
United States of America	12/25/2008	5/31/2016	LIGHT-WATER REACTOR FUEL ASSEMBLY (ALTERNATIVES), A LIGHT-WATER REACTOR, AND A FUEL ELEMENT OF FUEL ASSEMBLY	Registered
United States of America	12/22/2008	2/14/2012	NUCLEAR REACTOR (ALTERNATIVES), FUEL ASSEMBLY OF SEED-BLANKET SUBASSEMBLIES FOR NUCLEAR REACTOR (ALTERNATIVES), AND FUEL ELEMENT FOR FUEL ASSEMBLY	Registered

Table of Contents

Country	Application Registration		Title	Case
	Date	Date		Status
United States of America	8/17/1995	4/7/1998	SEED-BLANKET REACTORS	Registered
United States of America	2/4/1998	1/26/1999	SEED-BLANKET REACTORS	Registered
United States of America	2/4/1998	9/7/1999	SEED-BLANKET REACTORS	Registered
United States of America	3/22/1999	2/15/2000	SEED-BLANKET REACTORS	Registered
Granted International Patents				
Australia	12/25/2008	9/3/2015	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Australia	5/11/2011	7/2/2015	FUEL ASSEMBLY	Registered
Australia	12/26/2007	8/4/2016	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	12/26/2007	5/18/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Belgium	12/23/2008	9/21/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Bulgaria	12/26/2007	5/18/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Bulgaria	12/23/2008	9/21/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Bulgaria	12/25/2008	4/13/2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Bulgaria	5/11/2011	4/6/2016	FUEL ASSEMBLY	Registered

Table of Contents

Country	Application Registration			Case
	Date	Date	Title	Status
Canada	12/26/2007	4/26/2016	NUCLEAR REACTOR (VARIANTS), FUEL ASSEMBLY CONSISTING OF DRIVER-BREEDING MODULES FOR A NUCLEAR REACTOR (VARIANTS) AND A FUEL CELL FOR A FUEL ASSEMBLY	Registered
Canada	12/25/2008	11/29/2016	A LIGHT-WATER REACTOR FUEL ASSEMBLY (ALTERNATIVES), A LIGHT-WATER REACTOR, AND A FUEL ELEMENT OF FUEL ASSEMBLY	Registered
China	12/26/2007	2/12/2014	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	5/11/2011	5/18/2016	FUEL ASSEMBLY	Registered
China	12/25/2008	6/29/2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Czech Republic	12/26/2007	5/18/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Czech Republic	12/23/2008	9/21/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Czech Republic	12/25/2008	4/13/2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Czech Republic	5/11/2011	4/6/2016	FUEL ASSEMBLY	Registered
Eurasia			NUCLEAR REACTOR (ALTERNATIVES), FUEL ASSEMBLY OF SEED-BLANKET SUBASSEMBLIES FOR NUCLEAR REACTOR (ALTERNATIVES), AND FUEL ELEMENT FOR FUEL ASSEMBLY	Registered
European Patent Office	12/26/2007	5/18/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
European Patent Office	12/23/2008	9/21/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
European Patent Office	12/25/2008	4/13/2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
European Patent Office	5/11/2011	4/6/2016	FUEL ASSEMBLY	Registered
Finland	12/26/2007	5/18/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered

Edgar Filing: LIGHTBRIDGE Corp - Form 10-K

Finland	12/23/2008	9/21/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Finland	12/25/2008	4/13/2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Finland	5/11/2011	4/6/2016	FUEL ASSEMBLY	Registered
France	12/26/2007	5/18/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
France	12/23/2008	9/21/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
France	12/25/2008	4/13/2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
France	5/11/2011	4/6/2016	FUEL ASSEMBLY	Registered
Germany	12/26/2007	5/18/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Germany	12/23/2008	9/21/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Germany	12/25/2008	4/13/2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Germany	5/11/2011	4/6/2016	FUEL ASSEMBLY	Registered
Hungary	12/26/2007	5/18/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Hungary	12/23/2008	9/21/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Hungary	12/25/2008	4/13/2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Hungary	5/11/2011	4/6/2016	FUEL ASSEMBLY	Registered
Japan	12/26/2007	8/1/2014	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	5/11/2011	9/9/2016	FUEL ASSEMBLY	Registered
Japan	12/25/2008	6/5/2015	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered

Table of Contents

Country	Application Registration			Case
	Date	Date	Title	Status
Japan	12/26/2007	4/22/2016	NUCLEAR REACTOR (VARIANTS), FUEL ASSEMBLY CONSISTING OF DRIVER-BREEDING MODULES FOR A NUCLEAR REACTOR (VARIANTS) AND A FUEL CELL FOR A FUEL ASSEMBLY	Registered
Japan	5/11/2011	9/9/2016	FUEL ASSEMBLY	Registered
Republic of Korea	12/26/2007	12/15/2014	NUCLEAR REACTION (VARIANTS), FUEL ASSEMBLY CONSISTING OF DRIVER-BREEDING MODULES FOR A NUCLEAR REACTOR (VARIANTS) AND A FUEL CELL FOR A FUEL ASSEMBLY	Registered
Republic of Korea	12/26/2007	4/20/2015	NUCLEAR REACTOR(ALTERNATIVES), FUEL ASSEMBLY OF SEED-BLANKET SUBASSEMBLIES FOR NUCLEAR REACTOR(ALTERNATIVES), AND FUEL ELEMENT FOR FUEL ASSEMBLY	Registered
Republic of Korea	12/25/2008	8/18/2015	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Spain	12/23/2008	9/21/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Sweden	12/26/2007	5/18/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Sweden	12/23/2008	9/21/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Sweden	12/25/2008	4/13/2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Sweden	5/11/2011	4/6/2016	FUEL ASSEMBLY	Registered
Turkey	12/26/2007	5/18/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Turkey	12/23/2008	9/21/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
Turkey	12/25/2008	4/13/2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered
Turkey	5/11/2011	4/6/2016	FUEL ASSEMBLY	Registered
Ukraine			A LIGHT-WATER REACTOR FUEL ASSEMBLY (ALTERNATIVES), A LIGHT-WATER REACTOR, AND A FUEL ELEMENT OF FUEL ASSEMBLY	Registered
Ukraine				Registered

NUCLEAR REACTOR (ALTERNATIVES), FUEL ASSEMBLY OF SEED-BLANKET SUBASSEMBLIES FOR NUCLEAR REACTOR (ALTERNATIVES), AND FUEL ELEMENT FOR FUEL ASSEMBLY

United Kingdom	12/26/2007	5/18/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
United Kingdom	12/23/2008	9/21/2016	A FUEL ELEMENT, A FUEL ASSEMBLY AND A METHOD OF USING A FUEL ASSEMBLY	Registered
United Kingdom	12/25/2008	4/13/2016	FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Registered

Pending US Patents

United States of America	5/11/2011		FUEL ASSEMBLY	Pending (GT)
United States of America	11/15/2013		FUEL ASSEMBLY	Pending
United States of America	9/16/2015		FUEL ASSEMBLY	Pending (GT)

Table of Contents

Country	Application Registration		Title	Case
	Date	Date		Status
Pending International Patents				
Australia	5/11/2011		FUEL ASSEMBLY	Pending (GT)
Australia	5/1/2014		FUEL ASSEMBLY	Pending (GT)
Canada	5/11/2011		FUEL ASSEMBLY	Pending (GT)
Canada	5/1/2014		FUEL ASSEMBLY	Pending (GT)
Canada	12/25/2008		A LIGHT-WATER REACTOR FUEL ASSEMBLY AND FUEL ELEMENT THEREOF	Pending (GT)
China	12/26/2007		NUCLEAR REACTOR (VARIANTS), FUEL ASSEMBLY CONSISTING OF DRIVER-BREEDING MODULES FOR A NUCLEAR REACTOR (VARIANTS) AND A FUEL CELL FOR A FUEL ASSEMBLY	Pending
China	5/1/2014		FUEL ASSEMBLY	Pending
China	5/11/2011		FUEL ASSEMBLY	Pending (GT)
Eurasia			NUCLEAR REACTOR (ALTERNATIVES), FUEL ASSEMBLY OF SEED-BLANKET SUBASSEMBLIES FOR NUCLEAR REACTOR (ALTERNATIVES), AND FUEL ELEMENT FOR FUEL ASSEMBLY	Pending
Eurasia			A LIGHT-WATER REACTOR FUEL ASSEMBLY (ALTERNATIVES), A LIGHT WATER REACTOR AND A FUEL ASSEMBLY FUEL ELEMENT	Pending
Eurasia			FUEL ASSEMBLY	Pending
European Patent Office	5/1/2014		FUEL ASSEMBLY	Pending (GT)
European Patent Office	12/25/2008		FUEL ASSEMBLY FOR A LIGHT-WATER NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Pending (GT)
European Patent Office	5/11/2011		FUEL ASSEMBLY	Pending
European Patent Office	9/16/2015		NUCLEAR FUEL ASSEMBLY	Pending
Eurasian Patent Organization	5/1/2014		FUEL ASSEMBLY	Pending (GT)
India	12/26/2007			

Edgar Filing: LIGHTBRIDGE Corp - Form 10-K

		NUCLEAR REACTOR (VARIANTS), FUEL ASSEMBLY CONSISTING OF DRIVER-BREEDING MODULES FOR A NUCLEAR REACTOR (VARIANTS) AND A FUEL CELL FOR A FUEL ASSEMBLY	Pending (GT)
India	12/25/2008	FUEL ASSEMBLY FOR A LIGHT-WATER, NUCLEAR REACTOR (EMBODIMENTS), LIGHT-WATER NUCLEAR REACTOR AND FUEL ELEMENT OF THE FUEL ASSEMBLY	Pending (GT)
India	5/11/2011	FUEL ASSEMBLY	Pending (GT)
India	5/1/2014	FUEL ASSEMBLY	Pending (GT)
Japan	5/1/2014	FUEL ASSEMBLY	Pending (GT)
Japan	5/11/2011	FUEL ASSEMBLY	Pending (GT)
Patent Cooperation Treaty	9/16/2015	FUEL ASSEMBLY	Pending (GT)
Republic of Korea	5/11/2011	FUEL ASSEMBLY	Pending (GT)
Republic of Korea	5/1/2014	FUEL ASSEMBLY	Pending (GT)
Ukraine		FUEL ASSEMBLY	Pending

In addition to our patent portfolio, we also own the following trademarks:

Table of Contents

Registered US Trademarks:

- LIGHTBRIDGE corporate name (Registration No. 3933449)
- Lightbridge's corporate logo (word and design) (Registration No. 3933450)
- THORIUM POWER corporate name (Registration No. 3791726)

Registered International Trademarks:

- LIGHTBRIDGE corporate name:
 - European Union (Registration No. 8773988)
 - France (Registration No. (08)3573606)
 - United Kingdom (Registration No. 2486858)
 - Russia (Registration No. 434229)
- Lightbridge's corporate logo:
 - European Union (Registration No. 8771875)
 - Russia (Registration No. 434228)
- THORIUM POWER corporate name:
 - Russia (Registration No. 426009)

Pending Trademark Applications:

- LIGHTBRIDGE corporate name (US Application No. 86171723)
- Lightbridge's corporate logo design mark (US Application No. 86171750)

We are continually executing a strategy aimed at further expanding our intellectual property portfolio.

OUR CONSULTING BUSINESS SEGMENT

The Nature of Our Consulting Services

This segment is primarily engaged in the business of assisting commercial and governmental entities globally with developing and expanding their nuclear industry capabilities and infrastructure. We provide integrated strategic advice

across a range of expertise areas including, for example, regulatory development, nuclear reactor site selection, procurement and deployment, reactor and fuel technology, international relations, program management and infrastructure development.

Due to the relatively limited growth in the nuclear energy industry during the 1980's and 1990's, and corresponding limited recruitment into the industry, the cadre of engineers, managers and other nuclear energy industry experts is aging. In any nuclear renaissance, we believe that the industry will be challenged in acquiring and retaining sufficient qualified expertise. In countries studying the potential of establishing new nuclear energy programs, the number of qualified nuclear energy personnel is limited, and we believe that those countries will need to rely on significant support from non-domestic service providers and experts to ensure success in those programs.

Our emergence in the field of nuclear energy consulting is in direct response to the need for independent assessments and highly qualified technical consulting services from countries looking to establish nuclear energy programs, by providing a blueprint for safe, secure, reliable, and cost-effective nuclear power. We offer full-scope strategic planning and advisory services for new and growing existing markets. Furthermore, we only engage with commercial entities and governments that are dedicated to non-proliferative and transparent nuclear programs.

Our consulting services are expert and relationship based, with particular emphasis on key decision makers in senior positions within governments or companies, as well as focus on overall management of nuclear energy programs. To date, nearly all of our revenues have been derived from our consulting and strategic advisory services business segment, which primarily provides nuclear consulting services to entities within the United Arab Emirates, our first significant consulting and strategic advisory client. We have also provided nuclear safety consulting advice to US nuclear utilities. We expect to be working both directly and as a subcontractor to larger companies for our new potential consulting contracts in 2017 and beyond and utilizing less outside consulting firms to provide us with consulting services in the future.

Table of Contents

Competition in Nuclear Industry Consulting

In general, the market for nuclear industry consulting services is competitive, fragmented and subject to rapid change. The market includes a large number of participants with a variety of skills and industry expertise, including local, regional, national, and international firms that specialize in political assessment, legal and regulatory framework, nuclear technology, or program implementation. Some of these companies are global in scope and have greater personnel, financial, technical, and marketing resources than we do. The larger companies offering similar services as we do typically are also active in the delivery of nuclear power plant equipment and/or provision of engineering design services. We believe that our independence, experience, expertise, reputation and segment focus, enable us to compete effectively in this marketplace as a strategic advisor for those governments wishing to develop a new civil nuclear program.

Our major challenge in pursuing our business is that the decision making process for nuclear power programs typically involves careful consideration by many parties and therefore requires significant time. Many of the potential clients that could benefit from our services are in regions of the world where tensions surrounding nuclear energy are high, or in countries where public opinion plays an important role. Domestic and international political pressure and public opposition to nuclear power may hinder our efforts to provide nuclear energy consulting services.

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, 2016, we had seven full-time employees and one part-time employee. 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.

History and Corporate Structure

We were incorporated under the laws of the State of Nevada on February 2, 1999. On October 6, 2006, we acquired our wholly-owned subsidiary Thorium Power, Inc. and changed our name to Thorium Power, Ltd. Thorium Power, Inc. was incorporated on January 8, 1992. In 2008, we formed Lightbridge International Holding, LLC (a Delaware limited liability company) to be a holding company for our foreign branch offices. Our foreign branch offices were set up to facilitate our international operations. We registered a branch office in England in 2008 called Lightbridge

Advisors Limited and a branch office in Moscow, Russia in July 2009, which was closed in 2016. On September 21, 2009, we changed our name from Thorium Power Ltd. to Lightbridge Corporation to more accurately reflect the varied nature of our business operations. Thorium Power, Inc. remains a wholly-owned subsidiary of Lightbridge Corporation.

Available Information

Our Annual Report 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 Exchange Act, are available free of charge on our website at www.ltbridge.com 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 VA, 20190 USA. You may read and copy any materials we file with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. You can get information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. 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 web site 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.

Table of Contents

Item 1A. Risk Factors

Risks Related to the Company

There is substantial doubt about our ability to continue as a going concern.

The accompanying audited consolidated financial statements have been prepared assuming the company will continue as a going concern. This assumes continuing operations and the realization of assets and liabilities in the normal course of business. We have incurred recurring losses since inception and expect to continue to incur losses as a result of costs and expenses related to our research and continued development of our nuclear fuel, including additional research and development expenses expected to be incurred if we are able to execute on a joint venture with AREVA NP and our corporate general and administrative expenses. At December 31, 2016, we had \$3.7 million in cash. We have expended substantial funds on the research and development of our fuel technology. Our net losses incurred for the years ended December 31, 2016 and 2015, amounted to \$(6.3) million and \$(4.3) million, respectively, and working capital was approximately \$3.4 million and \$0.1 million, respectively, at December 31, 2016 and 2015. As a result, there is substantial doubt about our ability to continue as a going concern. In the event that we are unable to generate sufficient cash from our operating activities or raise additional funds, we may be required to delay, reduce or severely curtail our operations 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. The Company expects to seek to obtain additional funding through future equity issuances. There can be no assurance as to the availability or terms upon which such financing and capital might be available. We may tailor our fuel development program based on the amount of funding the Company raises.

We will need to raise significant additional capital in the future to expand our operations and continue our research and development and we may be unable to raise such funds when needed and on acceptable terms.

We will need to raise significant additional capital in order to continue our research and development activities and fund our operations, including funding our potential JV with AREVA NP. Our current plan is to seek external funding from third party sources to support a large portion of the remaining development, testing and demonstration activities relating to our metallic nuclear fuel technology. In addition to the Purchase Agreement with Aspire Capital on June 28, 2016, which allows us to sell up to \$5 million of our securities, we also entered into a common stock purchase agreement with Aspire Capital dated September 4, 2015 (the "September 2015 CSPA"), which allows us to sell up to \$10 million of shares of our common stock. The future sale of securities under the \$5 million Purchase Agreement is subject to our achievement of certain milestones that are not expected to be achieved as of the date of this filing. The extent to which we utilize the September 2015 CSPA as a source of funding will depend on a number of factors, including the prevailing market price of our common stock, the volume of trading in our common stock and the extent to which we are able to secure funds from other sources. The number of shares that we may sell to Aspire Capital

under the September 2015 CSPA on any given day and during its term is limited. See Note 11 of the Notes to our Consolidated Financial Statements included in Part II Item 8 of this Annual Report on Form 10-K for the fiscal year ended December 31, 2016, which is incorporated by reference herein, for additional information about the September 2015 CSPA. Additionally, we and Aspire Capital may not affect any sales of shares of our common stock under the September 2015 CSPA during the continuance of an event of default or on any trading day that the closing sale price of our common stock is less than \$0.50 per share. Even if we are able to access the full \$10.0 million under the September 2015 CSPA, we will still need additional capital to fully implement our business, operating and development plans.

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, as well as through sales of common stock to Aspire Capital under the Purchase Agreement and September 2015 CSPA. Additional equity or debt financing or other alternative sources of capital may not be available to us on acceptable terms, if at all.

If we raise additional funds by issuing equity securities, our stockholders will experience dilution. 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.

Table of Contents

There may be volatility in our stock price, which could negatively affect investments, and 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:

- quarterly variations in operating results;
- changes in financial estimates by securities analysts;
- changes in market valuations of other similar companies;
- limited liquidity in our common stock;
- announcements by us or our competitors of new products or of significant technical innovations, contracts, receipt of (or failure to obtain) government funding or support, acquisitions, strategic partnerships or joint ventures;
- additions or departures of key personnel;
- any deviations in net sales or in losses from levels expected by securities analysts, or any reduction in political support from levels expected by securities analysts;
- future sales of common stock; and
- nuclear accidents or other adverse nuclear industry events.

