fuelcellenergy

SOLUTIONS FOR TODAY'S GLOBAL ENERGY NEEDS

ANNUAL REPORT 2017

FuelCell Energy, Inc. (NASDAQ: FCEL) delivers efficient, affordable and clean solutions for the **supply, recovery and storage of energy**. We design, manufacture, undertake project development of, install, operate and maintain megawatt-scale fuel cell systems, serving utilities and industrial and large municipal power users with solutions that include both utility-scale and on-site power generation, carbon capture, local hydrogen production for transportation and industry, and long duration energy storage. With SureSource™ installations on three continents and millions of megawatt hours of ultra-clean power produced, FuelCell Energy is a global leader with environmentally responsible power solutions.

Dear Stockholders,

Many of today's unprecedented global energy challenges represent tremendous growth opportunities for our company.

FuelCell Energy is recognized as a global leader in delivering clean, efficient and affordable solutions configured for the supply, recovery and storage of energy. Our fleet of SureSource™ power plants spans three continents and outpaces the industry with millions of megawatt hours of power produced.

Because our proprietary core fuel cell technology is clean, economical and versatile, we are uniquely positioned to address the needs of today's diverse and growing energy markets. We work in conjunction with industry leaders and leverage our core technology to deliver value for customers.

2017 Highlights

We made significant progress in every aspect of our business, concluding our fiscal year with strong revenue, record backlog and a strong balance sheet. These results are transformational and firmly position us for future growth.

We received over $1.2 billion in project awards during the second half of 2017. At fiscal year-end, our backlog and project awards totaled approximately $1.6 billion, putting us in a solid position to execute our growth plans.

Our business model carefully balances revenue from equipment sales against select projects we retain in our power generation portfolio with Power Purchase Agreements, or PPAs. We are continuing to grow our generation portfolio in the U.S.

20 MW fuel cell park with Korea Southern Power Company (KOSPO)

In July, we were awarded approximately 40 megawatts of power projects by Long Island Power Authority, or LIPA, in New York State. These projects reinforce our strong value proposition and competitiveness. LIPA needed on-Island generation to supply densely populated areas with clean power while avoiding costly transmission investments, and it needed affordable, clean, quiet and easy-to-site generation. Our projects are ideally suited to those needs.

In December, we completed delivery of the power plants for the 20-megawatt fuel cell park in South Korea owned by Korea Southern Power Co., LTD, (or KOSPO), one of the country's leading utilities. Our team responded quickly, demonstrating our ability to rapidly execute on large projects. This is the first Asian project to close since we began marketing directly in the region.

Providing "energy as a service," we executed a PPA with CMEEC, a Connecticut municipal electric cooperative, enabling the supply of power to a U.S. Navy base requiring reliable and secure electricity. Projects like this help utilities participate in distributed generation and can be replicated throughout our utility-scale markets.

We signed a hydrogen and power off-take agreement with Toyota, one of the world's largest automakers. Located at the Port of Long Beach in California, our multi-megawatt tri-generation power plant will produce renewable hydrogen for Toyota's fuel cell electric vehicles while simultaneously generating renewable power for the grid.

We completed the first stage of the expansion of our North American manufacturing facility. The expansion will generate cost reductions and has positioned us to execute on recent awards, backlog and future orders.

2.2 megawatt fuel cell plant generating continuous power and usable heat. The fuel cell is the sole power source for a state-of-the-art town microgrid providing power to critical facilities including: the local high school, town hall, library, firehouse, police station, public works facility and senior center.

2.8 MW Combined Heat and Power (CHP) SureSource 3000™ power plant at the Tulare Wastewater Treatment Facility in California

Versatile Solutions

Our proprietary fuel cell technology is versatile and we are building our growth on four key strategic pillars (verticals). Originally designed for clean power generation, we expanded and leveraged our core technology and strong customer relationships into three adjacent markets that we expect to drive diversified growth going forward and position us to benefit from major global trends. We work in conjunction with global industry leaders like ExxonMobil to expand our solutions portfolio and deliver superior value in multiple markets. Specifically, our four key strategic pillars in the global energy market are:

- Distributed power generation;
- Emissions reduction and de-carbonization;
- Distributed hydrogen solutions for transportation and industry; and
- Long-duration energy storage solutions.

Grid investments by utilities are increasingly focusing on higher levels of service and public concerns. The project awards we received in 2017 highlight our ability to offer solutions that utilities seek to solve issues they are facing.

Distributed generation, once perceived as a threat, is now being embraced by utilities. Our solutions enable customers to affordably install non-intermittent distributed power into the grid where it is needed most, enhancing resiliency and reliability, while avoiding siting issues and costly investments in transmission infrastructure. This industry trend also affords us ample opportunities to deliver energy as a service and build a portfolio of projects that are capable of generating long-term recurring cash flows for the company.

While demand for emissions reduction and de-carbonization solutions is growing, an affordable and scalable solution for carbon capture is needed to realize this market's potential. Working with ExxonMobil, we developed a scalable solution for gas and coal fired power plants that can also be applied to oil sands applications. We believe our pilot plant will be built in 2018, with operations beginning in 2019. We expect the value of carbon capture will increase around the globe as industries and governments move ahead with carbon reduction plans. We continue to look for ways to leverage our technology and provide solutions for industry.

New energy transportation and specifically hydrogen-powered vehicles are one of several motive technologies that are gaining momentum on a global scale and will be essential in helping to reduce global emissions. One key to unlocking this market is affordable and readily available sources of distributed hydrogen and we have a solution for the industry. Our SureSource Hydrogen solution generates high-purity hydrogen that is clean and affordable, and can help facilitate the needed fueling infrastructure required in order for the industry to reach commercial scale for both passenger and commercial transportation applications.

Cost-effective long-duration energy storage is becoming a key enabling technology as more intermittent generation sources are placed into electric grids. Our SureSource Storage is a megawatt scalable solution that provides a long-duration storage option with high round-trip efficiency and compares very favorably against other technologies.

Growing Momentum

As we build upon those four growth pillars, global industry is increasingly recognizing FuelCell Energy as a company uniquely positioned to help solve the biggest energy challenges of our day. Designed around our core platform, our solutions are helping customers address clean power generation, carbon capture, distributed hydrogen and long-term storage. Successful execution on our strategy has produced strong revenue, record backlog and a strong balance sheet which firmly positions us for growth in 2018 and beyond.

On behalf of our Board of Directors and talented team of associates, we appreciate your continued interest and support as we work to capitalize on the growing momentum in our markets!

Sincerely,

Arthur (Chip) Bottone
President and
Chief Executive Officer
FuelCell Energy, Inc.

Arthur (Chip) Bottone

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SELECTED FINANCIAL DATA

The selected consolidated financial data presented below as of the end of each of the years in the five-year period ended October 31, 2017 have been derived from our audited consolidated financial statements together with the notes thereto. We have no discontinued operations. The data set forth below is qualified by reference to, and should be read in conjunction with our consolidated financial statements and their notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations" included elsewhere in this Annual Report.