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.

The sale of our securities to Aspire Capital and MLV & Co. LLC may cause substantial dilution to our existing shareholders and the sale of the shares of common stock acquired by Aspire Capital or sold through our ATM financing with MLV & Co. LLC could cause the price of our common stock to decline.

We may register the resale of additional shares that we may sell to Aspire Capital under the September 2015 CSPA, which shares are in addition to the 3 million shares we can now sell under the September 2015 CSPA. The number of shares ultimately offered for sale by Aspire Capital is dependent upon the number of shares we elect to sell to Aspire Capital under the September 2015 CSPA and the additional \$5 million Purchase Agreement with Aspire Capital.

Depending upon market liquidity at the time, sales of shares of our common stock under the September 2015 CSPA, \$5 million Purchase Agreement and the ATM financing with MLV & Co. LLC (“MLV”) may cause the trading price of our common stock to decline.

Aspire Capital may ultimately purchase all, some or none of (i) the \$10.0 million of common stock that, together with the 300,000 commitment shares issued under the September 2015 CSPA and (ii) the \$3.0 million of remaining securities subject to funding milestones (not expected to be achieved) of the \$5 million Purchase Agreement. Aspire Capital may sell all, some or none of our shares that it holds or comes to hold under the September 2015 CSPA or the \$5 million Purchase Agreement. Sales by Aspire Capital of shares acquired pursuant to the September 2015 CSPA or the \$5 million Purchase Agreement may result in dilution to the interests of other holders of our common stock. The sale of a substantial number of shares of our common stock by Aspire Capital, or anticipation of such sales, could make it more difficult for us to sell equity or equity-related securities in the future at a time and at a price that we might otherwise wish to effect sales. However, we have the right to control the timing and amount of sales of our shares to Aspire Capital, and the September 2015 CSPA may be terminated by us at any time at our discretion without any penalty or cost to us.

Table of Contents

If we are unable to enter into one or more commercial agreements with nuclear fuel fabricators and/or fuel development partners, we may not be able to raise money on terms acceptable to us or at all.

We are currently in discussions with potential development partners regarding entry into agreements to support our research and development activities and further enhance the development of our fuel products. We are unable to provide a reliable estimate as to the likelihood or timing of any such agreements at this time. If we are unable to demonstrate meaningful progress towards entry into these agreements or other strategic arrangements 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 are unable to raise additional capital, it is unlikely that we will be able to execute our current business plan.

If the price of non-nuclear energy sources falls, there could be an adverse impact on new build nuclear reactor activities in certain markets, 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.

We have previously identified a material weakness in our internal control over financial reporting, and if we cannot maintain an effective system of internal control over financial reporting in the future, we may need to restate our financial statements and we may be delayed or prevented from accessing the capital markets.

We are subject to the requirements of the Sarbanes-Oxley Act of 2002, particularly Section 404, and the applicable SEC rules and regulations that require an annual management report on our internal controls over financial reporting. The management report includes, among other matters, management's assessment of the effectiveness of our internal controls over financial reporting.

We previously identified a material weakness in our internal control over financial reporting and we may not be capable of maintaining an effective system of internal control in the future. The material weakness relates to our previous interpretation of ASC 815 and our initial classification and subsequent accounting for warrants. This material weakness resulted in a misstatement of our liabilities, non-cash expense relating to the changes in fair value of common stock warrants, additional paid-in capital, accumulated deficit accounts and related financial disclosures. Management took steps during the fourth quarter of 2015 to ensure that the Company's accounting staff is knowledgeable about ASC 815 and its application to the Company. Based on the measures taken and implemented, the Company's management has tested the newly implemented control activities and found them to be effective and

has concluded that the material weakness described above has been remediated as of December 31, 2015.

Our ability to identify and remediate any material weaknesses in our internal controls could affect our ability to prepare financial reports in a timely manner, control our policies, procedures, operations, and assets, assess and manage our operational, regulatory and financial risks, and integrate any acquired businesses. Any failures to ensure full compliance with internal control and financial reporting requirements in the future could result in a restatement, cause us to fail to timely meet our reporting obligations, delay or prevent us from accessing the capital markets, and harm our reputation and the market price for our common stock.

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.

Table of Contents

Our limited operating history makes it difficult to judge our prospects.

Prior to 2008, we were a development stage company. We have commenced the provision of nuclear consulting services and currently have only a limited number of clients in this area of our business. Similarly, our fuel design patents and technology have not been commercially used and we have not received any royalty or sales revenue from this area of our business. We are subject to the risks, expenses and problems frequently encountered by companies in the early stages of development.

We rely upon certain members of our senior management, including Seth Grae, and the loss of Mr. Grae or any of our senior management 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. Grae's knowledge of the nuclear power industry, his network of key contacts within that industry and in governments and, in particular, his expertise in the potential markets for our technologies, are critical to the implementation of our business model. Mr. Grae is likely to be a significant factor in our future growth and success. The loss of services by Mr. Grae would likely have a material adverse effect on us.

Competition for highly skilled professionals could have a material adverse effect on our success.

We rely heavily on our contractor staff and management team. Our success depends, in large part, on our ability to hire, retain, develop, and motivate highly skilled professionals. Competition for these skilled professionals is intense 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. A loss of a significant number of our employees could have a significant negative effect on us. Any significant volatility or sustained decline in the market price of our common stock could impair our ability to use equity-based compensation to attract, retain, and motivate key employees and consultants.

Successful execution of our business model is dependent upon public support for nuclear power and overcoming public opposition to nuclear energy as a result of the major nuclear accident at Fukushima.

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.

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 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 plans 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.

Table of Contents

Risks Related to Our Fuel Technology Business

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. Furthermore, the fuel technology has yet to be demonstrated in operating conditions analogous 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 will not be certain about the ability of the fuel we design to perform as expected. In addition, there is also a risk that suitable testing facilities may not be available to us on a timely basis or at a reasonable cost, which could cause development program schedule delays.

We will also have to enter into a commercial arrangement with a fuel fabricator to produce fuel using our designs.

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.

Potential competitors could limit opportunities to license our technology.

Part of our strategy is to partner with major fuel fabricators through technology licensing arrangements and other commercialization arrangements. However, these fuel fabricators may potentially develop new nuclear fuel designs that can be used in the same types of reactors as those that we target. Existing fuel fabricators also have established commercial connections to nuclear power facilities that we do not have. If these types of companies were to compete with our nuclear fuel design technology, opportunities to license our technology would be limited.

Moreover, many of these fuel fabricators 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.

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 that necessitates additional, unplanned analytical and/or experimental work which could cause program schedule delays and require more research and development funding.

Table of Contents

Existing commercial nuclear infrastructure in many countries is limited to uranium material enrichments up to 5%. Our metallic fuel 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 enrichment up to 5%. Our fuel designs are expected to have enrichment levels up to 19.7% 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 handle uranium with enrichment levels up to 19.7% and operate commercial reactors using our 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 handle our fuel or operate commercial reactors using our fuel. 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 oxide is packed into small pellets that are stacked and sealed inside metallic tubes. Our co-extrusion fabrication technology involves extrusion of a single-piece 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. 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.

Our plans to develop our fuel designs depend on our ability to acquire the rights to the designs, data, processes, and methodologies that are used or may be used in our business in the future. If we are unable to obtain such rights on reasonable terms in the future or develop our own know-how necessary for fabrication of our nuclear fuel designs, our ability to exploit our intellectual property may be limited.

We do not currently possess all of the necessary know-how or have licensing or other rights to acquire or utilize certain designs, data, methodologies, or processes required for the fabrication of our fuel assemblies. If we, or a fuel fabricator to which we license our fuel technology, desires to utilize such existing processes or methodologies in the future, a license or other right to use such technologies from other entities that previously developed and own such technologies would be required. Alternatively, we would have to develop our own know-how necessary for fabrication of our metallic fuel rods and fuel assembly components. Nuclear operators typically seek diversity of fuel supply and may be hesitant to use a fuel product that is only available from a single supplier. If we are unable to obtain a license or other right to acquire or utilize certain processes or develop our own know-how required for the

fabrication of our metallic fuel rods and fuel assembly components, or there is only a single supplier of our fuel assemblies, then we may not be able to fully exploit our intellectual property and may be hindered in the sale of our fuel products and services.

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 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.

Table of Contents

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.

Our nuclear fuel 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. 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.

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.

Table of Contents

Risks Associated With Our Consulting Activities

Our inability to attract business from new clients, maintain current levels of business, or retain our existing clients could have a material adverse effect on us.

We expect that many of our future consulting client engagement agreements will be terminable by our clients with little or no notice and without penalty. Some of our consulting work may involve multiple engagements or stages. In those engagements, there is a risk that a client may choose not to retain us for additional stages of an engagement or that a client will cancel or delay additional planned engagements. In addition, a small number of existing clients account for a majority of our consulting revenues, the loss of any one of which would have a material adverse effect on our results of operations. Some of our existing clients reduced their utilization of our consulting services beginning in 2013. Our current consulting clients are not contractually obligated to purchase a certain level of services from us and may significantly reduce their utilization of our services, resulting in a material reduction in revenue.

Our future profitability will suffer if we are not able to maintain current pricing and utilization rates.

Our revenue, and our profitability, will be largely based on the billing rates charged to clients and the number of hours our professionals work on client engagements, which we define as the “utilization” of our professionals. Accordingly, if we are not able to maintain the pricing for our services or an appropriate utilization rate for our professionals, revenues, project profit margins and our future profitability will suffer.

Bill rates and utilization rates are affected by a number of factors, including:

- our ability to predict future demand for services and maintain the appropriate headcount and minimize the number of underutilized personnel;
- our clients’ perceptions of our ability to add value through our services;
- our competitors’ pricing for similar services;
- the market demand for our services; and
- our ability to manage significantly larger and more diverse workforces as we increase the number of our professionals and execute our growth strategies.

Unsuccessful future client engagements could result in damage to our professional reputation or legal liability, which could have a material adverse effect on us.

Our professional reputation and that of our personnel is critical to our ability to successfully compete for new client engagements and attract or retain professionals. Any factors that damage our professional reputation could have a material adverse effect on our business.

Any client engagements that we obtain will be subject to the risk of legal liability. Any public assertion or litigation alleging that our services were negligent or that we breached any of our obligations to a client could expose us to significant legal liabilities, could distract our management, and could damage our reputation. We carry professional liability insurance, but our insurance may not cover every type of claim or liability that could potentially arise from our engagements. The limits of our insurance coverage may not be enough to cover a particular claim or a group of claims, and the costs of defense.

Our results of operations could be adversely affected by disruptions in the marketplace caused by economic and political conditions.

Global economic and political conditions affect our clients' businesses and the markets they serve. A severe and/or prolonged economic downturn or a negative or uncertain political climate could adversely affect our clients' financial condition and the levels of business activity engaged in by our clients and the industries we serve. Clients could determine that discretionary projects are no longer viable or that new projects are not advisable. This may reduce demand for our services, depress pricing for our services, or render certain services obsolete, all of which could have a material adverse effect on our results of operations. Changes in global economic conditions or the regulatory or legislative landscape could also shift demand to services for which we do not have competitive advantages, and this could negatively affect the amount of business that we are able to obtain. Although we have implemented cost management measures, if we are unable to appropriately manage costs or if we are unable to successfully anticipate changing economic and political conditions, we may be unable to effectively plan for and respond to those changes, and our business could be negatively affected.

Table of Contents

Item 1B. Unresolved Staff Comments

Not applicable.

Item 2. Description of Property

Starting December 22, 2015 our office space is located at 11710 Plaza America Drive, Suite 2000 Reston, VA 20190 USA. The term of the lease for our new offices has been extended through December 31, 2017. We are obligated to pay approximately \$6,500 per month for office rent and approximately another \$300 per month for other fees for this rented office space. This space is used by our executives, employees, and contractors for administrative purposes, consulting work and research and development activities.

On January 1, 2015 we entered into a lease for our prior office space for a 38 month term, with a monthly rent payment of approximately \$32,000 per month plus additional charges with no rent charged for the initial 2 months of the lease term. On December 17, 2015 we entered into a sublease agreement for this prior office space with a third party with a lease term starting January 1, 2016 to February 28, 2018. For a more detailed description of this sublease, see the information set forth under “Operating Leases” in Note 7, “Commitments and Contingencies,” of the Notes to our consolidated financial statements in Part II, Item 8 of this Annual Report on Form 10-K.

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 under “Litigation” in Note 7, “Commitments and Contingencies,” of the Notes to our consolidated financial statements in Part II, Item 8 of this Annual Report on Form 10-K.

Item 4. Mine Safety Disclosures

Not applicable.

Table of Contents**PART II****Item 5. Market for Common Equity, Related Stockholder Matters, and Issuer Purchases of Equity Securities**
Market Information

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

The following table sets forth the highest and lowest intraday sales prices of our common stock on the Nasdaq Capital Market during each quarter of the two most recent years (post reverse stock split of 1 for 5).

Fiscal Year	Quarter Ending	High	Low
2016	December 31	\$ 2.36	\$ 1.04
	September 30	\$ 3.65	\$ 1.67
	June 30	\$ 3.00	\$ 1.75
	March 31	\$ 5.15	\$ 2.55
2015	December 31	\$ 6.60	\$ 3.75
	September 30	\$ 7.05	\$ 3.75
	June 30	\$ 14.60	\$ 5.45
	March 31	\$ 9.20	\$ 5.15

Holders

As of March 7, 2017, our common stock was held by approximately 61 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.

Table of Contents

Recent Sales of Unregistered Securities

We did not sell any securities without registration under the Securities Act during the fiscal year ended December 31, 2016 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 "Item 8. Financial Statements and Supplementary Data" of this report. This MD&A consists of the following sections:

- *Overview of Our Business* — a general overview of our two business segments;

As discussed in more detail at the beginning of this Annual Report, the following discussion contains forward-looking statements that involve risks, uncertainties, and assumptions such as statements of our plans, objectives, expectations, and intentions. Our actual results may differ materially from those discussed in these forward-looking statements because of the risks and uncertainties inherent in future events.

Overview of Our Business

When used in this report, the terms “Lightbridge”, “Company”, “we”, “our”, and “us” refer to Lightbridge Corporation and wholly-owned subsidiaries Thorium Power, Inc. (a Delaware corporation) and Lightbridge International Holding, LLC (a Delaware limited liability company).

Lightbridge is a leading nuclear fuel technology company and we participate in the nuclear power industry in the United States and internationally. Our mission is to be a world leader in the design and deployment of nuclear fuels that we anticipate will be economically attractive, enhance reactor safety, proliferation resistant, and produce less waste than current generation nuclear fuels, and to provide world-class strategic advisory services to governments and utilities seeking to develop or expand civil nuclear power programs.

Table of Contents

Our business operations can be categorized in two segments:

- (1) Our nuclear fuel technology business segment - we develop next generation nuclear fuel technology that has the potential to significantly increase the power output of commercial reactors, reducing the cost of generating electricity and the amount of nuclear waste on a per-megawatt-hour basis and enhancing reactor safety and the proliferation resistance of spent fuel. Our main focus is on our nuclear fuel technology business segment.
- (2) Our nuclear energy consulting business segment - we provide nuclear power consulting and strategic advisory services to commercial and governmental entities worldwide. Our nuclear consulting business operations are intended to help defray a portion of the costs relating to the development of our nuclear fuel technology.

Financial information about our business segments is included in Note 12 Business Segment Results, of the Notes to the Consolidated Financial Statements, included in Part I Item 1, Financial Statements of this Annual Report on Form 10-K.

Recent Developments

Nuclear Fuel Developments

- ***LTA Host Utility***

On November 2, 2016, we executed a non-binding letter of intent (“LOI”) with a US nuclear utility relating to the intent to enter into negotiations with regard to an agreement for lead test assembly operation (“LTA Agreement”) in one of that nuclear utility’s operating nuclear power reactors using Lightbridge-designed nuclear fuel, subject to certain conditions and requirements. In the event the LTA Agreement is not executed on or before December 31, 2017 (such date may be extended by the mutual agreement of both parties) the LOI would terminate. One of the conditions is that we enter into a joint venture or similar business arrangement with AREVA NP to supply the fuel. This joint venture will provide the nuclear utility with a written outline

regarding how it will support the nuclear utility in obtaining a license amendment and or any other regulatory compliance actions.

- ***AREVA Agreements***

On October 31, 2016, we executed a non-binding term sheet (“term sheet”) with AREVA NP relating to the creation of a new joint venture to develop, manufacture and commercialize fuel assemblies based on Lightbridge’s innovative metallic nuclear fuel technology. This term sheet includes the agreed upon key terms for the creation of a new joint venture company. The term sheet outlines key areas for a U.S.-based joint venture to be equally owned by each company, covers fuel assemblies for most types of light water reactors, including pressurized water reactors (PWRs), boiling water reactors (BWRs), small modular reactors (SMRs), and research reactors. We expect to formalize the joint venture in the coming months with AREVA NP.

On March 14, 2016, we entered into a joint development agreement (“JDA”) with AREVA NP which will define the different steps (including, without limitation, a feasibility study, a business plan, and an implementation action plan), working groups, and methodology to determine the feasibility and opportunity of future joint ventures between the parties. The JDA provides the process by which the parties will execute definitive documentation for the joint ventures, including a term sheet that will set forth the main terms of the definitive joint venture agreements.

As part of the definitive joint venture agreements, based on successful completion of the scope of work under the JDA, Lightbridge and AREVA will agree on: (1) terms and conditions to complete the remaining scope of work to demonstrate and commercialize the fuel assemblies based on Lightbridge’s metallic nuclear fuel, and (2) a technology licensing arrangement and other agreements needed to form and operate the joint venture company. The companies, as of the date of this filing, continue to work exclusively together in the areas covered by the JDA, which expired on December

31, 2016, with the intent of entering into a definitive joint venture agreement in the coming months.

Table of Contents

- **CleanEquity Monaco Award.** On March 4, 2016, we won the CleanEquity Monaco Award for Excellence in Technology Research for our innovation in nuclear fuel. The award is presented annually by His Serene Highness Prince Albert II of Monaco after the winner is selected by a panel of independent judges.
- **IFE Regulatory Approval.** On January 12, 2016 we announced that, the Institute for Energy Technology (“IFE”), which operates the Halden Research Reactor in Norway, received formal regulatory approval from the Norwegian Radiation Protection Authority (NRPA) for all planned irradiation of Lightbridge metallic fuel at the Halden Research Reactor in Norway. The NRPA noted the safety advantages of Lightbridge metallic fuel, including much better thermal conductivity than oxide fuel, which contributes to significantly lower centerline temperatures in the fuel as compared to oxide fuel, and reduced likelihood for a release of fission products should a cladding breach occur.