Consolidated Statement of Operations Data:		Years Ended October 31,			
(Amounts presented in thousands, except for per share amounts)	**2017**	2016	2015	2014	2013
Revenues:					
Product	**$ 43,047**	$ 62,563	$128,595	$136,842	$145,071
Service and license	**27,050**	31,491	21,012	25,956	28,141
Generation	**7,233**	1,267	—	—	—
Advanced Technologies	**18,336**	12,931	13,470	17,495	14,446
Total revenues	**95,666**	108,252	163,077	180,293	187,658
Costs of revenues:					
Product	**49,843**	63,474	118,530	126,866	136,989
Service and license	**25,285**	32,592	18,301	23,037	29,683
Generation	**5,076**	664	—	—	—
Advanced Technologies	**12,728**	11,879	13,470	16,664	13,864
Total cost of revenues	**92,932**	108,609	150,301	166,567	180,536
Gross profit (loss)	**2,734**	(357)	12,776	13,726	7,122
Operating expenses:					
Administrative and selling expenses	**25,916**	25,150	24,226	22,797	21,218
Research and development costs	**20,398**	20,846	17,442	18,240	15,717
Restructuring expense	**1,355**	—	—	—	—
Total costs and expenses	**47,669**	45,996	41,668	41,037	36,935
Loss from operations	**(44,935)**	(46,353)	(28,892)	(27,311)	(29,813)
Interest expense	**(9,171)**	(4,958)	(2,960)	(3,561)	(3,973)
Income from equity investments	**—**	—	—	—	46
Other income (expense), net	**247**	622	2,442	(7,523)	(1,208)
Provision for income tax	**(44)**	(519)	(274)	(488)	(371)
Net loss	**(53,903)**	(51,208)	(29,684)	(38,883)	(35,319)
Net loss attributable to noncontrolling interest	**—**	251	325	758	961
Net loss attributable to FuelCell Energy, Inc.	**(53,903)**	(50,957)	(29,359)	(38,125)	(34,358)
Preferred stock dividends	**(3,200)**	(3,200)	(3,200)	(3,200)	(3,200)
Net loss to common stockholders	**$ (57,103)**	$ (54,157)	$ (32,559)	$ (41,325)	$ (37,558)
Net loss to common stockholders					
Basic	**$ (1.14)**	$ (1.82)	$ (1.33)	$ (2.02)	$ (2.42)
Diluted	**$ (1.14)**	$ (1.82)	$ (1.33)	$ (2.02)	$ (2.42)
Weighted average shares outstanding					
Basic	**49,915**	29,774	24,514	20,474	15,544
Diluted	**49,915**	29,774	24,514	20,474	15,544

Consolidated Balance Sheet Data:		At October 31,			
(Amounts presented in thousands, except for per share amounts)	**2017**	2016	2015	2014	2013
Cash and cash equivalents [1]	**$ 87,448**	$118,316	$ 85,740	$108,833	$ 77,699
Working capital	**105,432**	150,206	129,010	141,970	83,066
Total current assets	**203,510**	202,204	203,898	217,031	189,329
Total assets	**383,786**	340,729	277,231	280,636	237,636
Total current liabilities	**98,078**	51,998	74,888	75,061	106,263
Total non-current liabilities	**96,895**	114,478	47,732	47,269	84,708
Redeemable preferred stock	**87,557**	59,857	59,857	59,857	59,857
Total equity (deficit)	**101,256**	114,396	94,754	98,449	(13,192)
Book value per share [2]	**$ 1.46**	$ 3.25	$ 3.65	$ 4.11	$ (0.81)

[1] Includes short-term and long-term restricted cash and cash equivalents.

[2] Calculated as total equity (deficit) divided by common shares issued and outstanding as of the balance sheet date.

BUSINESS OVERVIEW

Overview

We deliver proprietary fuel cell power solutions for the clean and affordable supply, recovery and storage of energy. We serve utilities and industry and municipal power users on three continents with megawatt-class scalable solutions that include utility-scale and on-site power generation, carbon capture, local hydrogen production for transportation and industry, and energy storage. With more than 7.0 million megawatt hours of ultra-clean power produced, FuelCell Energy is a global leader in designing, manufacturing, installing, operating and maintaining environmentally responsible fuel cell power solutions.

We provide comprehensive turn-key power generation solutions to our customers, including power plant installation, operations and maintenance under multi-year service agreements. We develop projects and also sell direct to customers, providing either a complete solution of developing, installing and servicing the fuel cell power plant, or selling the power plant equipment only. For projects that we develop, the end user of the power typically enters into a PPA and we either identify a project investor to purchase the power plant and assume the PPA, or we retain the project and recognize electricity revenue ratably over the term of the PPA. We target large-scale power users with our megawatt-class installations. To provide a frame of reference, one megawatt is adequate to continually power approximately 1,000 average sized U.S. homes. Our customer base includes utility companies, municipalities, universities, government entities and a variety of industrial and commercial enterprises. Our leading geographic markets are the United States and South Korea. We are pursuing expanding opportunities in other countries.

Our value proposition is to enable economic value with clean and affordable fuel cell power plants that supply power where consumed. Our products can also be configured for recovery and storage applications. Our solutions are easy-to-site in populated areas as they are clean, operate quietly and without vibrations, and have only modest space requirements. Fuel cells use an electrochemical process to convert a fuel source into electricity and heat in a highly efficient process that emits virtually no pollutants as the fuel is not burned, generating power that is almost wholly absent of criteria pollutants such as NOx that causes smog, SOx that contributes to acid rain, and particulate matter that can aggravate asthma. Locating power generation near the point of use reduces reliance on the transmission grid, leading to enhanced energy security and power reliability. Utilities can minimize or even avoid the cost of transmission or other infrastructure by adopting distributed generation, which saves their customers the cost of installing and maintaining transmission and also avoids the losses associated with transmitting electricity over great distances. Our power plants provide electricity priced competitively to grid-delivered electricity in certain high cost regions and our strategy is to continue to reduce costs, which we believe will lead to wider adoption.

FuelCell Energy was founded as a Connecticut corporation in 1969 as an applied research organization, providing contract research and development. The Company went public in 1992 and reincorporated in Delaware in 1999. We began selling stationary fuel cell power plants commercially in 2003. Today, we develop turn-key distributed power generation solutions, operating and providing comprehensive service for the life of the asset.

Business Strategy

Our business model is to address power generation challenges with versatile, efficient and economical fuel cell solutions. We are leveraging our common core fuel cell technology and products to target global markets including on-site and utility-scale projects for the supply, recovery and storage of energy. We selectively utilize strategic business alliances and collaboration agreements for market development, financing and cost reductions. Our extensive intellectual property portfolio consists of patents, trade secrets and collective experience, which acts as a foundation for expanding and maximizing our solutions portfolio. Our business model is based on multiple revenue streams, including power plant and component sales; engineering, procurement and construction ("EPC") revenue; royalty and license revenue; recurring service revenue, including long-term service agreements; recurring electricity sales under PPAs and tariffs for projects we retain in our generation portfolio; and revenue from public and private industry research contracts under Advanced Technologies.

Market Adoption

We target vertical markets and geographic regions that value clean distributed generation, are located where there are high energy costs, and are aligned with regulatory frameworks that harmonize energy, economic and environmental policies. Our business model addresses all three of these policy areas with highly efficient and affordable distributed generation that delivers de-centralized power in a low-carbon, virtually pollutant-free manner. Geographic markets that meet these criteria and where we are already well established include South Korea, the Northeast U.S. and California. We have also installed and are operating plants in the United Kingdom, Germany, and Switzerland, have contracts and awards to install and operate plants in New York, and are pursuing further opportunities in Western Europe and certain other states in the United States as well as certain countries in Asia. We selectively develop strategic business relationships with some of the leading energy and power generation companies in our target markets to facilitate demand and deploy our projects.

While the Company has made significant progress with reducing costs and creating markets since the commercialization of our products in 2003, we face two primary challenges in growing the adoption of our distributed power generation solutions, which are (1) the need to further reduce the total cost of ownership, and (2) the continued education and acknowledgment of the value that our solutions provide. The business model for the generation and delivery of electricity for over a century has been central generation, which is large scale power generation in

distant locations away from urban areas with transmission and distribution to the end users. Distributed generation enhances existing utility models and it is being embraced in an increasing number of markets to improve grid operations.

We work with utilities and power generators to demonstrate how our solutions complement central generation by incrementally adding clean power generation when and where needed. One example of this is a 40 megawatt fuel-cell only program by Long Island Power Authority ("LIPA") to address load pockets or power needs in specific areas of its service territory. LIPA operates in an area with high population density, scarce and expensive land, the need for resiliency to ensure power during storms, and vocal citizens that may not welcome new transmission lines in their neighborhoods. The structure of the program reflected the unique value drivers of fuel cells to cleanly, efficiently and economically supply power where it is needed, which for LIPA is near existing electrical substations. LIPA awarded the entire 40 MW program to FuelCell Energy through a competitive bidding process after a review of more than 375 MW of proposals from multiple developers.

Fuel Cell Power Plant Ownership Structures

In the United States, historically, customers generally purchased our fuel cell power plants outright. As the size of our fuel cell projects has grown and availability of project capital improved, project structures have transitioned to predominantly PPAs. Under a PPA, the end-user of the power commits to purchase power as it is produced for an extended period of time, typically 10 to 20 years. End-users may be a university, pharmaceutical company, hospital or utility. A primary advantage for the end-user is that it does not need to commit its own capital to own a power generating asset, yet it enjoys the multiple benefits of fuel cell power generation.

Once the PPA is executed, construction of the fuel cell project can begin. At or around the COD, the project may be sold to a project investor or retained by the Company. If the project is sold, revenue from the product sale is recognized. If the project is retained, electricity sales are recognized monthly over the term of the PPA.

Our business model is continuing to evolve to meet the needs and opportunities of the market and to best situate ourselves for success. In 2016, we began to retain ownership of certain projects through sale-leasebacks and retaining the related PPAs, thus keeping them on our balance sheet instead of selling them to an end-user customer, investor, or utility. Our decision to retain certain projects is based in part on the strong cash flows these projects can offer to us, the proliferation of power purchase agreements in the industry and the potential access to capital. Retaining PPAs affords the Company with the full benefit of future cash flows under the PPAs, which is higher than if we sell the projects. As of October 31, 2017, our operating portfolio of retained projects totaled 11.2 MW with an additional 19.5 MW under construction. The Company plans to continue to grow this portfolio in a balanced manner while also selling projects to investors when that presents the best opportunity.

Levelized Cost of Energy

Our fuel cell projects deliver power at a rate comparable to pricing from the grid in our targeted markets. Policy programs that help to support adoption of clean distributed power generation lead to below-grid pricing. We measure power costs by calculating the Levelized Cost of Energy ("LCOE") over the life of the project.

We innovate, design and own our proprietary fuel cell technology. We develop and execute comprehensive fuel cell turn-key projects or sell direct. We manufacture and install the fuel cell power plants and we then operate and maintain the plants for our customers under long-term service agreements, or selectively retain projects in our generation portfolio. Given this level of integration, there are multiple areas and opportunities for cost reductions. There are several primary elements to LCOE for our fuel cell projects, including (1) Capital Cost, (2) Operations and Maintenance, (3) Fuel, and (4) Cost of Capital. We are actively managing and reducing costs in all four areas as follows:

- ***Capital Cost—***Capital costs of our projects include cost to manufacture, install, interconnect, and any on-site application requirements such as configuring for a micro-grid and/or heating and cooling applications. We have reduced the product cost of our megawatt-class power plants by more than 60% from the first commercial installation in 2003 through our ongoing product cost reduction program, which involves every aspect of our business including engineering, procurement and manufacturing. Further cost reductions will be primarily obtained from higher production volumes which will lead to reductions in the per-unit cost of materials purchased, supported by continued actions with engineering and manufacturing cost reductions. On-site, our experienced EPC team has substantial experience in working with contractors and local utilities to safely and efficiently execute our projects and we expect continued cost reduction in this area with experience and continued transition to multi-MW fuel cell parks. Larger projects offer scale and the opportunity to consolidate systems and reduce costs. In addition to these cost reduction efforts, our technology roadmap includes plans to increase the output of our power plants which will add further value for our customers and reduce LCOE.
- ***Operations and Maintenance —***We remotely monitor, operate, and maintain the fuel cell power plants to optimize performance and meet or exceed expected operating parameters throughout the plant's operational life. Operations and maintenance ("O&M") is a key driver for power plants to deliver on projected electrical output and revenue. Many of our service agreements include guarantees for system performance levels, including electrical output. Customers benefit from predictable savings and financial returns over the life of the contract, while minimizing risk. While the electrical and mechanical balance of plant ("BOP") in our power plants is designed to last 25 years, the fuel cell modules are currently scheduled for replacement every five years, the price of which is included in our service

agreements. We expect to continually drive down the cost of O&M with an expanding fleet which will leverage our investments in this area. Additionally, we have completed the development of fuel cells that have a longer life, which will reduce O&M costs by increasing our scheduled module replacement period to seven years.

- ***Fuel—***Our fuel cells directly convert chemical energy (fuel) into electricity, heat, water, and in certain configurations, other value streams such as high purity hydrogen. Because fuel cells generate power electrochemically rather than by combusting (burning) fuels, they are more efficient in extracting energy from fuels and produce less carbon dioxide ("CO_2") and only trace levels of pollutants compared to combustion-type power generation. Our power plants can operate on a variety of existing and readily available fuels, including natural gas, renewable biogas, directed biogas and propane. Our core SureSource power plants deliver electrical efficiencies of 47%, and in 2017, the Company introduced a power plant which operates at 60% efficiency targeted at electric-only applications such as grid support and data centers. In a CHP configuration, our plants can deliver even higher system efficiency, depending on the application. Increasing electrical efficiency and reducing fuel costs is a key element of our operating cost reduction efforts.
- ***Cost of Capital—***Most of our MW-scale projects are financed either by the energy user/off-taker that owns the asset or a project investor that owns the asset and sells energy to the off-taker. We have responded to an evolving market with greater interest in the pay-as-you-go PPA approach by end users of the power that prefer to avoid the up-front investment in power generation assets. Our projects create predictable recurring revenue that is not dependent on weather or time of the day, investment tax credits, accelerated tax depreciation or other incentives. Credit risk is mitigated by contracting with customers with strong credit. In addition, we offer meaningful system-level output performance guarantees over the life of our projects. As a result, cost of capital for our projects has declined over time, partially due to our operating experience. With continued execution, we expect to continue to attract project finance capital, and with financial and project performance credibility continuing to improve, we expect continued reductions in risk premiums leading to lower financing costs.

An additional factor that benefits fuel cells when comparing LCOE to other forms of power generation is that our solutions provide delivered electricity that minimizes or even avoids the costs of transmission.

Our distributed generation solutions minimize or entirely avoid the need for transmission. When comparing LCOE across different forms of power generation, transmission needs to be considered in the evaluation. Power generation far from where the power is used requires transmission, which is a cost to ratepayers and is inefficient due to line losses of power in the transmission process.

We believe that our strong business model and strategy, demonstrated project development execution, plant operating performance, and strategic relationships will support accelerated adoption of our fuel cell solutions.

Markets

Vertical Markets

Access to clean, affordable and reliable power defines modern lifestyles. The ability to provide power cleanly and efficiently is taking on greater importance and urgency in many regions of the world. Central generation and its associated transmission and distribution grid are difficult to site, costly, and generally take many years to permit and build. Some types of power generation that were widely adopted in the past, such as nuclear power, are no longer welcome in certain regions. The cost and impact to public health and the environment of pollutants and greenhouse gas emissions impact the siting of new power generation. The attributes of SureSource power plants address these challenges by providing virtually particulate emission-free power and heat at the point of use in a highly efficient process that is affordable to consumers.

Our solutions are installed on both sides of the electric meter, meaning that we serve on-site markets supplying power directly to the end user, as well as utility-scale projects that supply the power to the electric grid. We target seven distinct markets including:

(1) Utilities and Independent Power Producers,

(2) Industrial and Process applications,

(3) Education and Health care,

(4) Data Centers and Communication,

(5) Wastewater treatment,

(6) Government, and

(7) Commercial and Hospitality.

The Utilities and Independent Power Producers segment is our largest vertical market with customers that include utilities on the East and West coast of the United States such as Dominion (NYSE: D), one of the largest utilities in the United States: Avangrid Holdings (NYSE: AGR), Long Island Power & Light and NRG Energy (NYSE: NRG), one of the largest Independent Power Producers ("IPP") in the United States. Our carbon capture demonstration installation will be located at a power plant owned by a subsidiary of Southern Company (NYSE: SO). In Europe, utility customers include E.ON Connecting Energies (DAX: EOAN), one of the largest utilities in the world, and Switzerland-based ewz. The greatest number of installed fuel cell plants is in South Korea, primarily supplying that nation's electric grid, with the fuel cells' heat typically used in district heating systems to heat and cool nearby facilities. Our technology licensee in South Korea is POSCO Energy Co., Ltd. ("POSCO Energy"), a subsidiary of South Korean-based POSCO (NYSE: PKX), one of the world's largest steel manufacturers.