Aspire Option Agreement

On August 10, 2016 the Company entered into an option agreement with Aspire Capital whereby the Company has the right, at any time prior to December 31, 2019, to require Aspire Capital to enter into with the Company, up to two common stock purchase agreements each with a three year term, with an aggregate amount under both purchase agreements combined not to exceed \$20,000,000 (see Note 11 of the Notes to the accompanying consolidated financial statements).

NASDAQ Hearings Panel Decision

On July 27, 2016, a Nasdaq Hearings Panel issued its decision letter to the Company and granted the Company’s request for continued listing of the Company’s common stock on the Nasdaq Capital Market.

Reverse Stock Split

On July 20, 2016, at the opening of trading, we effected a one-for-five reverse split of our common shares. The common shares began trading on a split-adjusted basis on July 20, 2016. The primary purpose of the reverse split was to bring us into compliance with the Nasdaq’s \$1.00 minimum bid price requirement to maintain our stock listing on Nasdaq.

Our historical financial results have been adjusted to reflect a reduction in the number of shares of our outstanding common stock from 18,628,957 shares to 3,725,819 shares at December 31, 2015. In addition, effective upon the

reverse stock split, the number of authorized shares of our common stock was reduced from 500 million shares to 100 million shares and the number of authorized preferred stock was reduced from 50 million shares to 10 million shares. All fractional shares were rounded up to the nearest share. All share data herein has been retroactively adjusted for the reverse stock split.

Securities Purchase Agreement - Aspire Capital Fund, LLC

On June 28, 2016, we entered into a Securities Purchase Agreement with Aspire Capital pursuant to which the Company has agreed to sell up to \$5.0 million of shares of the Company's common stock to Aspire Capital, without an underwriter or placement agent.

Pursuant to the Securities Purchase Agreement, the Company sold 371,400 shares of common stock and 295,267 pre-funded warrants at an exercise price of \$0.05 per share to Aspire Capital on June 28, 2016 for \$1.0 million. The Securities Purchase Agreement provides for the sale of up to an additional \$4.0 million of the Company's common stock to Aspire Capital upon the achievement of certain milestones, as follows:

- on or before October 31, 2016, \$1.0 million of the Company's common stock upon the Company's announcement of its entry into a strategic arrangement regarding Lightbridge- designed nuclear fuel with one or more major nuclear utilities; but this milestone was not satisfied and
- on or before March 31, 2017, \$3.0 million of the Company's common stock upon the Company's announcement of its entry into a binding joint venture agreement to fully develop and to commercialize Lightbridge-designed metallic nuclear fuel with a major global nuclear fuel fabrication company, subject to funding milestones that are not expected to be achieved as of the date of this filing.

Table of Contents

Securities Purchase Agreement – General International Holdings, Inc.

On June 28, 2016, we entered into a Securities Purchase Agreement with General International Holdings, Inc. (“GIH”), pursuant to which GIH purchased 1,020,000 shares of the Company’s newly created Non-Voting Series A Convertible Preferred Stock (the “Series A Preferred Stock”) for \$2.8 million or approximately \$2.75 per share, subject to the terms and conditions set forth in the Purchase Agreement (the “GIH Offering”).

The Series A Preferred Stock is non-voting and is convertible at the option of the holder into shares of the Company’s common stock initially on a one-for-one basis. Dividends accrue on the Series A Preferred Stock at the rate of 7% per year and will be paid in-kind. 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 \$2.75 per share) before the third anniversary of the issuance of the Series A Preferred Stock, or if the trading price is more than three times the applicable conversion price following the third anniversary of issuance. The Company may also redeem the Series A Preferred Stock following the third anniversary of the issuance.

The Company closed the GIH Offering on August 2, 2016. At the closing, Mr. Xingping Hou, the president of GIH, joined the Company’s Board of Directors as co-Chairman. The Company is using the proceeds from the GIH Offering for general corporate purposes, including but not limited to research and development. The Company did not use an underwriter or placement agent in connection with the GIH Offering.

Recent Accounting Standards and Pronouncements

Refer to Note 1 of the Notes to our consolidated financial statements for a discussion of recent accounting standards and pronouncements.

Operations Review

Business Segments and Periods Presented

We have provided a discussion of our results of operations on a consolidated basis and have also provided certain detailed segment information for each of our business segments below for the years ended December 31, 2016 and

2015, in order to provide a meaningful discussion of our business segments. We have organized our operations into two principal segments: Consulting and Nuclear Fuel Technology. We present our segment information along the same lines that our chief executives review our operating results in assessing performance and allocating resources.

BUSINESS SEGMENT RESULTS - YEARS ENDED DECEMBER 31, 2016 AND 2015

	Consulting Business		Technology Business		Corporate		Total	
	2016	2015	2016	2015	2016	2015	2016	2015
Revenue	\$ 760,577	\$ 910,531	\$ -	\$ -	\$ -	\$ -	\$ 760,577	\$ 910,531
Segment								
Loss -								
Pre Tax	\$ (288,119)	\$ (267,671)	\$ (2,748,337)	\$ (1,484,164)	\$ (3,308,720)	\$ (2,566,315)	\$ (6,345,176)	\$ (4,318,150)
Total								
Assets	\$ 388,434	\$ 139,797	\$ 1,160,465	\$ 950,594	\$ 5,253,476	\$ 1,117,045	\$ 6,802,375	\$ 2,207,436
Interest								
Expense	\$ -	\$ -	\$ -	\$ -	\$ 29,386	\$ -	\$ 29,386	\$ -

Table of Contents**Technology Business**

Over the next 12 to 15 months, we expect to incur approximately \$3 million to \$5 million in research and development expenses related to the development of our proprietary nuclear fuel designs, including funding a potential joint venture with AREVA NP, contingent on us raising additional equity capital in 2017 to fund these expenses. We spent approximately \$2.7 million and \$1.5 million for research and development during each of the years ended December 31, 2016 and 2015, respectively.

Over the next 2-3 years, we expect that our research and development activities will increase and will be primarily focused on testing and demonstration of our metallic fuel technology for Western-type water-cooled reactors. The main objective of this research and development phase is to prepare for full-scale demonstration of our fuel technology in an operating commercial power reactor.

Consulting Services Business

At the present time, all of our revenue for the years ended December 31, 2016 and 2015 is from our consulting services business segment. The fee type and structure that we offer for each client engagement is dependent on a number of variables, including the complexity of the services, the level of the opportunity for us to improve the client's electricity generation capabilities using nuclear power plants, and other factors.

Consolidated Results of Operations

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

	2016	2015	(Decrease) Change \$	(Decrease) Change %
Consulting Revenues	\$ 760,577	\$ 910,531	\$ (149,954)	-16%
Cost of services provided				
Consulting expenses	\$ 456,565	\$ 694,292	\$ (237,727)	-34%
% of total revenues	60%	76%		

Edgar Filing: LIGHTBRIDGE Corp - Form 10-K

Gross profit	\$	304,012	\$	216,239	\$	87,773	41%
% of total revenues		40%		24%			
Operating Expenses							
General and administrative	\$	5,190,549	\$	5,350,285	\$	(159,736)	-3%
% of total revenues		682%		588%			
Research and development expenses	\$	2,748,337	\$	1,484,164	\$	1,264,173	85%
% of total revenues		361%		163%			
Total Costs and Expenses	\$	7,938,886	\$	6,834,449	\$	1,104,437	16%
% of total revenues		1044%		751%			
Total Operating Loss	\$	(7,634,874)	\$	(6,618,210)	\$	1,016,664	15%
% of total revenues		-1004%		-727%			
Other Income and (Expenses)	\$	1,289,698	\$	2,300,060	\$	(1,010,362)	-44%
% of total revenues		170%		253%			
Net loss - before income taxes	\$	(6,345,176)	\$	(4,318,150)	\$	2,027,026	47%
% of total revenues		-834%		-474%			

Table of Contents**Revenue**

The following table presents our revenues, by business segment, for the years presented (rounded in millions):

	Year Ended	
	December 31,	
	2016	2015
Consulting Segment Revenues:		
ENEC and FANR (UAE)	\$ 0.4	\$ 0.5
Other (other countries)	0.4	0.4
Total	0.8	0.9
Technology Segment Revenues	-	-
Total Revenues	\$ 0.8	\$ 0.9

The decrease in our revenues from 2015 to 2016 of \$0.1 million resulted from increased pricing competition in 2016 and the decrease in the work performed for our FANR project of approximately \$0.1 million. Our consulting projects with FANR are being performed pursuant to ongoing requests to work on specific projects on a time and expense basis as needed. The FANR contract was extended to December 31, 2016. As of the date of this filing the FANR contract has not been extended in 2017, though we continue to provide services to FANR as a subcontractor under a contract with Lloyds Register Group Limited, a limited company registered in England and Wales. The future revenue to be earned and recognized under the FANR agreement will depend upon agreed upon work plans that are under current discussion, which can differ from the revenue amounts initially planned to be earned under these agreements.

The market for nuclear industry consulting services is competitive, fragmented, and subject to rapid change. We believe that our independence, experience, expertise, reputation and segment focus enable us to compete effectively in this marketplace.

See Note 1 and Note 3 of the Notes to our Consolidated Financial Statements included in Part II Item 8 of this Annual Report on Form 10-K for additional information about our revenue.

Costs and Expenses

The following table presents our cost of services provided, by business segment, for the years presented (rounded in millions):

**Year Ended
December 31,
2016 2015**

Consulting	\$	0.5	\$	0.7
Technology		-		-
Total	\$	0.5	\$	0.7

Cost of Services Provided

The decrease in our cost of services provided for the years ended December 31, 2016 and 2015 resulted from less revenue earned and a decrease in stock-based compensation in 2016 due to a decrease in stock-based compensation from stock option grants. Cost of services provided is comprised of expenses related to the consulting, professional, administrative, and other support costs and stock-based compensation allocated to our consulting projects labor, which were incurred to perform and support the work done for our consulting projects with ENEC, FANR and our other contracts. The billing rates to us from our consultants who provide services under our consulting contracts predominantly remained the same in 2016 and 2015. If consulting revenues increase in future periods, we expect cost of services provided will increase in dollar amount and may increase as a percentage of revenues due to increased pricing competition for consulting contracts.

Total reported gross profit margin for the years ended December 31, 2016 was 40% compared to 24% for the years ended December 31, 2015, primarily due to decreased stock-based compensation expense allocated to cost of services provided in 2016. Total stock-based compensation included in costs of services provided was approximately \$0.1 million and \$0.3 million for the years ended December 31, 2016 and 2015, respectively, due to stock-based compensation from the issuance of stock options.

See Note 1 and Note 3 of the Notes to our Consolidated Financial Statements included in Part II Item 8 of this Annual Report on Form 10-K for additional information about our cost of services provided.

Table of Contents**Research and Development**

The following table presents our research and development expenses, (rounded in millions):

	Year Ended December 31,	
	2016	2015
Research and development expenses	\$ 2.7	\$ 1.5

Research and development expenses consist mostly of outside vendor work, compensation and related overhead costs for personnel responsible for the research and development of our fuel. Total research and development increased due to the increase in outside vendor research and development work on our fuel by \$0.8 million; increase in quality assurance consulting fees for our internal research and development documentation of \$0.1 million; increase in professional fees of \$0.1 million and an increase in payroll and payroll related benefits of \$0.2 million. Total research and development rent decreased by approximately \$0.1 million in 2016 due to the transition of projects from Russia to Canada and the closing of our Russia office. Total stock-based compensation included in research and development expenses was approximately \$0.6 million for each of the years ended December 31, 2016 and 2015, due to stock-based compensation from the issuance of stock options.

All of our reported research and development activities were conducted in the United States, Canada, Norway, and Russia. We expense research and development costs as they are incurred. Research and development expenses will increase in dollar amount and may increase as a percentage of revenues in future periods because we expect to invest \$3 million to \$5 million in the development of our nuclear fuel products over the next 12-15 months.

See Note 8 of the Notes to our Consolidated Financial Statements included in Part II Item 8 of this Annual Report Form on 10-K for additional information about our research and development costs.

General and Administrative Expenses

The following table presents our general and administrative expenses, (rounded in millions):

Year Ended
December 31,
2016 **2015**

General and administrative expenses	\$	5.2	\$	5.4
-------------------------------------	----	-----	----	-----

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 outside legal, audit, strategic advisory services and outsourcing services. Total general and administrative expenses decreased primarily due to a decrease in office rent of \$0.2 million; a decrease in consulting fees of \$0.1 million; a decrease in abandonment loss of approximately \$0.4 million. These decreases were offset by an increase in professional fees of approximately \$0.3 million. The decrease in rent is due to the smaller office space we now occupy in 2016. Total stock based compensation allocated to our general and administrative expenses totaled approximately \$1.3 million and \$1.1 million for the years ended December 31, 2016 and 2015, respectively.

See Note 11 of the Notes to our Consolidated Financial Statements included in this Annual Report on Form 10-K for information regarding our stock-based compensation.

Table of Contents**Other Income (Expense)**

The following table presents our other Income (expenses), (rounded in millions):

	Year Ended December 31,	
	2016	2015
Other Income and (Expenses)		
Warrant revaluation	\$ 1.7	\$ 2.3
Warrant modification expense	(0.2)	-
Interest income	-	-
Financing costs	(0.2)	-
Other income (expenses)	(-)	(-)
Total Other Income and (Expenses)	\$ 1.3	\$ 2.3

Other income and expenses for the years ended December 31, 2016, as compared to the years ended December 31, 2015, net other income decreased by approximately \$1.0 million. The non-cash warrant income decreased by approximately \$0.6 million; the warrant modification expense increased by approximately \$0.2 million due to the settlement with our warrant holders of our 2014 and 2013 warrant liabilities and the increase in financing costs due to the amortization of deferred financing costs from our option agreements with Aspire Capital was approximately \$0.2 million.

During the years ended December 31, 2016 and 2015, we recorded non-cash warrant income of approximately \$1.7 million and \$2.3 million, respectively, for the warrants revaluation in our statements of operations, due to a change in the fair value of the warrant liability as a result of a change in our stock price, change in the contractual life and change in the volatility factors of the warrants.

The warrant modification expense of approximately \$0.2 million was due to the modification of the 2014 and 2013 warrant terms, by reducing the exercise price from \$11.55 to \$6.25, exchange of some of the outstanding warrants for common stock and amending certain provisions of the warrant agreement allowing us to classify them as equity instead of liabilities.

See Note 10 of the Notes to our Consolidated Financial Statements included in this Annual Report on Form 10-K for information regarding our warrant liability.

Provision for Income Taxes

The following table presents our provision for income taxes. Our effective tax rate for the periods presented is 38%.

	Year Ended	
	December 31,	
	2016	2015
Provision for income taxes	\$ 0.0	\$ 0.0

We incurred a pre-tax net loss for both 2016 and 2015. We reviewed all sources of income for purposes of recognizing the deferred tax assets and concluded a full valuation allowance for 2016 and 2015 was necessary. Therefore we did not have a provision for taxes for both years ended December 31, 2016 and 2015.

See Note 9 of the Notes to our Consolidated Financial Statements included in this Annual Report on Form 10-K for information regarding our Income Taxes.

Table of Contents

Liquidity, Capital Resources and Financial Position

To date, our consulting revenue has not provided sufficient cash flow to cover both our research and development expenses and corporate overhead expenses.

The current primary potential sources of cash available to us now are equity investments through our equity purchase agreements with Aspire Capital and our ATM agreement with MLV. We have no debt or debt credit lines and we have financed our operations to date through our consulting revenue and the sale of our common stock.

On June 11, 2015, we entered into an ATM issuance sales agreement with MLV, pursuant to which the Company may issue and sell shares of its common stock from time to time through MLV as the Company's sales agent. On December 2, 2015 we filed a prospectus supplement which increased the maximum amount registered for sale pursuant to the ATM sales agreement to \$5.8 million. As of the date of this filing, we raised in 2016 and 2017 a total of approximately \$5.1 million from our ATM financing agreement, net of financing costs (of which approximately \$2.6 million net proceeds was raised in 2017). We registered the sale of up to \$5.8 million of common stock under this ATM sales agreement with MLV so there is \$0.5 million remaining funds available to be raised under the ATM. Due to general instruction I.B.6 to Form S-3 (the "Baby Shelf Rules") which provides that a registrant with a market value of common equity held by non-affiliates (the public float) of less than \$75 million may only sell under a Form S-3, during any 12-month period, securities having an aggregate market value of not more than one-third of the public float of such registrant. The Baby Shelf Rules may limit our ability to raise funds in the future from our ATM agreement with MLV. The amount available under the Company's Form S-3 shelf registration statement, which may be used to register additional sales under the ATM sales agreement, will increase upon an increase in the company's stock price and shares outstanding in the public float.

On September 4, 2015, we entered into an equity purchase agreement with Aspire Capital, which provides that Aspire Capital is committed to purchase up to an aggregate of \$10.0 million of shares of our common stock over a two-year term, subject to our election to sell any such shares. We have approximately \$7.3 million of remaining availability under the equity line purchase agreement. As of the date of this filing, we may issue an additional 3 million shares to Aspire Capital under the equity purchase agreement. For the year ended December 31, 2016, we have raised approximately \$2.7 million through our equity purchase agreements with Aspire Capital. The sale of shares under this equity purchase agreement is subject to the Nasdaq 20% Rule. At the 2016 Annual Meeting, the Company's stockholders voted on the approval, pursuant to Nasdaq Listing Rule 5635(d), of the issuance of up to 3.0 million additional shares of common stock to Aspire Capital. We would seek stockholder approval before issuing more than such 3.0 million shares to Aspire Capital. As of the date of this filing, we may sell up to 3 million shares to Aspire Capital.

On June 28, 2016, we entered into a Securities Purchase Agreement with Aspire Capital pursuant to which the Company agreed to sell up to \$5.0 million of the Company's common stock. The company sold 371,400 shares of common stock and 295,267 pre-funded warrants at an exercise price of \$0.05 for approximately \$1.0 million, on June 28, 2016.

On August 10, 2016, we also entered into an option agreement with Aspire Capital that will give us an option until December 31, 2019 to enter in two equity line agreements for a combined total of \$20 million (see Note 11 of the Notes to the accompanying consolidated financial statements).

On June 28, 2016, we entered into a Securities Purchase Agreement with General International Holdings, Inc. ("GIH"), pursuant to which GIH purchased 1,020,000 shares of our newly created Non-Voting Series A Convertible Preferred Stock for \$2.8 million or approximately \$2.75 per share on August 2, 2016.

We have put in place the above ATM financing arrangement with MLV and equity purchase agreements with Aspire Capital to fund our future research and development expenses and overhead expenses over the next 12 months. As of December 31, 2016, we had total cash and cash equivalents of approximately \$3.7 million. Our working capital, at December 31, 2016, was approximately \$3.4 million. We have raised up to the date of this filing in 2017 from our ATM financing with MLV, net proceeds of approximately \$2.6 million with approximately \$0.5 million remaining funds available to be raised under the current ATM prospectus.

Our current projected average monthly cash flow shortfall, is anticipated to average in the range of approximately \$500,000- \$600,000 per month for the next 12 months from the date of the filing of this report, as we anticipate having additional capital resources for our increased spending on research and development in 2017 and 2018, for our anticipated joint venture with AREVA NP, to develop, manufacture and commercialize our nuclear fuel assemblies. We are working to reduce our projected monthly cash flow shortfall as we are currently seeking new sources of financing to fund our additional research and development work over the next 12 months from the date of this filing. We have the ability to delay incurring certain operating expenses in the next 12 months, which could reduce our cash flow shortfall, if needed.

Table of Contents

Short-Term and Long-Term Liquidity Sources

In addition to the ATM financing and equity purchase agreement financing arrangements discussed above, we may seek new financing or additional sources of capital, depending on the capital market conditions, over the next 12 months. There can be no assurance that some of these additional sources of capital will be made available to us. The primary potential sources of cash available to us are as follows:

1. Equity investment from investors; and
2. Strategic investment or cost-sharing contributions through alliances with major fuel vendors, fuel fabricators and/or other strategic parties during the next three years, 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 plan with respect to our fuel technology business, we endeavor to create strategic alliances with major fuel vendors, fuel fabricators and/or other strategic parties during the next three years, to support the remaining research and development activities 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.

We will need to raise additional capital in 2017 by way of an offering of equity securities, an offering of debt securities, a financing through a bank, or a strategic alliance with another entity, options which we are currently exploring to fully fund our anticipated research and development expenses over the next 12 months from the date of this filing.

See Note 11 of the Notes to our financial statements included in Part II Item 8 of this Annual Report on Form 10-K for information regarding our ATM financing and equity purchase agreements financing arrangements.

The following table provides detailed information about our net cash flows for the years ended December 31, 2016 and 2015.

Cash Flow (in millions)

	Year Ended		December 31,	
	2016		2015	
Net cash used in operating activities	\$	(6.0)	\$	(3.7)
Net cash used in investing activities	\$	(0.2)	\$	(0.1)
Net cash provided by financing activities	\$	9.2	\$	0.2
Net cash inflow (outflow)	\$	3.0	\$	(3.6)

Operating Activities

The increase in our cash used in operating activities in 2016 of \$2.3 million was primarily due to the decrease in our revenue and the increase in our research and development expenses in 2016 and the change in working capital items as explained below.

Cash used in operating activities in the year ended December 31, 2016, consisted of net loss adjusted for non-cash (income) expense items such as stock-based compensation, depreciation and amortization and warrant revaluation, as well as the effect of changes in working capital. Cash used in operating activities in the year ended December 31, 2016, consisted of a net loss of \$6.3 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 \$0.6 million, consisting of non-cash adjustments for stock-based compensation of \$2.0 million and amortization of deferred financing cost of \$0.2 million and warrant modification expense of \$0.2 million and a non-cash adjustment (increase in cash flow used in operating activities) for the non-cash warrant revaluation income of \$1.7 million. Total cash used in operating working capital totaled \$0.3 million. The cash used in operating working capital was due primarily to an increase in accounts receivable and prepaid and other current assets of \$0.1 million, due to an increase in the accounts receivable aging; decrease in deferred lease abandonment liability of \$0.3 million for the rent paid on the office space being sub-leased; offset primarily by the increase in accounts payable and accrued expenses of \$0.1 million.

Table of Contents

Cash used in operating activities in the year ended December 31, 2015, consisted of net loss of \$4.3 million adjusted for non-cash (income) expense items such as stock-based compensation, depreciation and amortization and warrant revaluation, as well as the effect of changes in working capital (net decrease to cash flow used in operating activities) totaling \$0.7 million. Cash used in operating activities in the year ended December 31, 2015, consisted of a net loss of \$4.3 million and net adjustments to net loss for non-cash income items totaling \$0.0 million, consisting of non-cash adjustments or decrease (decrease to cash flow used in operating activities) to net loss for stock-based compensation of \$1.9 million and a non-cash abandonment loss recorded of \$0.4 million and a non-cash adjustment or increase (increase in cash flow used in operating activities) to net loss for the warrant revaluation income of \$2.3 million. Total cash provided by working capital totaled \$0.7 million. The cash provided by working capital was due primarily to the increase in accounts payable and accrued expenses of \$0.3 million, due to the decrease in our cash balances and a decrease in accounts receivable and other of \$0.4 million, primarily due to the decrease in our revenue in 2015.

Investing Activities

Net cash used by our investing activities for the year ended December 31, 2016, as compared to net cash used by our investing activities in 2015 increased by approximately \$0.1 million due to an increase in spending for patent application costs. These applications are filed for the new developments resulting from our research and development activities in our technology business segment. 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.

Financing Activities

Net cash provided by our financing activities for the year ended December 31, 2016, as compared to net cash provided by our financing activities for the year ended December 31, 2015 was an increase of \$9.0 million. There was an increase in the proceeds from the issuance of our common stock through our equity purchase agreements with Aspire Capital and our ATM agreement with MLV of approximately \$5.9 million and an increase in cash from the transfer of our restricted cash to our operating account of approximately \$0.3 million. There was also an increase in the proceeds from the issuance of our Series A Preferred Stock of \$2.8 million. There was also an increase in our short-term notes payable to a vendor of approximately \$0.1 million offset by payments on the note of approximately \$0.1 million.

Critical Accounting Policies and Estimates

The SEC issued Financial Reporting Release No. 60, “Cautionary Advice Regarding Disclosure About Critical Accounting Policies” suggesting that companies provide additional disclosure and commentary on their most critical accounting policies. In Financial Reporting Release No. 60, the SEC has defined the most critical accounting policies

as the ones that are most important to the portrayal of a company's financial condition and operating results, and require management to make its most difficult and subjective judgments, often as a result of the need to make estimates of matters that are inherently uncertain. Based on this definition, we have identified the following significant policies as critical to the understanding of our financial statements.

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make a variety of estimates and assumptions that affect (i) the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities as of the date of the financial statements and (ii) the reported amounts of revenues and expenses during the reporting periods covered by the 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.

Table of Contents

Derivative Instruments

In prior years, we issued warrants to purchase Common Stock that contained provisions whereby the warrants did not meet the requirements for classification as equity and were recorded as derivative warrant liabilities. We used valuation methods and assumptions that considered among other factors, the fair value of the underlying stock, risk-free interest rate, volatility, expected life and dividend rates consistent with those discussed in Note 10, "Warrant Liability" in the Notes to Consolidated Financial Statements in Item 8 of this Annual Report on Form 10-K in estimating the fair value for these warrants. Such derivative warrant liabilities were initially recorded at fair value with subsequent changes in fair value charged (credited) to operations in each reporting period. The fair value of the derivative warrant liability is most sensitive to changes in the fair value of the underlying Common Stock and the estimated volatility of our Common Stock. The nature of the warrant liability is such (i.e., the warrant holders receive more value when the Company's stock price is higher) that increases in the Company's stock price during the period result in losses on the Company's statement of operations while decreases in the Company's stock price result the Company recording income. In 2016 the outstanding warrant terms have been modified so that all outstanding warrants are now classified as equity.

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 by Lightbridge in connection with its employees is based on the employee model of ASC 718. 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 US tax regulations." Our advisory board members and consultants do not meet the employer-employee relationship as defined by the IRS and therefore stock-based compensation to them is accounted for under ASC 505-50. Under these requirements, stock-based compensation expense for non-employees is based on the fair value of the award on the measurement date which is the earlier of the date at which a commitment for performance by the counterparty to earn the equity instruments is reached (a performance commitment), or the date at which the counterparty's performance is complete. For all grants made, we recognize compensation cost under the straight-line method.

We measure the fair value of 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.

Table of Contents

Revenue Recognition from Consulting Contracts

One of our critical accounting policies is revenue recognition from our consulting contracts. We are currently primarily deriving our revenue from fees by offering consulting and strategic advisory services to commercial and government owned entities outside the US planning to create or expand electricity generation capabilities, using nuclear power plants. Our fee type and structure for each client engagement depend on a number of variables, including the size of the client, the complexity, the level of the opportunity for us to improve the client's electricity generation capabilities using nuclear power plants, and other factors.

We entered into two consulting agreements in August 2008 with the Emirates Nuclear Energy Corporation (ENEC) and the Federal Authority for Nuclear Regulation (FANR). We recognize revenue associated with these contracts in accordance with the time and expense billed to our customer, which is subject to their review and approval. When a loss is anticipated on a contract, the full amount of the anticipated loss is recognized immediately. Our management uses its judgment concerning the chargeable number of hours to bill under each contract considering a number of factors, including the experience of the personnel that are performing the services, the value of the services provided and the overall complexity of the project. Should changes in management's estimates be required, due to business conditions that cause the actual financial results to differ significantly from management's present estimates, revenue recognized in future periods could be adversely affected.

We recognize revenue in accordance with SEC Staff Accounting Bulletin or SAB, No. 104, "Revenue Recognition." We recognize revenue when all of the following conditions are met:

- (1) There is persuasive evidence of an arrangement;
- (2) The service has been provided to the customer;
- (3) The collection of the fees is reasonably assured; and
- (4) The amount of fees to be paid by the customer is fixed or determinable.

Intangibles

As presented on the accompanying balance sheet, we had patents with a net book value of approximately \$1.2 million and \$1.0 million as of December 31, 2016 and December 31, 2015, 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 in order 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.

Recent Accounting Standards and Pronouncements

Refer to Note 1 of the Notes to our Consolidated Financial Statements 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.

Inflation

Our business, revenues, and operating results have not been affected in any material way by inflation.

Table of Contents

Item 7A. Quantitative and Qualitative Disclosure About Market Risk

Not applicable.

Item 8. Financial Statements

The full text of our audited consolidated financial statements as of and for the years ended December 31, 2016 and 2015 begins on page 45 of this Report.

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

There have been no disagreements regarding accounting and financial disclosure matters with our independent certified public accountants.

Item 9A. Controls and Procedures Evaluation of Disclosure Controls and Procedures

As of the end of the period covered by this report, 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 such term is defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act. . Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective at the reasonable assurance level as of December 31, 2016 to ensure 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.

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, 2016. Based on this assessment, management, with the participation of our Chief Executive Officer and Chief Financial Officer, determined that as of December 31, 2016, 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.

Changes in Internal Controls

There were no changes in the Company's internal control over financial reporting during the fourth quarter of 2016 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Item 9B. Other Information

None.

40

Table of Contents

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 2017 Annual Meeting of Stockholders and is incorporated herein by reference.

Item 11. Executive Compensation

The information required by Item 11 of Part III will be included in our Proxy Statement relating to the 2017 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

Item 12 of Part III will be included in our Proxy Statement relating to the 2017 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 2017 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 2017 Annual Meeting of Stockholders and is incorporated herein by reference.

Table of Contents

PART IV

Item 15. Exhibits and Financial Statement Schedules

See the Exhibit Index immediately following the signature page of this Annual Report on Form 10-K. As to any shareholder of record requesting a copy of this report, we will furnish any exhibit indicated in the Exhibit Index as filed with this report upon payment to us of our expenses in furnishing the information.

Item 16. Form 10-K Summary

Not Applicable

Table of Contents

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 23, 2017

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 Linda Zwobota, 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 23, 2017.

Signature	Title
<i>/s/ Seth Grae</i> Seth Grae	Chief Executive Officer, President and Director (Principal Executive Officer)
<i>/s/ Linda Zwobota</i> Linda Zwobota	Chief Financial Officer, and Treasurer (Principal Financial and Accounting Officer)
<i>/s/ Thomas Graham, Jr.</i> Thomas Graham, Jr.	Director
<i>/s/ Victor Alessi</i>	Director

Victor Alessi

/s/ Kathleen Kennedy Townsend
Kathleen Kennedy Townsend

Director

/s/ Daniel Magraw
Daniel B. Magraw

Director

/s/ Xingping Hou
Xingping Hou

Director

43

Table of Contents

**LIGHTBRIDGE CORPORATION
DECEMBER 31, 2016 and 2015
TABLE OF CONTENTS**

	Page
Report of Independent Registered Public Accounting Firm	45
Consolidated Balance Sheets	46
Consolidated Statements of Operations	47
Consolidated Statements of Cash Flows	48
Consolidated Statement of Changes in Stockholders' Equity	49
Notes to Consolidated Financial Statements	50

Table of Contents

Report of Independent Registered Public Accounting Firm

Board of Directors and Stockholders

Lightbridge Corporation

Reston, Virginia

We have audited the accompanying consolidated balance sheets of Lightbridge Corporation as of December 31, 2016 and 2015, and the related consolidated statements of operations, stockholders' equity, and cash flows for the years then ended. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, 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. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Lightbridge Corporation at December 31, 2016 and 2015, and the results of its operations and its cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As described in Note 1 to the consolidated financial statements, the Company has suffered recurring losses 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.

/s/ BDO USA, LLP

Philadelphia, Pennsylvania

March 23, 2017

BDO USA, LLP, a Delaware limited liability partnership, is the U.S. member of BDO International Limited, a UK company limited by guarantee, and forms part of the international BDO network of independent member firms.

BDO is the brand name for the BDO network and for each of the BDO Member Firms.

45

Table of Contents

Lightbridge Corporation
Consolidated Balance Sheets

	December 31, 2016	December 31, 2015
ASSETS		
Current Assets		
Cash and cash equivalents	\$ 3,584,877	\$ 623,184
Restricted cash	114,012	325,832
Accounts receivable - project revenue and reimbursable project	388,434	139,797
Prepaid expenses and other current assets	80,933	168,029
Deferred financing costs, net	491,168	-
Total Current Assets	4,659,424	1,256,842
Other Assets		
Patent costs	1,160,465	950,594
Deferred financing costs, net	982,486	-
Total Assets	\$ 6,802,375	\$ 2,207,436
LIABILITIES AND STOCKHOLDERS' EQUITY (DEFICIENCY)		
Current Liabilities		
Accounts payable and accrued liabilities	\$ 1,216,321	\$ 1,182,371
Total Current Liabilities	1,216,321	1,182,371
Long-Term Liabilities		
Deferred lease abandonment liability	28,464	196,938
Derivative warrant liability	-	2,327,195
Total Liabilities	1,244,785	3,706,504
Commitments and contingencies - Note 7		
Stockholders' Equity (Deficiency)		
Preferred stock, \$0.001 par value, 10,000,000 authorized shares, convertible Series A preferred shares, 1,020,000 shares issued and outstanding at December 31, 2016 and no shares issued and outstanding at December 31, 2015.	1,020	-
Common stock, \$0.001 par value, 100,000,000 authorized, 7,112,143 shares and 3,725,819 shares issued and outstanding as of December 31, 2016 and, 2015, respectively	7,112	3,726
Additional paid-in capital	86,266,075	72,868,647
Accumulated Deficit	(80,716,617)	(74,371,441)
Total Stockholders' Equity (Deficiency)	5,557,590	(1,499,068)
Total Liabilities and Stockholders' Equity (Deficiency)	\$ 6,802,375	\$ 2,207,436

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

Table of Contents

Lightbridge Corporation
Consolidated Statements of Operations

	Years Ended	
	December 31,	
	2016	2015
Revenue:		
Consulting Revenue	\$ 760,577	\$ 910,531
Cost of Consulting Services Provided	456,565	694,292
Gross Margin	304,012	216,239
Operating Expenses		
General and administrative	5,190,549	5,350,285
Research and development expenses	2,748,337	1,484,164
Total Operating Expenses	7,938,886	6,834,449
Operating Loss	(7,634,874)	(6,618,210)
Other Income and (Expenses)		
Warrant revaluation	1,672,573	2,306,117
Warrant modification expense	(162,398)	-
Interest income	316	705
Financing costs	(191,345)	-
Interest expense and other income (expenses)	(29,448)	(6,762)
Total Other Income and (Expenses)	1,289,698	2,300,060
Net loss before income taxes	(6,345,176)	(4,318,150)
Income taxes	-	-
Net loss	(6,345,176)	\$ (4,318,150)
Accumulated preferred stock dividend	(80,578)	-
Deemed dividend on convertible preferred stock dividend conversion due to beneficial feature	(581,300)	-
Net loss attributable to common shareholders	\$ (7,007,054)	\$ (4,318,150)
Net Loss Per Common Share, Basic and Diluted	\$ (1.48)	\$ (1.18)

Weighted Average Number of Shares Outstanding	4,728,943	3,647,860
---	-----------	-----------

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

Table of Contents

Lightbridge Corporation
Consolidated Statements of Cash Flows

	Years Ended	
	December 31,	
	2016	2015
Operating Activities:		
Net Loss	\$ (6,345,176)	\$ (4,318,150)
Adjustments to reconcile net loss from operations to net cash used in operating activities:		
Stock-based compensation	1,984,011	1,881,326
Amortization of deferred financing costs	191,345	-
Abandonment loss	-	433,467
Warrant revaluation	(1,672,573)	(2,306,117)
Warrant modification expense	162,398	-
Implied interest expense on deferred lease abandonment liability	26,953	-
Changes in operating working capital items:		
Accounts receivable - fees and reimbursable project costs	(248,637)	329,289
Prepaid expenses and other assets	87,096	37,156
Deferred lease abandonment liability	(263,437)	-
Accounts payable and accrued liabilities	101,960	292,173
Net Cash Used In Operating Activities	(5,976,060)	(3,650,856)
Investing Activities:		
Patent costs	(209,871)	(117,034)
Net Cash Used In Investing Activities	(209,871)	(117,034)
Financing Activities:		
Net proceeds from the issuance of common stock	6,135,804	171,500
Net proceeds from the issuance of preferred stock	2,800,000	-
Proceeds from the issuance of note payable	135,000	-
Repayment of note payable	(135,000)	-
Restricted cash	211,820	(651)
Net Cash Provided by Financing Activities	9,147,624	170,849
Net Increase (Decrease) In Cash and Cash Equivalents	2,961,693	(3,597,041)
Cash and Cash Equivalents, Beginning of Year	623,184	4,220,225
Cash and Cash Equivalents, End of Year	\$ 3,584,877	\$ 623,184
Supplemental Disclosure of Cash Flow Information:		
Cash paid during the year:		
Interest	\$ 2,433	\$ -
Income taxes	\$ -	\$ -

Non-Cash Financing Activities:			
Deferred financing costs	\$	1,664,999	\$ -
Warrant liability – reclassification to equity	\$	817,020	\$ -
Deemed dividend on convertible preferred stock due to beneficial conversion feature	\$	581,300	\$ -
Accumulated preferred stock dividend	\$	80,578	\$ -

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

Table of Contents

Lightbridge Corporation
Consolidated Statement of Changes in Stockholders' Equity (Deficiency)
For The Years Ended December 31, 2016 and 2015

	Preferred Stock Shares	Amount	Common Stock Shares	Amount	Additional Paid-in Capital	Accumulated Deficit	Total Equity (Deficiency)
Balance -December 31, 2014	-	\$ -	3,616,602	\$ 3,617	\$ 70,815,930	\$ (70,053,291)	\$ 766,256
Shares issued – registered offerings	-	-	109,217	109	171,391	-	171,500
Net loss	-	-	-	-	-	(4,318,150)	(4,318,150)
Stock-based compensation	-	-	-	-	1,881,326	-	1,881,326
Balance - December 31, 2015	-	-	3,725,819	\$ 3,726	\$ 72,868,647	\$ (74,371,441)	\$ (1,499,068)
Issuance of Preferred stock	1,020,000	\$ 1,020	-	\$ -	\$ 2,798,980	\$ -	\$ 2,800,000
Shares issued - registered offerings – net of offering costs			3,363,395	3,363	6,132,441	-	6,135,804
Stock-based compensation	-	-	-	-	1,984,011	-	1,984,011
Warrant modifications	-	-	22,929	23	816,997	-	817,020
Issuance of warrants	-	-	-	-	1,664,999	-	1,664,999
Net loss	-	-	-	-	-	(6,345,176)	(6,345,176)
Balance - December 31, 2016	1,020,000	\$ 1,020	7,112,143	\$ 7,112	\$ 86,266,075	\$ (80,716,617)	\$ 5,557,590

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

Table of Contents

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. merged with Thorium Power, Inc., (“TPI”), which had been formed in the State of Delaware on January 8, 1992. On September 29, 2009, we changed our name from Thorium Power, Ltd. to Lightbridge Corporation (subsequently referred to as “we” or the “Company”). We are engaged in two operating business segments: our Technology Business Segment and our Consulting Business Segment (see Note 12-Business Segment Results).