Our SureSource power plants are producing power for a variety of industrial, commercial, municipal and government customers, including manufacturing facilities, pharmaceutical processing facilities, universities, healthcare facilities and wastewater treatment facilities. These institutions desire efficient, ultra-clean continuous power to reduce operating expenses, reduce greenhouse gas emissions and avoid pollutant emissions to meet their sustainability goals, while achieving secure and reliable on-site power. Combined heat and power fuel cell applications further support economic and sustainability initiatives by minimizing or avoiding use of combustion based boilers for heat.

Our products are fuel flexible, utilizing clean natural gas and renewable biogas generated by the customer on-site or directed biogas generated at a distant location and transported via the existing gas network. In addition, we have demonstrated other fuel sources including coal syngas and propane.

As renewable technologies such as wind and solar power are deployed more widely, the need for a clean, continuous power generation that complements and balances these intermittent sources becomes greater to maintain grid stability and consistent power supply for on-site applications. Our installed base includes a number of locations where our customers use SureSource plants for meeting power needs that complements intermittent wind and/or solar power generation.

Our fuel cell solutions are well suited for micro-grid applications, either as the sole source of power, or integrated with other forms of power generation. We can model, install and operate the micro-grid, which is a differentiator in the power industry. We have fuel cells operating as micro-grids at universities and municipalities, including one university micro-grid owned by a wholly owned subsidiary of NRG Yield (NYSE: NYLD) and a town-based micro-grid owned by Avangrid. Under normal operation, the fuel cells supply power to the grid. If the grid is disrupted, the fuel cell plant will automatically disconnect from the grid and power a number of critical buildings.

Wastewater treatment facilities, food and beverage processors, and agricultural operations produce biogas as a byproduct of their operations. Disposing of this greenhouse gas can be harmful to the environment if released into the atmosphere or flared. Our SureSource power plants convert this biogas into electricity and heat efficiently and economically. Wastewater facilities with anaerobic digesters are an attractive market for our SureSource solution including the power plant as well as treatment of the biogas. Since our fuel cells operate on the renewable biogas produced by the wastewater treatment process and the heat is used to support daily operations at the wastewater treatment facility, the overall thermal efficiency of these installations is high, supporting economics and sustainability.

We estimate that the addressable distributed generation market and geographies in which we compete for the supply of energy, including distributed hydrogen production, is approximately a $22 billion opportunity, with approximately 40-45% consisting of power plant sales and the remainder representing associated service agreements. We estimate that the addressable market for the recovery of energy, including our fuel cell carbon capture solution and our gas pipeline application, is approximately $28 billion, assuming only a 1% penetration rate of addressable coal and gas-fired central generation power plant facilities within the geographies where we do business, and only 25% carbon capture at these coal or gas-fired plants. We believe there are additional market opportunities for capture from industrial thermal sources, such as boilers, in industries like steel and cement production. The addressable energy storage market is still developing as different technologies are beginning to come to market with different approaches to storage and different storage durations. We estimate that the addressable market for long duration storage may be in the range of tens of billions of dollars.

Strategic Alliances

We leverage our core capabilities by forging strategic alliances with carefully selected third parties that bring power generation experience, financial resources, and market access. Our strategic allies typically have extensive experience in developing and selling power generation products. We believe our strength in the development of fuel cell products, coupled with our strategic allies' understanding of a broad range of markets and customers, products and services, enhances the sales and development of our products, as well as provides endorsement of our power generation solutions. Our global business alliances include:

NRG Energy: NRG Energy ("NRG") owns approximately 1.4 million shares of our common stock (or approximately 2% of our outstanding common stock), extends a $40.0 million revolving construction and term financing facility to FuelCell Energy Finance, LLC ("FuelCell Finance"), our wholly-owned subsidiary, and is represented on the FuelCell Energy Board of Directors by the CEO of NRG Yield (NYSE: NYLD). NRG is one of the largest IPPs in the U.S. with approximately 50,000 MW of generation capacity and almost three million retail and commercial customers.

POSCO Energy: We entered into manufacturing and technology transfer agreements in 2007, 2009 and 2012 with POSCO Energy, which provide POSCO Energy with the technology rights to manufacture SureSource power plants in South Korea and the right to sell power plants throughout Asia. POSCO Energy owns 2.6 million shares of our common stock (or approximately 4% of our outstanding shares of common stock). POSCO Energy is one of the largest IPPs in South Korea.

In March 2017, we entered into a memorandum of understanding ("2017 MOU") with POSCO Energy to permit us to directly develop the Asian fuel cell business, including the right for us to sell SureSource solutions in South Korea and the broader Asian market. We and POSCO Energy also agreed to undertake to amend certain technology transfer and other agreements by a target date of September 30, 2017 to reflect our new relationship. Although these agreements have not yet been amended, we continue to engage in discussions with POSCO Energy regarding our relationship and the direction of the fuel cell business in the South Korean and Asian markets.

Pursuant to the 2017 MOU, we have commenced marketing the entire suite of SureSource solutions in South Korea. In June 2017, an EPC contractor was awarded a 20 megawatt project utilizing our SureSource technology by a Korean utility after a competitive bidding process. On August 29, 2017, we entered into a definitive agreement for this 20 MW project with the EPC contractor, Hanyang Industrial Development Co., Ltd ("HYD"), pursuant to which we provided equipment to HYD for the fuel cell project with Korea Southern Power Co., Ltd. ("KOSPO"). The SureSource 3000™ power plants will cleanly produce electricity and thermal energy to supply the electric grid and support a district heating system. Construction began in 2017 and the installation is expected to be operational in 2018. The value of the equipment sale contract to the Company is in excess of $60 million.

In accordance with the 2017 MOU, we are collaborating with POSCO Energy to pursue investor opportunities in the Korean fuel cell business to further develop and advance the Korean market for fuel cells.

E.ON Connecting Energies GmbH: E.ON Connecting Energies ("E.ON") specializes in integrated energy solutions for industrial, commercial and public sector customers. E.ON has purchased two SureSource fuel cell power plants to serve E.ON end user customers. The first sale announced was a CHP-configured megawatt-class fuel cell plant installation at a German manufacturing company and the second sale was a CHP-configured fuel cell power plant for a German hotel owned by an international hotel chain.

ExxonMobil: We entered into a joint development agreement in 2016 with ExxonMobil for advancing fuel cell carbon capture with applications for gas-fired power stations. ExxonMobil is supporting a demonstration fuel cell carbon capture plant to be installed at the Plant Barry power station, owned by an affiliate of Southern Company.

Products

Our core fuel cell products offer ultra-clean, highly efficient power generation for customers, including the 1.4 MW SureSource 1500™, the 2.8 MW SureSource 3000™, and the recently introduced 3.7 MW SureSource 4000™. The plants are scalable for multi-megawatt utility scale applications or on-site CHP generation for a broad range of applications. We provide a comprehensive and complete turn-key fuel cell project that includes project development, EPC services, O&M, and project finance.

Our proprietary carbonate fuel cell technology generates electricity directly from a fuel, such as natural gas or renewable biogas, by reforming the fuel inside the fuel cell to produce hydrogen. This internal "one-step" reforming process results in a simpler, more efficient, and cost-effective energy conversion system compared with external reforming fuel cells. Additionally, natural gas has an established infrastructure and is readily available in our existing and target markets compared to some types of fuel cells that require high purity hydrogen. The fuel cells operate at approximately 1,100° F. An advantage of high temperature fuel cells is that they do not require the use of precious metal electrodes required by lower temperature fuel cells, such as proton-exchange membrane ("PEM") fuel cells. As a result, we are able to use less expensive and readily available industrial metals as catalysts for our fuel cell components.