Going Concern and Liquidity

We have incurred recurring losses since inception and expect to continue to incur losses as a result of costs and expenses related to our research and continued development of our nuclear fuel and our corporate general and administrative expenses. At December 31, 2016, we had \$3.7 million in cash. We have expended substantial funds on the research and development of our fuel technology and expect to increase our spending on research and development expenditures if we are able to execute on a potential joint venture with AREVA NP. Our net losses incurred for the year ended December 31, 2016 and 2015, amounted to \$(6.3) million and \$(4.3) million, respectively, and working capital was approximately \$3.4 million and \$0.1 million, respectively, at December 31, 2016 and 2015. As a result, there is substantial doubt about our ability to continue as a going concern. In the event that we are unable to generate sufficient cash from our operating activities or raise additional funds, we may be required to delay, reduce or severely curtail our operations or otherwise impede our on-going business efforts, which could have a material adverse effect on our business, operating results, financial condition and long-term prospects. The Company expects to seek to obtain additional funding through future equity issuances. There can be no assurance as to the availability or terms upon which such financing and capital might be available.

On August 2, 2016, we closed on our offering of \$2.8 million of our Convertible Series A Preferred Stock (see Note 11). We have also raised approximately \$3.6 million in 2016 from our equity line purchase agreement and our securities purchase agreement from Aspire Capital Fund, LLC (“Aspire Capital”) (see Note 11). As of December 31, 2016, the available balance under the current equity line agreement is approximately \$7.3 million. We have also entered into an option agreement with Aspire Capital that will give us an option until December 31, 2019 to enter in two equity line agreements for a combined total of \$20 million (see Note 11).

On June 11, 2015, the Company entered into an at-the-market issuance (“ATM”) sales agreement with MLV & Co. LLC (“MLV”) (see Note 11), pursuant to which the Company may issue and sell shares of its common stock from time to time through MLV as the Company's sales agent. We have also raised approximately \$2.5 million, net of financing costs, in 2016 from our ATM from MLV for the year ended December 31, 2016.

Reverse Stock Split

Effective July 20, 2016, we conducted a one for five reverse stock-split of our issued and outstanding common stock and have retroactively adjusted our common shares outstanding, options and warrants amounts outstanding. We have presented our share data for and as of all periods presented on this basis. As a result, the number of common shares issued and outstanding at December 31, 2015 decreased from 18,628,957 shares to 3,725,819 shares. Our authorized capital of 500,000,000 shares of common stock and 50,000,000 shares of preferred stock, each with a par value of \$0.001, was changed to 100,000,000 shares of common stock authorized and 10,000,000 shares of preferred stock authorized with a par value of \$0.001. The par value was not adjusted as a result of the one for five reverse stock split.

Technology Business Segment

Our primary business segment, based on future revenue potential, 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 improve safety margins.

We are currently focusing our development efforts primarily on the metallic fuel with a power uprate of up to 10% and a 24-month operating cycle in existing Westinghouse-type four-loop pressurized water reactors. Those reactors represent the largest segment of our global target market. Our metallic fuel could also be adapted for use in other types of water-cooled commercial power reactors, such as boiling water reactors, CANDU heavy water reactors, as well as water-cooled small and modular reactors.

Table of Contents

On January 12, 2016, we announced entry into an initial services agreement with BWXT Nuclear Energy, Inc., a wholly owned subsidiary of BWX Technologies, Inc., to evaluate the ability to fabricate and prepare a preliminary plan for fabrication of Lightbridge-designed partial length nuclear fuel samples at BWXT facilities in the United States.

On March 14, 2016, we entered into a joint development agreement (“JDA”) with AREVA NP (“AREVA”) to develop a joint business plan to evaluate the technical, economic, and strategic feasibility and desirability of the parties’ forming one or more joint venture companies to further develop, manufacture, and commercialize the Company’s metallic nuclear fuel technology. The JDA includes a statement of work whereby the Company is expected to pay a total of approximately \$141,000 toward the total cost of work to be performed as part of the Joint Evaluation Project Plan by placing a work release or purchase order with AREVA. The total amount is due and payable by the Company as follows: 40% of the total amount due upon the effective date of the signing of the JDA (paid May 4, 2016); 30% of the total amount due upon the delivery of an intermediate report by AREVA (paid August 2, 2016) and the remaining 30% due upon the delivery of the final report to the Company.

On June 6, 2016 we announced that we received a key patent covering our metallic nuclear fuel rod design in Canada and also received our key patent in China following the notice of allowance publicly disclosed in May 2016.

On July 5, 2016 we announced that we received a Notice of Allowance for a key patent covering our metallic nuclear fuel rod design from the European Patent Office. The patent was issued in August 2016.

Lightbridge will seek patent validation in key countries in the EU region, including France, the UK, Sweden, and other key countries that already have a significant amount of nuclear generating capacity.

Consulting Business Segment

Our business model expanded with the establishment of a consulting business segment in 2007, through which we provide consulting and strategic advisory services to companies and governments planning to create or expand electricity generation capabilities using nuclear power plants. On August 1, 2008, we signed separate consulting services agreements with two government entities: Emirates Nuclear Energy Corporation (“ENEC”) formed by Abu Dhabi, one of the member Emirates of the United Arab Emirates (“UAE”), and the Federal Authority for Nuclear Regulation (“FANR”) formed by the government of the UAE. Under these two original agreements, we have provided consulting and strategic advisory services over a contract term of five years starting from June 23, 2008. The FANR contract can continue to be extended upon agreement by both parties. As of the date of this filing the FANR contract has not been extended to 2017, though we continue to provide services to FANR as a subcontractor under a contract

with Lloyds Register Group Limited, a limited company registered in England and Wales.

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, Lightbridge International Holding LLC, a Delaware limited liability company, and our foreign branch offices.

All significant intercompany transactions and balances have been eliminated in consolidation. We registered a branch office in the United Kingdom in 2008 called Lightbridge Advisors Limited (inactive) and we also established a branch office in Moscow, Russia, in July 2009, which were wholly owned by Lightbridge International Holding LLC. The Moscow branch was closed in 2016 and we anticipate that the United Kingdom branch will be closed in 2017. Translation gains and losses for the years ended December 31, 2016 and 2015 were not significant.

Use of Estimates and Assumptions

The preparation of 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.

Table of Contents

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, derivative liability for the stock purchase warrants, the valuation allowance on deferred tax assets, and various 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 financial instruments consist principally of cash and cash equivalents, accounts receivable, accounts payable, and a derivative warrant liability. 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. The fair value of the derivative warrants liabilities were determined based on "Level 3" inputs. See Note 10 -Warrant Liability and Note 13- Fair Value Measurements for more information on the Level 3 inputs.

Certain Risks, Uncertainties and Concentrations

We are an early stage company and will likely need additional funding by way of strategic alliances, 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 our fuel products to a commercial stage. Currently, we are working on consulting revenue opportunities with the overall goal of increasing our profitability and cash flow.

We participate 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 and our ability to safeguard our patents and intellectual property from competitors. Due to these factors, we 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 currently depend on the results of the Company's operations outside the United States. 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 regulations, changes in accounting and taxation standards, inability to achieve overall long-term goals, future impairment charges and global or regional catastrophic events. Because the Company is dependent on its international operations for almost all its revenue, the Company may be subject to various additional political, economic, and other uncertainties.

Accounts receivable are typically unsecured and are primarily derived from revenues earned from prime contractors and customers located in the Middle East and the United States. We perform ongoing evaluations to determine customer credit and we limit the amount of credit we extend, but generally we do not require collateral from our customers. We maintain reserves for estimated credit losses if necessary, however, no reserve has been set up at December 31, 2016 and 2015, as we expect to collect all of our outstanding receivables. Accounts receivable from two customers each constituted approximately 80% and 20% of the total accounts receivable at December 31, 2016, respectively, and accounts receivable from two customers constituted approximately 77% of the total accounts receivable at December 31, 2015.

Approximately 49% and 56% of the total revenues reported for the years ended December 31, 2016 and 2015, respectively, were from the ENEC and FANR contracts. Contracts with one other utility customer in the United States constituted approximately 22% and 7% of total revenues reported for the years ended December 31, 2016 and 2015, respectively, and contracts with one other customer constituted 29% and 34% for the years ended December 31, 2016 and 2015, respectively.

Table of Contents

Revenue Recognition

Consulting Business Segment

At the present time, we derive all of our revenue from our consulting business segment on a time and expense basis as provided, by offering consulting services to utilities as well as to governments outside the United States planning to create or expand electricity generation capabilities using nuclear power plants. Our fee structure for each client engagement is dependent on a number of variables, including the size of the client, the complexity, the level of the opportunity for us to improve the client's electrical generation capabilities using nuclear power plants, and other factors. The accounting policy we use to recognize revenue depends on the terms and conditions of the specific contract.

Revenues from utilities and the Executive Affairs Authority ("EAA") of Abu Dhabi, one of the member Emirates of the UAE, and the related entities, ENEC and FANR, are billed on a time and expense basis.

We recognize revenue in accordance with ASC 605-10-S99, "Revenue Recognition." We recognize revenue when all of the following conditions are met:

- (1) There is persuasive evidence of an arrangement;
- (2) The service has been provided to the customer;
- (3) The collection of the fees is reasonably assured; and
- (4) The amount of fees to be paid by the customer is fixed or determinable.

Certain customer arrangements require evaluation of the criteria outlined in the accounting standards for reporting revenue "Gross as a Principal Versus Net as an Agent" in determining whether it is appropriate to record the gross amount of revenue and related costs, or the net amount earned as agent fees. Generally, when we are primarily obligated in a transaction, revenue is recorded on a gross basis.

Other factors that we consider in determining whether to recognize revenue on a gross versus net basis include our assumption of credit risk, latitude in establishing prices, our determination of service specifications, and our involvement in the provision of services. We have determined, based on the credit risk that we bear for collecting consulting fees, travel costs, and other reimbursable costs from our customers, that in 2016 and 2015 we acted as a principal, and therefore we are recognizing as revenue all travel costs and other reimbursable costs billed to our customers.

Cost of consulting services includes labor, travel expenses, stock-based compensation and other related consulting costs.

Technology Business Segment

We are seeking to enter into a commercial arrangement with one or more fuel fabricators. We expect that our revenue from such a commercial arrangement will be earned under a licensing agreement.

Cash and Cash Equivalents and Restricted Cash

We may at times invest our excess cash in money market mutual funds. We classify 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. We hold cash balances in excess of the federally insured limits of \$250,000 with one prominent financial institution. We deem this credit risk not to be significant as our cash is held by a major prominent financial institution. Total cash and cash equivalents held in checking accounts, as reported on the accompanying consolidated balance sheets, totaled approximately \$3.6 million and \$0.6 million at December 31, 2016 and 2015, respectively.

Restricted cash represents cash being held by the same prominent financial institution that is being used as collateral for our corporate credit cards and letters of credit to secure contingent obligations under the sub-lease and our ACH transactions. The total balance of our restricted cash at December 31, 2016 and 2015 was approximately \$114,000 and \$326,000, respectively.

Table of Contents

Trade Accounts Receivable

We record accounts receivable at the invoiced amount and we do not charge interest. We review the accounts receivable by amounts due from customers which are past due, to identify specific customers with known disputes or collectability issues. In determining the amount of the reserve, we make judgments about the creditworthiness of significant customers based on ongoing credit evaluations. We will also maintain a sales allowance to reserve for potential credits issued to customers. We will determine the amount of the reserve based on historical credits issued.

There was no provision for doubtful accounts or a sales allowance recorded at December 31, 2016 and 2015, as we have not experienced any bad debts from any of our customers or issued significant credits to customers.

Foreign Currency

Foreign currency transaction gains/losses were not significant for the years ended December 31, 2016 and 2015.

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, 2016 and 2015.

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, 2016 and 2015.

Research, Development and Related Expenses

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

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 Accounting Standards Codification 815, Derivatives and Hedging ("ASC 815") 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. The Company will continue to classify the fair value of the warrants that contain "net cash settlement" as a liability until the warrants are exercised, expire or are amended in a way that would no longer require these warrants to be classified as a liability. For additional discussion of our warrants, see Note 10 - Warrant Liability.

Table of Contents

Commitments and Contingencies

The Company follows subtopic 450-20 of the FASB Accounting Standards Codification 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 advisory board members and consultants do not meet the employer-employee relationship as defined by the IRS and therefore are accounted for under ASC 505-50.

ASC 505-50-30-11 (previously EITF 96-18) further provides that an issuer shall measure the fair value of the equity instruments in these transactions using the stock price and other measurement assumptions as of the earlier of the following dates, referred to as the measurement date:

- i. The date at which a commitment for performance by the counterparty to earn the equity instruments is reached (a performance commitment); and

- ii. The date at which the counterparty's performance is complete.

We have elected to use the Black-Scholes pricing model to determine the fair value of stock options on the measurement date of the grant. Restricted stock units are measured based on the fair values of the underlying stock on the measurement date of the grant. 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. We recognize stock-based compensation using the straight-line method over the requisite service period.

Segment Reporting

We use the “management approach” in determining reportable operating segments. The management approach considers the internal organization and reporting used by our chief decision makers for making operating decisions and assessing performance, as the source for determining our reportable segments. We have determined that we have two operating segments as defined by the FASB accounting pronouncement, “*Disclosures about Segments of an Enterprise and Related Information*”. As discussed above, our two reporting business segments are our technology business and our consulting services business (see Note 12 - Business Segment Results).

Recently Adopted Accounting Pronouncements

Going Concern — In August 2014, FASB issued guidance that requires management to perform interim and annual assessments of an entity's ability to continue as a going concern within one year of the date the financial statements are issued. An entity must provide certain disclosures if conditions or events raise substantial doubt about the entity's ability to continue as a going concern. The updated accounting guidance was effective for the Company on December 31, 2016 and we have implemented this new accounting standard and updated our liquidity disclosures as necessary.

Deferred Taxes – During November 2015, the FASB issued ASU 2015-17, “Balance Sheet Classification of Deferred Taxes”, which simplifies the presentation of deferred income taxes. This ASU requires that deferred tax assets and liabilities be classified on a net basis as non-current in a statement of financial position. Early adoption of this ASU did not have an effect on our deferred tax assets and deferred tax liabilities in our consolidated balance sheet as of December 31, 2016 and December 31, 2015.

Table of Contents

Debt Issuance Costs - In April 2015, the FASB issued ASU 2015-03, “*Simplifying the Presentation of Debt Issuance Costs*”. The new standard will more closely align the presentation of debt issuance costs under U.S. generally accepted accounting principles with the presentation under comparable IFRS standards. Debt issuance costs related to a recognized debt liability will be presented on the balance sheet as a direct deduction from the debt liability, similar to the presentation of debt discounts. The cost of issuing debt will no longer be recorded as a separate asset, except when incurred before receipt of the funding from the associated debt liability. Under current U.S. generally accepted accounting principles, debt issuance costs are reported on the balance sheet as assets and amortized as interest expense. The costs will continue to be amortized to interest expense using the effective interest method. Subsequent to the issuance of ASU 2015-03 the Securities and Exchange Commission staff made an announcement regarding the presentation of debt issuance costs associated with line-of-credit arrangements, which was codified by the FASB in ASU 2015-15. This guidance, which clarifies the exclusion of line-of-credit arrangements from the scope of ASU 2015-03, is effective upon adoption of ASU 2015-03. ASU 2015-03 is effective for public business entities for fiscal years beginning after December 15, 2015, and interim periods within those fiscal years. The implementation of this standard did not have a material impact on the Company’s consolidated financial statements.

Recent Accounting Pronouncements

Statement of Cash Flows - In 2016 the FASB issued ASU 2016-15, “*Statement of Cash Flows: Classification of Certain Cash Receipts and Cash Payments*” and ASU 2016-18, “*Statement of Cash Flows (Topic 230): Restricted Cash*”. ASU 2016-15 addresses the presentation and classification of certain cash receipts and payments in the statement of cash flows. ASU 2016-18 is intended to reduce diversity in the presentation of restricted cash and restricted cash equivalents in the cash flows statement. The statement requires that restricted cash and restricted cash equivalents to be included as components of total cash and cash equivalents as presented on the statement of cash flows. These pronouncements go into effect for periods beginning after December 15, 2017. The Company does not believe the adoption of these pronouncements will have a material effect on the Company’s consolidated financial statements.

Stock Compensation - In March 2016, the FASB issued ASU 2016-09, Compensation – Stock Compensation (Topic 718): *Improvements to Employee Share-Based Payment Accounting*, which will simplify the income tax consequences, accounting for forfeitures and classification on the Statement of Consolidated Cash Flows. This standard is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2016, with early adoption permitted. This new pronouncement is not expected to have a material effect on the Company’s financial position, results of operations or cash flows.

Leases – In February 2016, the FASB issued ASU 2016-02 which amends existing lease accounting guidance, and requires recognition of most lease arrangements on the balance sheet. The adoption of this standard will 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 will be effective for fiscal years beginning after December 15, 2018, with early adoption permitted. The Company is currently evaluating the potential impact of the adoption of this accounting

pronouncement to its consolidated financial statements. This new pronouncement is not expected to have a material effect on the Company's financial position, results of operations or cash flows.

Revenue Recognition — In May 2014, the FASB issued guidance on revenue from contracts with customers that will supersede most current revenue recognition guidance, including industry-specific guidance. The underlying principle is that an entity will recognize revenue to depict the transfer of goods or services to customers at an amount that the entity expects to be entitled to in exchange for those goods or services. The guidance provides a five-step analysis of transactions to determine when and how revenue is recognized. Other major provisions include capitalization of certain contract costs, consideration of time value of money in the transaction price, and allowing estimates of variable consideration to be recognized before contingencies are resolved in certain circumstances. The guidance also requires enhanced disclosures regarding the nature, amount, timing and uncertainty of revenue and cash flows arising from an entity's contracts with customers. In March 2016, the FASB issued ASU 2016-08, "*Revenue from Contracts with Customers: Principal versus Agent Considerations*". ASU 2016-08 clarifies implementation guidance on principal versus agent considerations in ASU 2014-09. ASU 2016-10 was issued to clarify ASC Topic 606 related to (i) identifying performance obligations; and (ii) the licensing implementation guidance. In May 2016, the FASB issued ASU 2016-12, "*Revenue from Contracts with Customers - Narrow-Scope Improvements and Practical Expedients*", to clarify certain narrow aspects of Topic 606 such as assessing the collectability criterion, presentation of sales taxes and other similar taxes collected from customers, noncash consideration, contract modifications at transition, completed contracts at transition, and technical correction. The guidance is effective for the interim and annual periods beginning on or after December 15, 2017 (early adoption is permitted but not sooner than the annual reporting periods beginning after December 15, 2016). The guidance permits the use of either a retrospective or cumulative effect transition method. The Company is in the initial stages of evaluating its various contracts subject to these updates but has not completed its assessment and therefore has not yet concluded on whether the adoption of this pronouncement will have a material effect on its consolidated financial statements and related disclosures.

Table of Contents**Note 2. Net Loss Per Share**

Basic net loss per share is computed using the weighted-average number of common shares outstanding during the period 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 period. Potential common shares consist of the incremental common shares issuable upon the exercise of stock options, warrants, restricted shares, and unvested common shares subject to repurchase or cancellation. The dilutive effect of outstanding stock options, restricted shares, restricted stock units, and warrants is not reflected in diluted earnings per share because we incurred net losses for the years ended December 31, 2016 and 2015, and the effect of including these potential common shares in the net loss per share calculations would be anti-dilutive and are therefore not included in the calculations.

Loss per-share amounts for all periods have been retroactively adjusted to reflect the Company's 1-for-5 reverse stock split, which was effective July 20, 2016.

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):

	2016	2015
Numerator:		
Net loss attributable to common stockholders	\$ (7.0)	\$ (4.3)
Denominator:		
Weighted-average common shares outstanding	4,728,943	3,647,860
Basic and diluted net loss per share	\$ (1.48)	\$ (1.18)

Note 3. Accounts Receivable – Project Revenue and Reimbursable Project Costs*FANR and ENEC Projects*

The total accounts receivable from the FANR and ENEC contracts was approximately \$310,000 and \$31,000 at December 31, 2016 and 2015, respectively. These amounts due from FANR represent approximately 80% of the accounts receivable reported at December 31, 2016 and approximately 13% of the accounts receivable at December 31, 2015.

Total unbilled accounts receivable was \$0.2 million at December 31, 2016 and \$0.1 million at December 31, 2015. Foreign currency transaction exchange losses and translation gains and losses for the year ended December, 2016 and 2015, were not significant.

Under our agreements with FANR and other entities, revenue will be recognized on a time and expense basis and fixed contract basis. We periodically discuss our consulting work with FANR, which will review the work we perform, and our reimbursable travel expenses, and accept our monthly invoicing for services and reimbursable expenses. We expect the variation of revenue we earn from these contracts to continue.

Travel costs and other reimbursable costs under these contracts are reported in the accompanying statement of operations as both revenue and cost of consulting services provided, and were not significant for the years ended December 31, 2016 and 2015. The total travel and other reimbursable expenses that have not been reimbursed to us and are included in total accounts receivable reported above from our consulting contracts was not significant at December 31, 2016 and 2015.

The FANR and ENEC contracts have not been renewed for 2017, though we continue to provide services to FANR under the terms of a subcontract with Lloyds Register Group Limited, a limited company registered in England and Wales.

Table of Contents**Note 4. Prepaid Expenses and Other Current Assets**

Prepaid expenses consist primarily of prepayments made for research and development work, various professional services, insurance policies, travel, rent, and other miscellaneous prepayments. Total prepaid expenses and other current assets reported on the accompanying consolidated balance sheets at December 31, 2016 and 2015, were both approximately \$0.1 million and \$0.2 million, respectively.

One month of rent or approximately \$33,000 represents the one month advance rent placed on the prior McLean, Virginia corporate offices (see Note 7). A security deposit of approximately \$15,000 was placed for the new corporate offices in Reston Virginia (see Note 7). The security deposits at December 31, 2016 and 2015, are reported under the balance sheet caption prepaid expenses and other current assets.

Note 5. 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. In both 2016 and 2015, we capitalized approximately \$0.2 million and \$0.1 million, respectively, for patent filing costs. The total investment in patents was approximately \$1.2 million and \$1.0 million as of December 31, 2016 and 2015, respectively.

No amortization expense of patents was recorded in either of the years ended December 31, 2016 and 2015. These patents were not placed in service for the years ended December 31, 2016 and 2015, or in prior years.

Note 6. Accounts Payable and Accrued Liabilities

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

	December 31, 2016	December 31, 2015
Trade payables	\$ 0.3	\$ 0.3

Accrued expenses and other		0.4		0.4
Accrued bonuses		0.5		0.5
Total	\$	1.2	\$	1.2

Note Payable

On February 28, 2016 a note payable was issued to a finance company for a vendor invoice, which totaled \$135,000. A down payment of \$13,500 was made with remaining payments of nine monthly installments of approximately \$14,000 (annual effective interest rate approximately 5%). The note was fully paid on November 28, 2016. Total interest expense under the note was approximately \$2,400 for the year ended December 31, 2016, which was recorded in the accompanying statement of operations.

Note 7. Commitments and Contingencies***Operating Leases***

On December 22, 2015 we entered into a lease for new office space for a 12 month term, with a monthly rent payment of approximately \$6,500 per month plus additional charges. This lease was renewed for a one year term in December 2016.

On December 17, 2015 we entered into a sublease agreement for our former office space with a third party with a lease term starting January 1, 2016 to February 28, 2018. The average monthly rent to be received under this sub-lease is approximately \$15,000 per month, over the sub-lease term. At December 31, 2015 the present value of the negative cash flows over this sub-lease term was approximately \$433,000 and this amount plus a real estate commission paid to find the sub-lease tenant of approximately \$20,000, resulted in a total \$453,000 that was recognized as an abandonment loss in general and administrative expenses in the accompanying consolidated statements of operations for the year ended December 31, 2015. The long-term portion of deferred lease abandonment liability was approximately \$28,000 and the short-term portion of deferred lease abandonment liability of approximately \$169,000 was included in accounts payable and accrued liabilities at December 31, 2016. The long-term portion of deferred lease abandonment liability was approximately \$197,000 and the short-term portion of deferred lease abandonment liability of \$237,000 was included in accounts payable and accrued liabilities at December 31, 2015. We have a standard indemnification arrangement under this sublease agreement that require us to indemnify the sublessee against liabilities and claims incurred in connection with the premises covered by the Company's lease. The term of this indemnification agreement is from the time of execution of the agreement to its expiration. The maximum potential amount of future payments the Company could be required to make under these indemnification agreements is \$75,000, which is covered by a letter of credit that is outstanding as of December 31, 2016. As of December 31, 2016, the Company had not accrued a liability for this indemnification because the likelihood of incurring a payment obligation in connection with this indemnification is remote.

Table of Contents

The future minimum lease payments required under the non-cancelable operating leases are as follows (rounded in millions):

Year ending December 31,	Amount
2017	\$ 0.5
2018	0.1
Total minimum payments required	\$ 0.6

Minimum payments have not been reduced by minimum sublease rentals of approximately \$0.3 million due in the future under non-cancelable subleases.

Litigation

A former Chief Financial Officer of the Company filed a complaint against the Company with the U.S. Occupational Safety and Health Administration (the “OSHA Complaint”) on March 9, 2015.

The OSHA Complaint alleges that the Company unlawfully retaliated against the former Chief Financial Officer for challenging allegedly improper actions of the Company by making allegedly defamatory statements and terminating him from his employment with the Company. The former Chief Financial Officer’s demand for damages is for back pay, front pay, and special damages.

The Company believes that all of the above claims by the former Chief Financial Officer are without merit and intends to vigorously defend itself. As of December 31, 2016, legal fees of \$12,955 were incurred that are expected to be paid by the Company’s insurance carrier.

Note 8. Research and Development Costs

Research and development costs, included in the accompanying consolidated statement of operations amounted to approximately \$2.7 million and \$1.5 million for each of the years ended December 31, 2016 and 2015, respectively. We shut down our Moscow office operations as of January 1, 2015 and have since shifted our research and development work primarily to the United States, Canada, and Norway. There were no significant accrued liabilities related to shutting down of our Moscow office at December 31, 2016.

On March 14, 2016, we entered into a joint development agreement with AREVA which defines the different steps (including, without limitation, a feasibility study, a business plan, and an implementation action plan), working groups, and methodology to determine the feasibility and opportunity of future joint ventures between the parties. The joint development agreement provides the process by which the parties will execute definitive documentation for the joint ventures, including a term sheet that will set forth the main terms of the definitive joint venture agreements.

On January 12, 2016, we announced entry into an initial services agreement with BWXT Nuclear Energy, Inc., a wholly owned subsidiary of BWX Technologies, Inc., to evaluate the ability to fabricate and prepare a preliminary plan for fabrication of Lightbridge-designed partial length nuclear fuel samples at BWXT facilities in the United States. This arrangement can provide us with an alternative vendor and site to Canadian Nuclear Labs (“CNL”) for fabrication of our patented next generation metallic nuclear fuel test for irradiation testing at the Halden Research Reactor.

We have consulting agreements with several consultants working on various projects for us, which total approximately \$20,000 per month.

Table of Contents**Note 9. Income Taxes**

Our tax provision is determined using an estimate of our annual effective tax rate adjusted for discrete items, if any, that are taken into account in the relevant period. The 2016 and 2015 annual effective tax rate is estimated to be a combined 38% for the U.S. federal and state statutory tax rates. We review tax uncertainties in light of changing facts and circumstances and adjust them accordingly. As of December 31, 2016 and 2015, 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 a 38% effective tax rate) as of December 31, 2016 and 2015, respectively, are as follows:

Deferred Tax Assets (\$ in millions)

	Total		Deferred Tax Asset	
	2016	2015	2016	2015
Capitalized start-up costs	\$ 3.0	\$ 3.6	\$ 1.1	\$ 1.4
Abandonment loss	0.2	0.4	0.1	0.2
Stock-based compensation - net	8.9	15.6	3.4	5.9
Accruals	0.5	0.5	0.2	0.2
Net operating loss carry-forward	56.0	49.9	21.3	18.8
Less: valuation allowance	(68.6)	(69.5)	(26.1)	(26.5)
Total	\$ -	\$ -	\$ -	\$ -

We have a net operating loss carry-forward for federal and state tax purposes of approximately \$56.0 million at December 31, 2016, that is potentially available to offset future taxable income, which will begin to expire in the year 2021. For financial reporting purposes, no deferred tax asset was recognized because at December 31, 2016 and 2015, 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 we 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.

As a result, the amount of the deferred tax assets considered realizable was reduced 100% by a valuation allowance. The change in the valuation allowance was approximately \$(0.3) million and \$1.4 million for the years ended December 31, 2016 and 2015, respectively. The excess tax benefits of approximately \$0.2 million associated with stock option exercises are recorded directly to stockholders' equity only when realized. Many of the Company's operating expenses in its 2007 and 2006 tax years were classified under the Internal Revenue Code as capitalized "Startup Costs", which did not begin to be deductible for tax purposes until 2008. The Company files a consolidated tax return with its subsidiaries. The Company is no longer subject to U.S. federal, state, or non-U.S. income tax examinations by tax authorities for tax years before 2012, except that earlier years can be examined for the sole purpose of challenging the net operating loss carry-forwards arising in those years.

The reconciliation between income taxes (benefit) at the U.S. and State statutory tax rates and the amount recorded in the accompanying consolidated financial statements is as follows:

(\$ in millions)	December 31, 2016	December 31, 2015
Tax benefit at U.S. federal and state statutory rates	\$ (2.0)	\$ (1.5)
Warrant revaluation (income)/expense	(0.5)	(0.8)
Stock-based compensation	2.8	0.9
Increase in valuation allowance	(0.3)	1.4
Total provision for income tax benefit	\$ -	\$ -

Table of Contents

Note 10. Warrant Liability

Certain warrants were recorded as liabilities at their estimated fair value at the date of issuance, with the subsequent changes in estimated fair value recorded in Other Income (Expense) in the Company's consolidated statement of operations in each subsequent quarterly period. The change in the estimated fair value of our warrant liability for the years ended December 31, 2016 and 2015 resulted in non-cash income of approximately \$1.7 million and \$2.3 million, respectively. The Company utilizes the Monte Carlo simulation valuation method to value the liability classified warrants.

On June 30, 2016 we came to agreement with the 2014 warrant holders that in return for reducing the strike price of the warrants from \$11.55 per share to \$6.25 per share, the warrant holders would amend certain provisions of the warrant agreement. The revised warrants are classified as equity in the consolidated financial statements. The loss on the modification of these outstanding warrants was approximately \$129,000 and this loss was reported in Other Income (Expense). The value of the 2014 warrants at the time of the warrant modification was approximately \$563,000. The valuation of the amended 2014 warrants was approximately the same under both the Black Scholes pricing model and Monte Carlo valuation method.

On October 13, 2016, October 19, 2016 and November 14, 2016, we entered into agreements with all the 2013 warrant holders whereby the warrant holders would either exchange their warrants for either common shares or amend certain provisions of their warrant agreements for a new warrant agreement with a reduced exercise price. A total of 59,450 warrants were settled by the Company by issuing 22,929 common shares. A total of 163,986 warrants were exchanged for new warrant agreements with a revised exercise price of \$6.25 per share from \$11.55 per share. The revised warrants agreements, with the removal of the fundamental transaction terms and other provisions which triggered derivative treatment, are classified as equity in the consolidated financial statements at December 31, 2016. The loss on the modification of these outstanding warrants was approximately \$33,000 and this loss was reported in Other Income (Expense) of the accompanying consolidated statement of operations. The value of the 2013 warrants at the time of the warrant modification was approximately \$92,000. The valuation of the amended 2013 warrants was approximately the same under both the Black Scholes pricing model and Monte Carlo valuation method.

The estimated fair value of the liability classified warrants is determined using Level 3 inputs. Inherent in the Monte Carlo valuation model are assumptions related to expected stock-price volatility, expected life, risk-free interest rate and dividend yield. The Company estimates the volatility of its common stock based on historical volatility that matches the expected remaining life of the warrants. The risk-free interest rate is based on the U.S. Treasury zero-coupon yield curve on the grant date for a maturity similar to the expected remaining life of the warrants. The expected life of the warrants is assumed to be equivalent to their remaining contractual term. The dividend rate is based on the historical rate, which the Company anticipates to remain at zero.

The following table summarizes the calculated aggregate fair values, along with the assumptions utilized in each calculation:

	December 31, 2015
Calculated aggregate value	\$ 2,327,195
Weighted average exercise price per share of warrant	\$ 18.60
Closing price per share of common stock	\$ 5.00
Weighted average volatility	83.6%
Weighted average remaining expected life (years)	5.11
Weighted average risk-free interest rate	1.90
Dividend yield	0%

The nature of the warrant liability is such (i.e., the warrant holders receive more value when the Company's stock price is higher) that increases in the Company's stock price during the period result in losses on the Company's statement of operations while decreases in the Company's stock price result in the Company recording income. The warrant liability decreased at December 31, 2016 due to the decrease in stock price and the settlement of the 2014 and 2013 warrants, resulting in the 2014 and 2013 warrants being treated as equity instead of a derivative liability at December 31, 2016.

Table of Contents

Note 11. Stockholders' Equity

All common shares, warrants and stock option amounts and per share amounts for all periods reported below has been retroactively adjusted to reflect the Company's 1-for-5 reverse stock split, which was effective July 20, 2016.

At December 31, 2016, there were 7,112,143 common shares, 1,713,172 common stock warrants and 2,172,581 stock options outstanding, all totaling 10,997,896 of total stock and stock equivalents outstanding at December 31, 2016. At December 31, 2015, there were 3,725,819 common shares, 977,355 common stock warrants and 1,047,450 common stock options outstanding, totaling 5,750,624 of total stock and stock equivalents outstanding at December 31, 2015.

Securities Purchase Agreement – General International Holdings, Inc.

On June 28, 2016, we entered into a Securities Purchase Agreement (the "GIH Offering") with General International Holdings, Inc. ("GIH") pursuant to which GIH agreed to purchase 1,020,000 shares of the Company's newly created Non-Voting Series A Convertible Preferred Stock (the "Series A Preferred Stock") for \$2.8 million or approximately \$2.75 per share, subject to the terms and conditions set forth in the GIH Offering. On August 2, 2016, the closing of the sale of the Series A Preferred Stock under the GIH Offering took place.

The initial value attributed to the Series A Preferred Stock of \$2,800,000 represents a discount of approximately \$581,300 from its initial conversion value of \$3,381,300, or approximately \$0.57 per share. The average of the high and low market prices of the common stock on August 2, 2016, the date of the closing of the sale of the preferred stock, was \$3.315 per share. The intrinsic value of the Series A Preferred Stock is \$3.315 multiplied by the 1,020,000 common shares into which the Series A Preferred Stock is convertible or \$3,381,300. Subtracting the \$2,800,000 of proceeds from the intrinsic value of Series A Preferred Stock, resulted in an intrinsic value for the beneficial conversion feature totaling \$581,300. The Company recorded this beneficial conversion feature as a deemed dividend on convertible preferred stock upon issuance, for the year ended December 31, 2016. At the closing, Mr. Xingping Hou, the president of GIH, joined the Board of Directors of the Company as co-Chairman.