The SureSource product line is a global platform based on carbonate fuel cell technology. Using a standard design globally enables volume-based cost reduction and optimal resource utilization. Our power plants utilize a variety of available fuels to produce electricity electrochemically, in a process that is highly efficient, quiet, and due to the avoidance of combustion, produces virtually no particulate pollutants. Thus, our plants generate more power and fewer emissions for a given unit of fuel than combustion-based power generation of a similar size, making them economical and environmentally responsible power generation solutions. In addition to electricity, our standard configuration produces high quality heat (approximately 700° F), suitable for heating facilities or water, or steam for industrial processes or absorption cooling. Our system's efficiencies can reach up to 90%, depending on the application, when configured for CHP.

We market different configurations of the SureSource plants to meet specific market needs for the supply, recovery and storage of energy, including:

Energy Supply

- ***On-Site Power (Behind the Meter):*** Customers benefit from improved power reliability and energy security from on-site power that reduces reliance on the electric grid. Utilization of the high quality heat produced by the fuel cell in a CHP configuration supports economics and sustainability goals by lessening or even avoiding the need for combustion-based boilers for heat and its associated cost, pollutants and carbon emissions. On-site CHP power projects generally range in size from an individual SureSource 1500 to combining multiple SureSource 3000 or SureSource 4000 power plants for larger on-site projects. For example, an installation at a pharmaceutical company uses two SureSource 3000 power plants for 5.6 MW of power and heat production while an installation currently contracted for a U.S. Navy base will use two SureSource 4000 power plants for 7.4 MW of power.
- ***Utility Grid Support:*** The SureSource power plants are scalable, which enables siting multiple fuel cell power plants together in a fuel cell park. Fuel cell parks enable utilities to add clean and continuous multi-megawatt power generation when and where needed and enhance the resiliency of the electric grid by reducing reliance on large central generation plants and the associated transmission grid. Consolidating certain steps for multiple plants, such as fuel processing, reduces the cost per megawatt hour for fuel cell parks compared to individual fuel cell power plants. Fuel cell park examples include a five plant, 14.9 MW fuel cell park in Bridgeport, Connecticut that is supplying the electric grid, and multiple fuel cell parks in South Korea in excess of 10 MW each that supply power to the electric grid and high quality heat to district heating systems, such as a 59 MW installation which consists of 21 power plants, the world's largest fuel cell park. By producing power near the point of use, our fuel cells help to ease congestion of the electric grid and can also enable the smart grid via distributed generation combined with continuous monitoring and operation by our service organization. Thus, our solutions can avoid or reduce investment in new central generation and transmission infrastructure which is costly, difficult to site and expensive to maintain. Deploying our SureSource power plants throughout a utility service territory can also help utilities comply with government-mandated clean energy regulations and meet air quality standards. Our products can be part of a total on-site power generation solution with our high efficiency products providing continuous power, and can be combined with intermittent power generation, such as solar or wind, or less efficient combustion-based equipment that provides peaking or load following power.

- ***Higher Electrical Efficiency—Multi-megawatt applications:*** The SureSource 4000 is designed to extract more electrical power from each unit of fuel with electrical efficiency of approximately 60% and targets applications with large load requirements and limited waste heat utilization such as utility/grid support or data centers. This 3.7 megawatt plant is configured with a series of three fuel cell modules that operate in sequence, yielding a higher electrical efficiency than the standard SureSource 3000 configuration of two fuel cell modules operating in parallel. The heat energy and unused hydrogen from two fuel cell modules is supplied to the third module, enhancing overall electrical efficiency.
- ***Distributed Hydrogen:*** The SureSource fuel cells internally reform the fuel source (i.e. natural gas or biogas) to obtain hydrogen. The SureSource plants can be configured for tri-generation, supplying power, heat and high purity hydrogen. Power output is modestly reduced to support hydrogen generation, which can then be used for industrial applications such as metal or glass processing, or petrochemical, or transportation applications. Siting the tri-generation fuel cell plant at a source of biogas, such as a wastewater treatment facility, enables the generation of renewable hydrogen for transportation, an attractive proposition to regulatory and legislative officials and auto companies. We have announced the first commercial MW-scale application of this product configuration at the Port of Long Beach, California which will support Toyota's logistical support facility.
- ***Micro-grid:*** The SureSource plants can also be configured as a micro-grid, either independently or with other forms of power generation. We possess the capabilities to model, design and operate the micro-grid and have multiple examples of our solutions operating within micro-grids, some individually and some with other forms of power generation.

Energy Recovery

- ***Gas Pipeline Applications:*** SureSource Recovery™ power plants are used in natural gas pipeline applications, harnessing energy that is otherwise lost during the natural gas pressure-reduction ("letdown") process. Also, thermal energy produced as a byproduct of the fuel cell's operation supports the letdown process, improving the letdown station's carbon footprint and enhancing the project's economics. Depending on the specific gas flows and application, the SureSource Recovery configuration is capable of achieving electrical efficiencies of up to 70%. A 3.4 megawatt system is owned by a subsidiary of Avangrid and operating at a gas letdown station owned by its regulated gas utility subsidiary.
- ***Carbon Capture:*** The SureSource Capture™ system separates CO2 from the flue gases of natural gas or coal-fired power plants or industrial facilities while producing ultra-clean power. Exhaust flue gas from the coal/gas plant is supplied to the cathode side of the fuel cell, instead of ambient air. The CO_2 in the exhaust is transferred to the anode side of the fuel cell, where it is much more concentrated and easy to separate. The CO_2 from the anode exhaust stream is liquefied using common chilling equipment. The purified CO_2 is then available for enhanced oil recovery, industrial applications or sequestration. Carbon concentration and capture within the carbonate fuel cell is a side reaction of the natural gas-fueled power generation process. Carbon capture systems can be implemented in increments, starting with as little as 5% capture with no appreciable change in the cost of power and with minimum capital outlay. Our solution generates a return on capital resulting from the fuel cell's production of electricity rather than an increase in operating expense required by other carbon capture technologies, and can extend the life of existing coal-fired power plants, enabling low carbon utilization of domestic coal and gas resources. During 2018, we will be installing the first carbon capture configured SureSource 3000 power plant, which will be located at a mixed coal/gas fired power station owned by a subsidiary of Southern Company. The project is partially funded by the U.S. Department of Energy and ExxonMobil is also participating in portions of the project.

Energy Storage

We are developing our long-duration SureSource Storage™ solution, creating a system that utilizes both SOFC and SOEC technology and using hydrogen as the energy storage medium. Our solid oxide stacks are capable of alternating between electrolysis and power generation mode. Instead of producing power from fuel and air, a solid oxide fuel cell stack in electrolysis mode splits water into hydrogen and oxygen using supplied electricity. Hydrogen is an energy carrier that can be compressed and stored for long durations in storage tubes or underground.

This allows us to configure efficient and cost effective energy storage solutions where hydrogen is produced from electricity in electrolysis mode and stored until power is needed, at which point the stored hydrogen is used in the same stacks to produce electricity. Storage capacity is easily expanded by adding additional storage tanks, a low cost approach for storage applications requiring many hours or days of storage capacity. The need for long duration energy storage behind the meter and on the utility grid will increase as the penetration of intermittent renewable sources on the grid expands. This solution can be sited adjacent to an electric substation, avoiding the need for transmission.

In summary, our solutions offer many advantages:

- ***Distributed generation:*** Generating power near the point of use improves power reliability and energy security and lessens the need for costly and difficult-to-site generation and transmission infrastructure, enhancing the resiliency of the grid.
- ***Ultra-clean:*** Our SureSource solutions produce electricity electrochemically—without combustion—directly from readily available fuels such as natural gas and renewable biogas in a highly efficient process. The virtual absence of pollutants facilitates siting the power plants in regions with clean air permitting regulations and is an important public health benefit.