The Series A Preferred Stock is non-voting and is convertible at the option of the holder into shares of the Company's common stock initially on a one-for-one basis. Dividends accrue on the Series A Preferred Stock at the rate of 7% per year and will be paid in-kind. The accumulated dividend (unpaid) at December 31, 2016 was approximately \$0.1 million dollars.

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 \$2.75 per share) before the third anniversary of the issuance of the Series A Preferred Stock, or if the trading price is more than three times the applicable conversion price following the third anniversary of issuance. The Company may also redeem the Series A Preferred Stock following the third anniversary of the issuance.

Series A Preferred Stock

On July 29, 2016, in anticipation of the closing of the GIH Offering discussed above, the Company filed a Certificate of Designation of Preferences, Rights and Limitations of Non-Voting Series A Convertible Preferred Stock (the "Certificate of Designation") with the Secretary of State of the State of Nevada. Pursuant to the Certificate of Designation, the Company's Board of Directors designated a new series of the Company's preferred stock, the Non-Voting Series A Convertible Preferred Stock, par value \$0.001 per share (the "Series A Preferred Stock"). The Certificate of Designation authorized the Company to issue 1,020,000 shares of Series A Preferred Stock. Each share of Series A Preferred Stock has a liquidation preference of \$2.75 per share. 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.

Table of Contents***Aspire Option Agreement***

On August 10, 2016 the Company entered into an option agreement with Aspire Capital whereby the Company has the right, at any time prior to December 31, 2019, to require Aspire Capital to enter into with the Company, up to two common stock purchase agreements each with a three year term, with an aggregate amount under both purchase agreements combined not to exceed \$20,000,000. A notice to Aspire exercising the option may be revoked by the Company at any time prior to the parties entering into a purchase agreement without effecting or limiting the Company's future rights to give a subsequent option notice to Aspire Capital, under the terms and conditions of the option agreement.

The Company issued 500,000 common stock purchase warrants with a strike price of \$0.01 per share to Aspire Capital as the commitment fee for entering into this option agreement. The commitment fee of approximately \$1.7 million was recorded as deferred financing costs and additional paid-in capital and this asset will be amortized over the life of the option agreement. The amortized amount of \$0.2 million was expensed to financing costs during the years ended December 31, 2016. The total short-term and long-term unamortized portion is carried on the balance sheet as deferred financing cost and was approximately \$0.5 million and \$1.0 million respectively, at December 31, 2016.

The assumptions used in the Black Scholes option-pricing model for the years ended December 31, 2016, were as follows:

Closing price per share of common stock	\$	3.34
Average risk-free interest rate		0.83%
Average expected life- years		3.38
Expected volatility		92.61%
Expected dividends		0%

The future amortization of deferred financing costs is as follows (in millions):

2017	\$	0.5
2018	\$	0.5
2019	\$	0.5

Securities Purchase Agreement - Aspire Capital

On June 28, 2016, we entered into a Securities Purchase Agreement with Aspire Capital Fund, pursuant to which the Company has agreed to sell up to \$5.0 million of shares of the Company's common stock to Aspire Capital, without an underwriter or placement agent.

Pursuant to the Securities Purchase Agreement, the Company sold 371,400 shares of common stock and 295,267 in the form of pre-funded warrants with an exercise price of \$0.05 per share to Aspire Capital on June 28, 2016 for \$1.0 million (the "First Purchase"). The Securities Purchase Agreement provides for the sale of up to an additional \$3.0 million of the Company's common stock to Aspire Capital upon the Company's announcement on or before March 31, 2017 of its entry into a binding joint venture agreement to fully develop and to commercialize Lightbridge-designed metallic nuclear fuel with a major global nuclear fuel fabrication company (milestone not expected to be met as of the date of this filing). The Securities Purchase Agreement also provided for the sale of up to an additional \$1.0 million of the Company's common stock upon the Company's announcement on or before October 31, 2016 of its entry into a strategic arrangement regarding Lightbridge- designed nuclear fuel with one or more major nuclear utilities, but this milestone was not satisfied.

The subsequent closing is subject to customary conditions, including the satisfaction of Aspire Capital with achievement of the milestone. The purchase price per share for the subsequent closing will be based upon the market price of the common stock at the time of such closing, or, if lower, \$5.00 per share. Aspire Capital may elect to receive pre-funded warrants in lieu of common stock for all or a portion of the subsequent closings. The Company did not use an underwriter or placement agent in connection with the offering and therefore owed no placement agent commissions on this offering.

The allocation of the proceeds from the offering, based on the relative fair value of the common stock and the warrants, resulted in the allocation of approximately \$0.6 million of the net proceeds to the common stock sold and approximately \$0.4 million of the net proceeds to the warrants, which was recorded to additional paid-in capital-stock.

Table of Contents

The value of the warrants issued was calculated by using the Black Scholes Valuation Model using the following assumptions: volatility 91%; risk-free interest rate of 1%; dividend yield of 0%, and expected term of 5 years. The volatility of the Company's common stock was estimated by management based on the historical volatility of the trading history of the Company's common stock. The risk-free interest rate was based on the Treasury Constant Maturity Rates published by the U.S. Federal Reserve for periods applicable to the expected life of the warrants. The expected dividend yield was based on the Company's current and expected dividend policy and the expected term is equal to the contractual life of the warrants.

Equity Purchase Agreement – Equity Line

On September 4, 2015, we entered into a common stock purchase agreement with Aspire Capital, which provides that Aspire Capital is committed to purchase up to an aggregate of \$10.0 million of shares of our common stock over a two-year term, subject to our election to sell any such shares, and subject to the Nasdaq Listing Rule 5635(d) limitation. Nasdaq Listing Rule 5635(d) (“the Nasdaq 20% Rule”), requires shareholder approval of a transaction other than a public offering involving the sale, issuance, or potential issuance by a company of common stock (or securities convertible into or exercisable for common stock) equal to 20% or more of the company's outstanding shares of common stock, or 20% or more of the voting power outstanding before the issuance for less than the greater of book or market value of the stock. The Company held its Annual Meeting on May 12, 2016. At the 2016 Annual Meeting, the Company's stockholders voted on the approval, pursuant to Nasdaq Listing Rule 5635(d), of the issuance of up to 3.0 million additional shares of common stock to Aspire Capital. The Company would seek stockholder approval before issuing more than such 3.0 million shares.

Under the agreement, we have the right to sell shares, subject to certain volume limitations and a minimum floor price, to Aspire Capital as of January 8, 2016, the date all conditions to the commencement of sales under the common stock purchase agreement were satisfied, including the effectiveness of the Form S-1 registration statement registering the resale of the Company's common stock by Aspire Capital. On any trading day selected by the Company, the Company will have the right, in its sole discretion, to present Aspire Capital with a purchase notice directing Aspire Capital (as principal) to purchase up to 20,000 shares of the Company's common stock per business day (in a purchase amount up to \$250,000 on each such business day) at a price equal to the lesser of:

1. The lowest sale price of the Company's common stock on the purchase date; or
2. The arithmetic average of the three (3) lowest closing sale prices for the Company's common stock during the twelve (12) consecutive trading days ending on the trading day immediately preceding the purchase date.

In addition, on any date on which we submit a purchase notice to Aspire Capital in an amount equal to 20,000 shares, the Company also has the right, in its sole discretion, to present Aspire Capital with a volume-weighted average price purchase notice (each, a “VWAP Purchase Notice”) directing Aspire Capital to purchase an amount of stock equal to up

to 30% of the aggregate shares of the Company's common stock traded on its principal market on the next trading day (the "VWAP Purchase Date"), subject to a maximum number of shares as the Company may determine. The purchase price per share pursuant to such VWAP Purchase Notice is generally 95% of the volume-weighted average price for the Company's common stock traded on its principal market on the VWAP Purchase Date.

As part of the agreement, Aspire Capital received 60,000 additional shares as compensation for its commitment, valued approximately \$276,000 or \$4.60 per common share, recorded to additional paid-in capital.

For the year ended December 31, 2016 we sold approximately 1.1 million common shares for total gross proceeds of approximately \$2.7 million through the equity line financing arrangement with Aspire Capital that we have in place.

ATM Offering

On June 11, 2015, the Company entered into an at-the-market issuance ("ATM") sales agreement with MLV & Co. LLC ("MLV"), pursuant to which the Company may issue and sell shares of its common stock from time to time through MLV as the Company's sales agent. On September 1, 2015, MLV was acquired by FBR & Co. The issuance and sale of shares by the Company under the sales agreement are registered shares under the Company's shelf registration statement on Form S-3, as filed with the Securities and Exchange Commission on June 11, 2015 and declared effective by the Securities and Exchange Commission. The Company registered the sale of up to \$5.8 million of common stock under the ATM sales agreement. There have been approximately 1.9 million shares sold for total gross proceeds of approximately \$2.6 million through the ATM for the twelve month period ended December 2016. There have been approximately 49,000 shares sold for total gross proceeds of approximately \$282,000 through the ATM for the twelve month period ended December 2015.

Table of ContentsOutstanding Warrants

	December 31, 2016	December 31, 2015
Issued to Investors on July 28, 2010, entitling the holders to purchase 207,000 common shares in the Company at an exercise price of \$45.00 per common share up to and including July 27, 2017. These warrants were reported in the liability section of our balance sheet in 2015, but at December 31, 2016, the fair market value of these warrants was not significant.	207,000	207,000
Issued to Investors on October 25, 2013, entitling the holders to purchase 250,000 common shares in the Company at an exercise price of \$11.50 per common share up to and including April 24, 2021. These warrants were reported in the liability section of our balance sheet in 2015. In 2016, 59,450 of these warrants were exchanged for common stock, and all remaining warrant holders agreed to new warrant terms in exchange for a reduced exercise price of \$6.25 per share. These warrants are reported in the equity section of our balance sheet as of December 31, 2016.	163,986	223,436
Issued to Investors on November 17, 2014, entitling the holders to purchase 546,919 common shares in the Company at an exercise price of \$11.55 per common share up to and including May 16, 2022. On June 30, 2016, the warrant holders agreed to new warrant terms in exchange for a reduced exercise price of \$6.25 per share. These warrants are reported in the equity section of our balance sheet on December 31, 2016 and in the liability section of our balance sheet on December 31, 2015.	546,919	546,919
Issued to an Investor on June 28, 2016, entitling the holders to purchase 295,267 common shares in the Company at an exercise price of \$0.05 per common share (pre-funded) up to and including June 27, 2021. These warrants are reported in the equity section of our balance sheet.	295,267	--
Issued to an investor on August 10, 2016, entitling the holders to purchase 500,000 common shares in the Company at an exercise price of price of \$0.01 per share, up to and including December 31, 2019. These warrants are reported in the equity section of our balance sheet.	500,000	--
	1,713,172	977,355

Stock-based Compensation – Stock Options and Restricted Stock

Stock Plan

The Company held its Annual Meeting on May 12, 2016 and the stockholders voted on the approval of an amendment to the 2015 Equity Incentive Plan to increase the number of shares authorized for issuance thereunder by 800,000 shares to 1,400,000 shares.

On March 25, 2015, the Compensation Committee and Board of Directors approved the 2015 Equity Incentive Plan (the "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 Plan authorizes a total of 1,400,000 shares to be available for grant under the Plan. The Plan became effective upon ratification by the shareholders of the Company at the shareholders' annual meeting on July 14, 2015. Other provisions are as follows:

- (i) Any shares of common stock granted in connection with Options and Stock Appreciation Rights shall be counted against this limit as one share for every one Stock Option or Stock Appreciation Right awarded. Any shares of common stock granted in connection with Awards other than Options and Stock Appreciation Rights shall be counted against this limit as two shares of common stock for every one share of common stock granted in connection with such Award;
- (ii) Subject to adjustment in accordance with the Plan as amended, no Participant shall be granted, during any one year period, Stock Options to purchase Common Stock and Stock Appreciation Rights with respect to more than three hundred thousand (300,000) shares of Common Stock in the aggregate. The Plan also separately limits other Equity Awards with respect to more than three hundred thousand (300,000) shares of Common Stock in the aggregate. If an Award is to be settled in cash, the number of shares of Common Stock on which the Award is based shall count toward the individual share limit; and
- (iii) A ten percent shareholder shall not be granted an Incentive Stock Option unless the Option exercise price is at least 110% of the fair market value of the common stock at the grant date and the option is not exercisable after the expiration of five years from the grant date.

Table of Contents

Total stock options outstanding at December 31, 2016 and 2015, under the 2006 Stock Plan and 2015 Equity Incentive Plan were 2,172,581 and 1,047,450 of which 1,722,105 and 688,452 of these options were vested at December 31, 2016 and 2015, respectively. Stock based compensation was approximately \$2.0 and \$1.9 million for the years ended December 31, 2016 and 2015, respectively.

2016 Short-Term Non-Qualified Option Grants

On November 9, 2016, the Board of Directors granted short-term non-qualified stock options relating to approximately 670,000 shares under the 2015 Equity Incentive Plan to employees and consultants of the Company. These stock options were granted by the Board of Directors upon recommendation by the Compensation Committee and vested immediately, with a strike price of \$1.54, which was the closing price of the Company's stock on November 9, 2016. These options have a 10 year contractual term, with a fair market value of \$1.05 per option and an expected term of 5 years. Approximately 52% of these stock options are contingent upon the Company receiving shareholder approval at the 2017 Shareholders' Annual Meeting, to increase the number of underlying shares available to be issued under the 2015 Equity Incentive Plan.

2015 Short-Term Non-Qualified Option Grants

On April 8, 2015, the Compensation Committee and the Board of Directors granted short term non-qualified stock options totaling 92,641 and 29,771 stock options under the 2006 Stock Plan and the 2015 Equity Incentive Plan, respectively, to employees and consultants of the Company. On April 9, 2015, the Compensation Committee and the Board of Directors granted an additional 9,404 and 794 stock options under the 2006 Stock Plan and the 2015 Equity Incentive Plan, respectively, all with a strike price of \$6.30. These stock options vested immediately but the grants under the 2015 Equity Incentive Plan became exercisable upon ratification of the Plan at the annual meeting of shareholders, which took place on July 14, 2015.

On August 12, 2015, the Compensation Committee and the Board of Directors granted short term non-qualified stock options totaling 27,181 stock options under the 2015 Equity Incentive Plan to employees and consultants of the Company, all with a strike price of \$6.30. These stock options vested immediately.

On November 20, 2015, the Compensation Committee and the Board of Directors granted short term non-qualified stock options totaling 225,831 stock options under the 2015 Equity Incentive Plan to employees and consultants of the Company, all with a strike price of \$4.60. These stock options vested immediately.

Also granted under the 2006 Stock Plan were 61,965 and 2,889 non-qualified stock options in 2016 and 2015 respectively, as equity compensation in lieu of cash with strike prices ranging from \$1.14 to \$6.25. In 2016 and 2015 respectively, 45,405 and 4,634 non-qualified stock options were granted from the 2015 Equity Incentive Plan, as equity compensation in lieu of cash with strike prices ranging from \$4.15 to \$6.25.

These stock options have an expected life of 1.5 -5 years, and a contractual term of 3-10 years, a fair value of between \$0.07 and \$4.22 per stock option, a risk free rate ranging between 0.42% to 1.93%, and volatility ranging between 76% to 98%, as measured on the grant date. The expected option term was calculated using the simplified method as we do not have sufficient historical option data to provide a better estimate of the expected option term. Under this method, the weighted-average expected life is presumed to be the average of the vesting term and the contractual term of the option, which results in a reduction of the estimated option value and consequently the stock option expense. The risk free rate was based on the US Treasury Yield for the expected life of the options on the grant date. Expected dividends are estimated at \$0.0, as we have never issued dividends and we have no current plans to issue dividends in the future.

Table of Contents

2015 Long-Term Incentive Option Grants

Employees and Consultants Option Grants

On April 8, 2015, August 12, 2015, and November 20, 2015, the Compensation Committee and the Board of Directors granted long term incentive stock options totaling 110,199, 15,922 and 509,247 respectively, under the 2015 Equity Incentive Plan, the (“Plan”) to employees and consultants of the Company. 376,998 of the long term incentive options granted on November 20, 2015, were contingent on shareholder approval, which occurred on May 12, 2016, at the annual meeting of stockholders. These stock options vest 1/3 on each annual anniversary date over three years. These stock options have a strike price ranging from \$4.60 to \$6.30 and the stock options have a fair value ranging from \$0.54 to \$4.57, based on a risk free rate of between 1.15% and 1.87%, volatility between 86% and 88%, and an expected life of six years. The expected life is calculated using the simplified method as we do not have sufficient historical option data to provide a better estimate of the expected option term. These options have a 10 year contractual term. The risk free rate was based on the US Treasury Yield for the expected life of the options on the measurement date. Expected dividends are estimated at \$0.0, as we have never issued dividends and we have no current plans to issue dividends in the future. Grants to our consultants were re-measured as of December 31, 2016. This re-measured stock based compensation for options issued to consultants was not significant. We estimated future pre-vest forfeitures to be 1.5%, based on historical information.

Director Option Grants

On April 8, 2015, August 12, 2015, and November 20, 2015, the Compensation Committee and the Board of Directors granted 22,600, 4,608, and 75,468 respectively, of long term non-qualified stock options under the 2015 Equity Incentive Plan to the Board of Directors of the Company. 55,868 of the long term incentive options granted on November 20, 2015, were contingent on shareholder approval which occurred on May 12, 2016, at the annual meeting of stockholders. These stock options fully vest on the first annual anniversary date of the grant. These stock options have a strike price between \$4.60 and \$6.30, and the stock options have a fair value of between \$3.25 to \$4.41, based on a risk free rate between 1.46% and 1.79%, volatility between 86% and 87%, and an expected life of 5.5 years. The expected life is calculated using the simplified method as we do not have any history to provide a better estimate of the expected option term. These options have a 10 year contractual term. The risk free rate was based on the US Treasury Yield Curve for the expected life of the options on the grant date. Expected dividends are estimated at \$0.0, as we have never issued dividends and we have no current plans to issue dividends in the future.