- ***High efficiency:*** Fuel cells are the most efficient power generation option in their size class, providing the most power from a given unit of fuel, reducing fuel costs. This high electrical efficiency also reduces carbon emissions compared to less efficient combustion-based power generation.
- ***Combined heat and power:*** Our power plants provide both electricity and usable high quality heat/steam from the same unit of fuel. The heat can be used for facility heating and cooling or further enhancing the electrical efficiency of the power plant in a combined cycle configuration. When used in CHP configurations, system efficiencies can potentially reach up to 90%, depending on the application.
- ***Reliability/continuous operation:*** Our SureSource power plants improve power reliability and energy security by lessening reliance on transmission and distribution infrastructure of the electric grid. Unlike solar and wind power, fuel cells are able to operate continuously regardless of weather or time of day.
- ***Fuel flexibility:*** Our SureSource power plants can operate on a variety of existing and readily available fuels, including natural gas, renewable biogas, directed biogas and propane.
- ***Scalability:*** Our solutions are scalable, providing a cost-effective solution to adding power incrementally as demand grows, such as multi-megawatt fuel cell parks supporting the electric grid.
- ***Quiet operation:*** Because they produce power without combustion and contain very few moving parts, our SureSource solutions operate quietly and without vibrations.
- ***Easy to site:*** Our SureSource power plants are relatively easy to site by virtue of their ultra-clean emissions profile, modest space requirements and quiet operation. These characteristics facilitate the installation of the power plants in urban locations with scarce and expensive land. A 10 MW fuel cell park only requires about one acre of land whereas an equivalent size solar array requires up to seven to ten times as much land, illustrating how fuel cell parks are easy to site in high density areas with constrained land resources, and adjacent to the demand source thereby avoiding costly transmission construction.

SureSource Emissions Profile

Fuel cells are devices that directly convert chemical energy (fuel) into electricity, heat and water. Because fuel cells generate power electrochemically rather than by combusting (burning) fuels, they are more efficient in extracting energy from fuels, and produce less CO_2 and only trace levels of pollutants compared to combustion-type power generation. The following table illustrates the favorable emission profile of our SureSource power plants:

	Emissions (Lbs. Per MWh)				
	NO_x	SO_2	PM	CO_2	CO_2 with CHP
Average U.S. Fossil Fuel Plant	5.06	11.6	0.27	2,031	n/a
Microturbine (60 kW)	0.44	0.008	0.09	1,596	520 - 680
Small Natural Gas Turbine	1.15	0.008	0.08	1,494	520 - 680
SureSource—natural gas	**0.01**	**0.0001**	**0.00002**	**940**	**520 - 680**
SureSource 4000 High Efficiency Plant	**0.01**	**0.0001**	**0.00002**	**740**	**520 - 680**
SureSource—utility scale carbon capture	**0.01**	**0.0001**	**0.00002**	**80**	**n/a**
SureSource—renewable biogas	**0.01**	**0.0001**	**0.00002**	**<0**	**<0**

For power plants operating on natural gas, higher electrical efficiency results in lower CO_2, and also results in less fuel needed per kWh of electricity generated and Btu of heat produced. The high efficiency of our products results in significantly less CO_2 per unit of power production compared to the average U.S. fossil fuel power plant, and the carbon emissions are reduced even further when configured for combined heat and power. When operating on renewable biogas, government agencies and regulatory bodies generally classify our power plants as carbon neutral due to the renewable nature of the fuel source.

High electrical efficiency reduces customers' exposure to volatile fuel costs, minimizes operating costs, and provides maximum electrical output from a finite fuel source. Our power plants achieve electrical efficiencies of 47% to 60% or higher depending on configuration, location, and application, and even higher total efficiency in a CHP configuration, depending on the application. This represents delivered efficiency as our distributed solutions generate power near the point of use, avoiding the line losses inherent in transmission. The electric grid in the United States is only approximately 35% electrically efficient and typically does not support CHP configurations.

Manufacturing

We design and manufacture the core SureSource fuel cell components that are stacked on top of each other to build a fuel cell stack. For MW-size power plants, four fuel cell stacks are combined to build a fuel cell module. To complete the power plant, the fuel cell module or modules are combined with the BOP. The mechanical BOP processes the incoming fuel such as natural gas or renewable biogas and includes various fuel handling and processing equipment such as pipes and blowers. The electrical BOP processes the power generated for use by the customer and includes electrical interface equipment such as an inverter. The BOP

components are either purchased directly from suppliers or the manufacturing is outsourced based on our designs and specifications. This strategy allows us to leverage our manufacturing capacity, focusing on the critical aspects of the power plant where we have specialized knowledge, expertise and possess extensive intellectual property. BOP components are shipped directly to a customer's site and are then assembled with the fuel cell module into a complete power plant.

North America: We operate a 167,000 square-foot manufacturing facility in Torrington, Connecticut where we produce the individual cell packages and assemble the fuel cell modules. The completed modules are then conditioned at our facility in Danbury, Connecticut for the final step in the manufacturing process and shipped to customer sites. Annual capacity (module manufacturing, final assembly, testing and conditioning) is 100 MW per year, with full utilization under its current configuration. The building is sized to accommodate annual production capacity of 200 MW per year.

The expansion of the facility was recently completed, representing the first phase of a two phase capacity expansion. This expansion has enabled the consolidation of warehousing and service facilities, which will lead to reduced leasing expenses. The additional space is also expected to lead to additional manufacturing efficiencies by providing the needed space to re-configure the manufacturing lines without interrupting production. As demand supports, the second phase will be undertaken to add manufacturing equipment to increase annual capacity to 200 MW. The State of Connecticut is extending two low interest long-term loans to us (one for each of the two phases) and up to $10.0 million of tax credits. Each loan is $10.0 million, with an interest rate of 2.0% and a term of 15 years. Up to 50% of the principal is forgivable if certain job creation and retention targets are met. We previously received the proceeds of the first $10 million loan to support the first phase of the expansion and have received an extension from the State of Connecticut to meet the required job targets.

The Torrington production facility, the Danbury corporate headquarters and research and development facility, and our Field Service Operations (which maintains the installed fleet for our plants) are ISO 9001:2015 certified, reinforcing the tenets of the FuelCell Energy Quality Management System and our core values of continual improvement and commitment to quality.

South Korea: To meet Asian demand, POSCO Energy built a cell manufacturing facility in Pohang, Korea which became operational in late 2015. Annual production capability is 100 MW and the building is sized to accommodate up to 200 MW of annual production to support future growth in the Asian market. We collaborate with POSCO Energy to manage the supply chain and production volumes between the U.S. and South Korean facilities.

Europe: We have a manufacturing facility in Taufkirchen, Germany that has the capability to perform final module assembly for up to 20 MW per year of sub-megawatt fuel cell power plants for the European market. Our operations in Europe are certified under both ISO 9001:2015 and ISO 14001:2015.

Raw Materials and Supplier Relationships

We use various commercially available raw materials and components to construct a fuel cell module, including nickel and stainless steel, which are key inputs to our manufacturing process. Our fuel cell stack raw materials are sourced from multiple vendors and are not considered precious metals. We have a global integrated supply chain that serves North American, European, and the POSCO Energy-owned Asian production facilities. In addition to manufacturing the fuel cell module in our Torrington facility, the electrical and mechanical BOPs are assembled by and procured from several suppliers. All of our suppliers must undergo a qualification process. We continually evaluate and qualify new suppliers as we diversify our supplier base in our pursuit of lower costs and consistent quality. We purchase mechanical and electrical BOP componentry from third party vendors, based on our own proprietary designs.

Engineering, Procurement and Construction

We provide customers with complete turn-key solutions, including the development, engineering, procurement, construction, interconnection and operations for our fuel cell projects. From an EPC standpoint, we have an extensive history of safe and timely delivery of turn-key projects. We have developed relationships with many design firms and licensed general contractors and have a repeatable, safe, and efficient execution philosophy that has been successfully demonstrated in numerous jurisdictions, both domestically and abroad, all with an exemplary safety record. The ability to rapidly and safely execute installations minimizes high cost construction period financing and can assist customers in certain situations when the commercial operating date is time sensitive.

Services and Warranty Agreements

We offer a comprehensive portfolio of services, including engineering, project management and installation, and long-term operating and maintenance programs, including trained technicians that remotely monitor and operate the plants around the world, 24 hours a day and 365 days a year. We employ field technicians to service the power plants and maintain service centers near our customers to ensure high availability of our plants. All of our customers purchase service agreements, some of which have terms of up to 20 years. Pricing for service contracts is based upon the markets in which we compete and includes all future maintenance and fuel cell module exchanges. While the electrical and mechanical BOP in our power plants is designed to last about 25 years, the current fuel cell modules must be replaced approximately every five years.

Under the typical provisions of our service agreements, we provide services to monitor, operate and maintain customer power plants to meet specified performance levels. Operations and maintenance is a key driver for power plants to deliver their projected revenue and cash flows. Many of our service agreements include guarantees for system performance, including electrical output and heat rate. Should the power plant not meet the minimum performance levels, we may be required to replace the fuel cell module with a new or used

replacement and/or pay performance penalties. The service aspects of our business model provide a recurring and predictable revenue stream for the Company. We have committed future production for scheduled fuel cell module exchanges under service agreements through the year 2038. The pricing structure of the service agreements incorporates these scheduled fuel cell module exchanges and the committed nature of this production facilitates our production planning. Our goal is to optimize our customers' power plants to meet expected operating parameters throughout their contracted project term.

In addition to our service agreements, we provide a warranty for our products for a specific period of time against manufacturing or performance defects. The warranty term in the U.S. is typically 15 months after shipment or 12 months after acceptance of our products. We accrue for estimated future warranty costs based on historical experience.

Retained projects in the generation portfolio do not have service agreements with the off-takers but we maintain the power plants through long-term service agreements with our project level subsidiaries. Under the PPAs for these retained projects, we are obligated to deliver a certain contractual level of power. We operate and maintain the plants in our generation portfolio in a manner intended to maximize power output, just as we do for our customers who own their plants.

License Agreements and Royalty Income

We are entitled to receive license fees and royalty income from POSCO Energy related to manufacturing and technology transfer agreements entered into in 2007, 2009 and 2012. The Cell Technology Transfer Agreement ("CTTA"), executed in October 2012, provides POSCO Energy with the technology rights to manufacture SureSource power plants in South Korea and the right to sell power plants throughout Asia. In October 2016, the Company and POSCO Energy extended the terms of the 2007 and 2009 license agreements to be consistent with the term of the CTTA, which expires on October 31, 2027. The term of these agreements may be extended beyond 2027 through future extensions by mutual agreement of the Company and POSCO Energy. In conjunction with the CTTA, the Company is entitled to receive a 3.0% royalty on POSCO Energy net product sales as well as a royalty on each scheduled fuel cell module replacement under service agreements for modules that were built by POSCO Energy and installed at any plant in Asia under the terms of the Master Service Agreement between the Company and POSCO Energy. The Company has contracted directly with POSCO Energy for equipment and services for its first direct order in the Korean market.

Advanced Technologies Programs (Third Party Funded Research and Development)

We undertake both privately-funded and public research and development to expand the markets for our power plants, reduce costs, and expand our technology portfolio in complementary high-temperature fuel cell systems. This research builds on our expertise and the versatility of our fuel cell power plants and contributes to the development of potentially new end markets for our commercial product solution portfolio. Our power plants can be configured to provide a number of value streams including clean electricity, high quality usable heat, hydrogen suitable for vehicle fueling or industrial purposes as well as configuration to concentrate CO_2 from coal and natural gas fired power plants. Our Advanced Technologies Programs are focused on commercializing solutions within three strategic areas: (1) carbon capture for emissions reduction and power generation; (2) distributed hydrogen production, compression, and recovery; and (3) SOFC/SOEC for stationary power generation and energy storage. The revenue and associated costs from government and third party sponsored research and development is classified as "Advanced Technologies contract revenues" and "Cost of Advanced Technologies contract revenues", respectively, in our consolidated financial statements.

We have historically worked on technology development with various U.S. government departments and agencies, including the Department of Energy (DOE), the Department of Defense (DOD), the Environmental Protection Agency (EPA), the Defense Advanced Research Projects Agency (DARPA), the Office of Naval Research (ONR), and the National Aeronautics and Space Administration (NASA). Government funding, principally from the DOE, provided 9%, 8% and 6% of our revenue for the fiscal years ended 2017, 2016, and 2015, respectively.

Significant commercialization programs on which we are currently working include:

Carbon Capture—Coal and natural gas are abundant, low cost resources that are widely used to generate electricity in developed and developing countries, but burning these fuels results in the emission of criteria pollutants and CO_2. Cost effective and efficient carbon capture from coal-fired and gas-fired power plants potentially represents a large global market because it could enable clean use of these fuels. Our carbonate fuel cell technology separates and concentrates CO_2 as a side reaction during the power generation process. Capturing CO_2 as a side reaction while generating additional valuable power is an approach that could be more cost effective than other systems which are being considered for carbon capture.

We announced an agreement with ExxonMobil (NYSE: XOM) in 2016 to pursue fuel cell carbon capture for central generation gas-fired power plants. We are working on the installation of a megawatt-class fuel cell power plant at a mixed coal/gas-fired power station owned by Alabama Power, a subsidiary of Southern Company. This project is being supported by an award from the U.S. Department of Energy to design and build the first MW-scale carbon capture system for coal fired power, and by ExxonMobil through a joint development agreement for evaluating carbon capture from gas-fired power generation. Successful demonstration may then lead to additional fuel cell power plant installations at this site and/or other central generation coal or gas-fired sites globally. In addition, in 2017, we conducted two engineering studies: one with Alberta Innovates, a consortium of Canadian oil sands producers, and one with Cenovus Energy, as lead partner of a joint industry project, to evaluate the feasibility of fuel cell carbon capture for gas-fired boilers used in oil sands processing. These oil and gas and power producers are interested in the fuel cell carbon capture value proposition, and these studies are evaluating the application of our carbon capture system at specific sites, which could be future MW-scale carbon capture project opportunities.

Distributed Hydrogen production, compression, and recovery—On-site or distributed hydrogen generation, produced cleanly, represents an attractive market. Our high temperature fuel cells generate electricity directly from a fuel by reforming the fuel inside the fuel cell to supply hydrogen for the electrical generation process. Gas separation technology can be added to capture hydrogen that is not used by the electrical generation process, and we term this configuration SureSource Hydrogen. This value-added proposition may be compelling for industrial users of hydrogen and transportation applications, further summarized as follows:

Fueling Applications: We recently announced a renewable hydrogen generation project under a hydrogen power purchase agreement with Toyota. The multi-megawatt SureSource Hydrogen plant will be located at the Port of Long Beach, California and will use renewable directed biogas for fuel. Toyota will purchase the hydrogen output of approximately 1,200 kg per day to fuel its fuel cell cars that arrive at the Port from overseas as well as fuel a Class 8 fuel cell truck located at the Port. Toyota will also purchase a portion of the renewable electricity generated with the remainder of the electricity to be sold to the local utility under the California BioMAT program.

We previously demonstrated renewable hydrogen generation under a three year project at the Orange County Wastewater Treatment Facility in Irvine, California, utilizing renewable biogas to supply hydrogen for use in fuel cell vehicle fueling and produce clean renewable electricity. The demonstration was performed under a sub-contract to Air Products (NYSE: APD), with funding provided by the DOE, California Air Resources Board, South Coast Air Quality Management District, Orange County Sanitation District, and Southern California Gas Company.

SOFC/SOEC development and commercialization: We are working towards commercialization of solid oxide fuel cell technology to target long-duration storage applications utilizing hydrogen as an energy carrier and storage medium. SOFC power plant design and manufacturing is complementary to our carbonate technology-based MW scale product line and affords us the opportunity to leverage our field operating history, existing expertise in power plant design, fuel processing and high volume manufacturing capabilities, and our existing installation and service infrastructure. Additionally, the target market for storage application is electric utilities, which is a market in which we are already active.