Stock option transactions to the employees, directors and consultants are summarized as follows for the years ended December 31, 2016:

	Options Outstanding	Weighted Average Exercise Price	Weighted Average Grant Date Fair Value
Beginning of the period	1,047,450	\$ 18.50	\$ 20.30
Granted	1,210,467	3.02	1.71
Exercised	-	-	-
Forfeited	-	-	-
Expired	(85,336)	99.37	97.81
End of the period	2,172,581	\$ 6.70	\$ 4.83
Options exercisable	1,722,105	\$ 7.03	\$ 5.15

Table of Contents

Stock option transactions to the employees, directors and consultants are summarized as follows for the year ended December 31, 2015:

	Options Outstanding	Weighted Average Exercise Price	Weighted Average Grant Date Fair Value
Beginning of the year	405,344	\$ 45.95	\$ 53.05
Granted	698,323	5.40	3.70
Exercised	-	-	-
Forfeited	(22,883)	33.15	30.30
Expired	(33,334)	67.50	64.20
End of the year	1,047,450	\$ 18.50	\$ 20.30
Options exercisable	688,452	\$ 24.75	\$ 8.40

A summary of the status of the Company's non-vested options as of December 31, 2016 and 2015, and changes during the years ended December 31, 2016 and 2015, is presented below:

	Shares	Weighted- Average Fair Value Grant Date	Weighted Average Exercise Price
Non-vested Shares			
Non-vested at January 1, 2015	92,467	\$ 8.55	\$ 12.75
Granted	698,323	3.70	5.40
Vested	(431,789)	4.00	5.90
Forfeited	-	-	-
Non-vested - December 31, 2015	359,001	\$ 4.55	\$ 6.70
Granted	1,210,467	\$ 1.71	\$ 3.02
Vested	(1,118,992)	1.81	3.19
Forfeited	-	-	-
Non-vested - December 31, 2016	450,476	\$ 3.60	\$ 5.40

As of December 31, 2016, there was approximately \$1.3 million 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 1.69 years. There was substantially no intrinsic value for the stock options outstanding at December 31, 2016 and 2015.

The above tables include options issued and outstanding as of December 31, 2016 and 2015, as follows:

- i) A total of 51,051 non-qualified 10 year options have been issued, and are outstanding, to advisory board members at exercise prices of \$22.50 to \$72.00 per share.
- ii) A total of 1,835,139 non-qualified 5-10 year options have been issued, and are outstanding, to our directors, officers, and employees at exercise prices of \$1.14 to \$52.50 per share. From this total, 595,146 options are outstanding to the Chief Executive Officer who is also a director, with remaining contractual lives of 0.9 years to 9.9 years. All other options issued to directors, officers, and employees have a remaining contractual life ranging from 0.5 years to 10.0 years.
- iii) A total of 286,391 non-qualified 3-10 year options have been issued, and are outstanding, to our consultants at exercise prices of \$1.54 to \$52.50 per share.

Table of Contents

The following table provides certain information with respect to the above-referenced stock options that are outstanding and exercisable at December 31, 2016:

E x e r c i s e P r i c e s	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
\$1.14-\$4.00	9.85	678,769	\$ 1.55	9.85	678,769	\$ 1.55
\$4.01-\$6.00	8.86	816,794	\$ 4.60	8.83	477,302	\$ 4.60
\$6.01-\$20.00	6.12	505,694	\$ 7.47	5.91	394,710	\$ 7.36
\$20.01-\$45.00	2.24	144,683	\$ 31.47	2.24	144,683	\$ 31.47
\$45.01-\$72.00	0.94	26,641	\$ 53.03	0.94	26,641	\$ 53.03
Total	7.99	2,172,581	\$ 6.70	7.89	1,722,105	\$ 7.03

The following table provides certain information with respect to the above-referenced stock options that are outstanding and exercisable at December 31, 2015:

E x e r c i s e P r i c e s	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
\$4.15-\$6.30	9.60	698,323	\$ 5.38	9.58	393,145	\$ 5.30
\$12.75-\$25.00	3.26	129,141	\$ 15.52	3.20	75,321	\$ 17.50
\$25.05-\$64.50	3.04	133,648	\$ 37.93	3.04	133,648	\$ 37.95
\$67.50-\$94.50	0.63	38,338	\$ 73.77	0.63	38,338	\$ 73.75
\$96.00-\$119.25	0.12	48,000	\$ 119.25	0.12	48,000	\$ 119.25
Total	7.21	1,047,450	\$ 18.50	6.46	688,452	\$ 24.75

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 for options with an expected term that is greater than our stock trading history. Prior to January 1, 2015, we estimated the life of our option awards based on the full contractual term of the option grant. To date we have had very few exercises of our option grants, and those stock option exercises had occurred just before the contractual expiration dates of the option awards. Since the strike price of most of our outstanding awards is greater than the price of our stock, generally awards have expired at the end of the contractual term. For options granted after January 1, 2015, we have applied the simplified method to estimate the expected term of our option grants as it is more likely that these options may be exercised prior to the end of the term. We estimate the effect of future forfeitures of our option grants based on an analysis of historical forfeitures of unvested grants, as we have no better objective basis for that estimate. The expense that we have recognized related to our grants includes the estimate for future pre-vest forfeitures. We will adjust the actual expense recognized due to future pre-vest forfeitures as they occur. We have estimated that 1.5% of our option grants will be forfeited prior to vesting.

Table of Contents

Weighted average assumptions used in the Black Scholes option-pricing model for the years ended December 31, 2016 and 2015, were as follows:

	Year ended December 31, 2016	Year ended December 31, 2015
Average risk-free interest rate	1.57%	1.64%
Average expected life- years	5.05	5.38
Expected volatility	87.74%	86.66%
Expected dividends	\$ 0.0	\$ 0.0

Stock-based compensation expense includes the expense related to (1) grants of stock options, (2) grants of restricted stock, (3) stock issued as consideration for some of the services provided by our directors and strategic advisory council members, and (4) stock issued in lieu of cash to pay bonuses to our employees and contractors. Grants of stock options and restricted stock are awarded to our employees, directors, consultants, and board members and we recognize the fair value of these awards ratably as they are earned. The expense related to payments in stock for services is recognized as the services are provided.

Stock-based compensation expense is recorded under the financial statement captions cost of services provided, general and administrative expenses and research and development expenses in the accompanying consolidated statements of operations. Related income tax benefits were not recognized, as we incurred a tax loss for both periods.

Note 12. Business Segment Results

We have two principal business segments, which are (1) our technology business and (2) our consulting services business. These business segments were determined based on the nature of the operations and the services offered. Operating segments are defined as components of an enterprise about which separate financial information is available that is evaluated regularly by the chief decision-makers, in deciding how to allocate resources and in assessing performance. Our Chief Executive Officer and Chief Financial Officer have been identified as the chief operating decision makers. Our chief operating decision makers direct the allocation of resources to operating segments based on the profitability, the cash flows, and the business plans of each respective segment.

BUSINESS SEGMENT RESULTS - YEARS ENDED DECEMBER 31, 2016 AND 2015

	Consulting Business		Technology Business		Corporate		Total	
	2016	2015	2016	2015	2016	2015	2016	2015
Revenue	\$ 760,577	\$ 910,531	\$ -	\$ -	\$ -	\$ -	\$ 760,577	\$ 910,531
Segment								
Loss -								
Pre Tax	\$ (288,119)	\$ (267,671)	\$ (2,748,337)	\$ (1,484,164)	\$ (3,308,720)	\$ (2,566,315)	\$ (6,345,176)	\$ (4,318,150)
Total								
Assets	\$ 388,434	\$ 139,797	\$ 1,160,465	\$ 950,594	\$ 5,253,476	\$ 1,117,045	\$ 6,802,375	\$ 2,207,436
Interest								
Expense	\$ -	\$ -	\$ -	\$ -	\$ 29,386	\$ -	\$ 29,386	\$ -

Note 13. Fair Value Measurements

We adopted the accounting guidance on fair value measurements for financial assets and liabilities measured on a recurring basis. The guidance requires fair value measurements be classified and disclosed in one of the following three categories:

Level 1 Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities;

Level 2 Quoted prices in markets that are not active or inputs which are observable, either directly or indirectly, for substantially the full term of the asset or liability;

Level 3 Prices or valuation techniques that require inputs that are both significant to the fair value measurement and unobservable (i.e., supported by little or no market activity).

Table of Contents

Annually, the board of directors assesses and approves the fair value measurement policies and procedures. At least annually, the finance department determines if the current valuation techniques used in the fair value measurements are still appropriate and evaluates and adjusts the unobservable inputs used in the fair value measurements based on current market conditions and third-party information. There were no warrant liabilities on the accompanying consolidated balance sheet at December 31, 2016. The following fair value hierarchy table presents information about each major category of the Company's financial liability measured at fair value on a recurring basis as of December 31, 2015:

(\$ rounded to nearest thousand)	Fair value measurement using			Total
	Quoted prices in active markets (Level 1)	Significant other observable Inputs (Level 2)	Significant unobservable inputs (Level 3)	
Balance at December 31, 2015				
Liabilities:				
Warrant liability	\$ -	\$ -	\$ 2,327,000	\$ 2,327,000

The reconciliation of warrant liability measured at fair value on a recurring basis using unobservable inputs (Level 3) is as follows:

(\$ rounded to nearest thousand)	Warrant Liability
Balance at December 31, 2015	\$ 2,327,000
Reclassification to equity	(817,000)
Warrant modification expense	162,000
Change in fair value of warrant liability	(1,672,000)
Balance at December 31, 2016	\$ -

The fair value of the warrant liability is based on Level 3 inputs. For this liability, the Company developed its own assumptions that do not have observable inputs or available market data to support the fair value. See Note 10 – Warrant Liability for further discussion of the warrant liability. Significant increases (decreases) in any of those Level 3 inputs in isolation would result in a significantly lower (higher) fair value measurement.

We believe that the fair values of our current assets and current liabilities approximate their reported carrying amounts. There were no transfers between Level 1, 2 and 3 at December 31, 2016 and 2015.

Note 14. Subsequent Events

Equity Transactions

From January 1, 2017 to March 23, 2017, the Company received additional gross proceeds of approximately \$2.8 million under the ATM agreement with MLV from the sale of approximately 2.3 million shares of its common stock.

Table of Contents**Exhibit****Number Description**

3.1	Articles of Incorporation of the Company, as amended (incorporated by reference to Exhibit 3.1 to the Form 10-K filed by the company on March 15, 2016)
3.2	Certificate of Change filed with the Nevada Secretary of State on July 14, 2016 (incorporated by reference to Exhibit 3.1 to the current report on Form 8-K filed by the Company on July 20, 2016)
3.3	Amended and Restated Bylaws of the Company (incorporated by reference to Exhibit 3.1 to the current report on 8-K filed by the Company on August 29, 2016)
3.4	Certificate of Designation of Non-Voting Series A Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to the current report on 8-K filed by the Company on August 3, 2016)
4.1	Form of Common Stock Purchase Warrant (incorporated by reference to Exhibit 4.1 to the current report on Form 8-K filed by the Company on July 23, 2010)
4.2	Form of Common Stock Purchase Warrant (incorporated by reference to Exhibit 4.1 to the current report on Form 8-K filed by the Company on October 22, 2013)
4.3	Form of Common Stock Purchase Warrant, as amended (incorporated by reference to Exhibit 4.1 to the current report on Form 8-K filed by the Company on July 7, 2016)
4.4	Form of Pre-Funded Warrant (incorporated by reference to Exhibit 4.1 to the current report on Form 8-K filed by the Company on June 29, 2016)
4.5	Form of Commitment Warrant (incorporated by reference to Exhibit 4.3 to the quarterly report on Form 10-Q filed by the Company on August 11, 2016)
4.6	Registration Rights Agreement, dated September 4, 2015, between the Company and Aspire Capital Fund, LLC (incorporated by reference to Exhibit 4.1 to the current report on Form 8-K filed by the Company on September 8, 2015)
10.1	Common Stock Purchase Agreement, dated September 4, 2015, between the Company and Aspire Capital Fund, LLC (incorporated by reference to Exhibit 10.1 to the current report on Form 8-K filed by the Company on September 8, 2015)
10.2	At-the-Market Issuance Sales Agreement, dated June 11, 2015, between the Company and MLV & Co. LLC (incorporated by reference to Exhibit 1.2 to the registration statement on Form S-3 (File No. 333-204889) filed by the Company on June 11, 2015)
10.3	Securities Purchase Agreement, dated June 28, 2016, between the Company and Aspire Capital Fund, LLC (incorporated by reference to Exhibit 10.1 to the current report on Form 8-K filed by the Company on June 29, 2016)
10.4	

Edgar Filing: LIGHTBRIDGE Corp - Form 10-K

Securities Purchase Agreement, dated June 28, 2016, between the Company and General International Holdings, Inc. (incorporated by reference to Exhibit 10.1 to the current report on Form 8-K filed by the Company on June 29, 2016)

10.5 Option Agreement, dated August 10, 2016, between Aspire Capital Fund, LLC and the Company (incorporated by reference to Exhibit 10.4 to the quarterly report on Form 10-Q filed by the Company on August 11, 2016)

10.6 Investors Rights Agreement, dated August 2, 2016, between General International Holdings, Inc. and the Company (incorporated by reference to Exhibit 10.1 to the current report on Form 8-K filed by the Company on August 3, 2016)

10.7** 2006 Stock Plan (incorporated by reference to Exhibit 10.1 to the current report on Form 8-K filed by the Company on February 21, 2006)

10.8** Lightbridge Corporation 2015 Equity Incentive Plan (incorporated by reference to Exhibit 10.1 to the current report on Form 8-K filed by the Company on July 17, 2015)

Table of Contents

10.9**	Amendment to the Lightbridge Corporation 2015 Equity Incentive Plan (incorporated by reference to Exhibit 10.3 to the quarterly report on Form 10-Q filed by the Company on November 23, 2015)
10.10**	Employment Agreement, dated as of February 14, 2006, between the Company and Seth Grae (incorporated by reference to Exhibit 10.2 of the current report on Form 8-K filed by the Company on February 21, 2006).
10.11**	Employment Agreement, dated July 27, 2006, between the Company and Andrey Mushakov (incorporated by reference to Exhibit 10.1 of the current report on Form 8-K filed by the Company on August 4, 2006).
10.12**	Independent Director Contract, dated August 21, 2006, between the Company and Victor Alessi (incorporated by reference to Exhibit 10.1 to the current report on Form 8-K filed by the Company on August 25, 2006).
10.13**	Independent Director Contract, dated October 10, 2013, between the Company and Kathleen Kennedy Townsend (incorporated by referenced to Exhibit 10.5 to the annual report on Form 10-K filed by the Company on March 27, 2014)
10.14**	Independent Director Contract, dated October 23, 2006, between the Company and Daniel B. Magraw (incorporated by reference to Exhibit 10.2 to the current report on Form 8-K filed by the Company on October 23, 2006).
10.15**	Restricted Stock Grant Agreement, dated July 14, 2009, between Seth Grae and the Company (incorporated by reference to Exhibit 10.1 to the current report on Form 8-K filed by the Company on July 20, 2009).
10.16**	Stock Option Agreement, dated July 14, 2009, between Seth Grae and the Company (incorporated by reference to Exhibit 10.1 to the current report on Form 8-K filed by the Company on July 20, 2009).
10.13‡	Agreement No. EDC10017, dated January 1, 2010, between Emirates Nuclear Energy Corporation and the Company (incorporated by referenced to Exhibit 10.13 to the annual report on Form 10-K/A filed by the Company on November 23, 2015)
10.14	Change Order No. 4 to Agreement No. EDC10017 (incorporated by referenced to Exhibit 10.14 to the annual report on Form 10-K/A filed by the Company on November 23, 2015)
10.15	Change Order No. 5 to Agreement No. EDC10017 (incorporated by referenced to Exhibit 10.15 to the annual report on Form 10-K/A filed by the Company on November 23, 2015)
10.16	Change Order No. 6 to Agreement No. EDC10017 (incorporated by referenced to Exhibit 10.16 to the annual report on Form 10-K/A filed by the Company on November 23, 2015)
10.17	Change Order No. 7 to Agreement No. EDC10017 (incorporated by referenced to Exhibit 10.17 to the annual report on Form 10-K/A filed by the Company on November 23, 2015)
10.18‡	Consultancy Services Agreement, dated November 1, 2013, between Emirates Nuclear Energy Corporation and the Company (incorporated by referenced to Exhibit 10.18 to the annual report on Form 10-K/A filed by the Company on November 23, 2015)

- 10.19‡ Change Order No. 1 to Consultancy Services Agreement (incorporated by referenced to Exhibit 10.19 to the annual report on Form 10-K/A filed by the Company on November 23, 2015)
- 10.20 Change Order No. 2 to Consultancy Services Agreement (incorporate by reference to Exhibit 10.1 to the quarterly report on Form 10-Q/A filed by the Company on November 23, 2015).
- 10.21‡ Consultancy Agreement, dated July 15, 2012, between the Federal Authority for Nuclear Regulation (UAE) and the Company (incorporated by referenced to Exhibit 10.20 to the annual report on Form 10-K/A filed by the Company on November 23, 2015)
- 10.22‡ Amendment No. 1 to Consultancy Agreement, dated January 1, 2013, between the Federal Authority for Nuclear Regulation (UAE) and the Company (incorporated by referenced to Exhibit 10.21 to the annual report on Form 10-K/A filed by the Company on November 23, 2015)
- 10.23‡ Amendment No. 2 to Consultancy Agreement, dated January 1, 2014, between the Federal Authority for Nuclear Regulation (UAE) and the Company (incorporated by referenced to Exhibit 10.22 to the annual report on Form 10-K/A filed by the Company on November 23, 2015)

Table of Contents

10.24‡	Amendment No. 3 to Consultancy Agreement, dated November 10, 2014, between the Federal Authority for Nuclear Regulation (UAE) and the Company (incorporated by referenced to Exhibit 10.23 to the annual report on Form 10-K/A filed by the Company on November 23, 2015)
10.25‡	Consultancy Agreement, dated June 1, 2014, among the Federal Authority for Nuclear Regulation (UAE), Lloyd’s Register EMEA and the Company (incorporated by referenced to Exhibit 10.24 to the annual report on Form 10-K/A filed by the Company on November 23, 2015)
10.26‡	Relationship Deed, dated June 22, 2014, between Lloyd’s Register EMEA and the Company (incorporated by referenced to Exhibit 10.25 to the annual report on Form 10-K/A filed by the Company on November 23, 2015)
10.27	Strategic Alliance Agreement, dated August 16, 2012, between Lloyd’s Register EMEA and the Company (incorporated by referenced to Exhibit 10.26 to the annual report on Form 10-K/A filed by the Company on November 23, 2015)
10.28‡	Subcontracted Services Agreement Order Form, dated October 12, 2013, between Lloyd’s Register Asia and the Company (incorporated by referenced to Exhibit 10.27 to the annual report on Form 10-K/A filed by the Company on November 23, 2015)
21.1	Subsidiaries of the Company (incorporated by reference to Exhibit 21.1 to the Form 10-K filed by the company on March 15, 2016)
<u>23.1*</u>	<u>Consent of BDO USA, LLP</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 — Chief Financial Officer and Principal Accounting Officer.</u>
<u>32*</u>	<u>Section 1350 Certifications.</u>
101.INS*	XBRL Instance Document
101.SCH*	XBRL Taxonomy Extension Schema Document
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF*	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB*	XBRL Taxonomy Extension Label Linkbase Document
101.PRE*	XBRL Taxonomy Extension Presentation Linkbase Document

* 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). This exhibit has been filed separately with the U.S. Securities and Exchange Commission pursuant to a request for confidential treatment.