We perform SOFC/SOEC research and development at our Danbury facility as well as at our dedicated SOFC/SOEC facility in Calgary, Canada. We are working under a variety of awards from the DOE for development and commercialization of both SOFC and SOEC. We are currently installing a demonstration SOFC power plant at the NRG Energy Center in Pittsburgh, Pennsylvania.

We believe there are significant market opportunities for distributed hydrogen production, carbon capture, solid oxide fuel cell solutions and energy storage. The demonstration projects described above are steps on the commercialization road map as we leverage third-party resources and funding to accelerate the commercialization and realize the market potential for each of these solutions.

Company Funded Research and Development

In addition to research and development performed under research contracts, we also fund our own research and development projects including extending module life, increasing the power output of our modules and reducing the cost of our products. Current initiatives include increasing the net power output of the fuel cell stacks to 375 kW from 350 kW, and extending the stack life to seven years from five-year life modules produced in fiscal 2017. The Company's seven-year module design will enter production in fiscal 2018. Greater power output and improved longevity are expected to lead to improved gross margin profitability on a per-unit basis for each power plant sold and improved profitability of service contracts, which will support expanding gross margins for the Company.

In addition to output and life enhancements, we designed and are now introducing the 3.7 megawatt SureSource 4000 configuration with increased electrical efficiency, and we invest in cost reduction and improving the performance, quality and serviceability of our plants. These efforts continually improve our value proposition.

Company-funded research and development is included in Research and development expenses (operating expenses) in our consolidated financial statements. The total research and development expenditures in the consolidated statement of operations, including third party and Company-funded expenditures, are as follows:

	Years Ended October 31,		
(amounts in thousands)	**2017**	2016	2015
Cost of Advanced Technologies contract revenues	**$12,728**	$11,879	$13,470
Research and development expenses	**20,398**	20,846	17,442
Total research and development	**$33,126**	$32,725	$30,912

Backlog

The Company had a contract backlog totaling approximately $554.2 million as of October 31, 2017 compared to $432.3 million as of October 31, 2016. At October 31, 2017 and 2016, backlog included approximately $182.3 million and $204.8 million, respectively, of service agreements. Service backlog as of October 31, 2017 had an average term of approximately 17 years weighted based on dollar backlog and utility service contracts up to twenty years in duration. Generation backlog as of October 31, 2017 and 2016 was $296.3 million and $142.5 million, respectively. As of October 31, 2017, product sales backlog totaled approximately $31.3 million compared to $24.9 million as of October 31, 2016. As of October 31, 2017, Advanced Technologies contracts backlog totaled $44.3 million, of which $24.5 million was funded compared to $60.1 million as of October 31, 2016, of which $39.6 million was funded.

Our backlog amount outstanding is not indicative of amounts to be earned in the upcoming fiscal year. The specific elements of backlog may vary in terms of timing and revenue recognition from less than one year to up to twenty years. In addition, the Company may retain operating power plants on the balance sheet rather than selling them, thus creating variability in timing of revenue recognition. Accordingly, the timing and the nature of our business makes it difficult to predict what portion of our backlog will be filled in the next fiscal year.

Backlog represents firm definitive agreements executed by the Company and our customers. As of October 31, 2017, we also had project awards totaling between $600.0 million and $1.0 billion, with the range based on whether the projects are sold or retained as part of our Generation portfolio. Project awards referenced by the Company are notifications that the Company has been selected, typically through a competitive bidding process, to enter into definitive agreements. These awards have been publicly disclosed. Negotiations are in process and if successfully completed, project awards will become backlog.

Fuel Cell Technologies

Fuel cell technologies are classified according to the electrolyte used by each fuel cell type. Our SureSource technology utilizes a carbonate electrolyte. Carbonate-based fuel cells are well-suited for megawatt-class applications, offering a number of advantages over other types of fuel cells in the markets we are pursuing. These advantages include carbonate fuel cells' ability to generate electricity directly from readily available fuels such as natural gas or renewable biogas, lower raw material costs as the high temperature of the fuel cell enables the use of commodity metals rather than precious metals, and high-quality heat suitable for CHP applications. We are also actively developing SOFC technology, as discussed in the prior "Advanced Technologies Programs" section. Other fuel cell types that may be used for commercial applications include phosphoric acid and PEM.

The following table illustrates the four principal types of fuel cells, highlighting typical market applications, industry estimates of the electrical efficiency, expected capacity range, and versatility for applications in addition to power generation:

	MW-Class	Sub-MW-Class		Micro CHP	Mobile
System Size Range	Carbonate (CFC)	Solid Oxide (SOFC)	Phosphoric Acid (PAFC)	PEM/SOFC	Polymer Electrolyte Membrane (PEM)
Plant Size	1.4 MW - 3.7 MW	up to 250 kW	up to 440 kW	< 10 kW	5 - 100 kW
Typical Application	Utilities, Universities, Industrial	Commercial Buildings & "Big Box" Retail Stores	Commercial Buildings & Grocery Stores	Residential and Small Commerical	Transportation
Fuel	Natural gas, On-site or Directed Biogas, Others	Natural Gas	Natural Gas	Natural Gas	Hydrogen
Advantages	High Efficiency, Scalable, Fuel Flexible & CHP	High Efficiency	CHP	Load Following & CHP	Load Following & Low Temperature
Electrical Efficiency	43% - 47% to 60%	50% - 60%	40%-42%	25% - 35%	25% - 35%
Combined Heat & Power (CHP)	Yes, Steam & Chilling	Depends on Technology Used	Limited: Hot Water, Chilling	Suitable for Facility Heating	*no*
Carbon Capture	Yes	*no*	*no*	*no*	*no*
Distributed Hydrogen	Yes	Yes	*no*	*no*	*no*
Reversible for Storage	*no*	Yes	*no*	*no*	*no*

Competition

Our SureSource power plants compete in the marketplace for stationary distributed generation. In addition to different types of stationary fuel cells, some other technologies that compete in this marketplace include micro-turbines and reciprocating gas engines.

Several companies in the U.S. are engaged in fuel cell development, although we are the only domestic company engaged in manufacturing and deployment of stationary carbonate fuel cells. Other emerging fuel cell technologies (and the companies developing them) include small or portable PEM fuel cells (Ballard Power Systems, Plug Power, and increasing activity by numerous automotive companies including Toyota, Hyundai, Honda and GM), stationary phosphoric acid fuel cells (Doosan), stationary solid oxide fuel cells (LG/Rolls Royce partnership and Bloom Energy), and small residential solid oxide fuel cells (Ceres Power Holdings and Ceramic Fuel Cells Ltd.). Each of these competitors with stationary fuel cell applications has the potential to capture market share in our target markets.

Other than fuel cell developers, we may compete with companies such as Caterpillar, Cummins, Wartsilla, MTU Friedrichshafen GmbH (MTU), and Detroit Diesel, which manufacture more mature combustion-based distributed power generation equipment, including various engines and turbines, and have well-established manufacturing and distribution operations along with product operating and cost features. Competition on larger MW projects may also come from gas turbine companies like General Electric, Caterpillar Solar Turbines and Kawasaki.

We also compete against the electric grid, which is readily available to prospective customers. The electric grid is supplied by traditional centralized power plants, including coal, gas and nuclear, with transmission lines used to transport the electricity to the point of use.

Our stationary fuel cell power plants compete against large scale solar and wind technologies, although we can complement solar and wind intermittency with the continuous power output of the fuel cells. Solar and wind require specific geographies and weather profiles and require transmission for utility-scale applications as well as a significant amount of land compared to our fuel cell power plants, making it difficult to site MW-class projects in urban areas, unlike our solutions.

We believe that only carbonate fuel cells are suitable for fuel cell carbon capture applications, so our fuel cell carbon capture solution does not compete against fuel cells from manufacturers utilizing other fuel cell technologies.

Our distributed hydrogen solution competes against traditional centralized hydrogen generation as well as electrolyzers used for distributed applications. Hydrogen is typically generated at a central location in large quantities by combustion-based steam reforming and then distributed to end users by diesel truck. Besides utilizing tri-generation SureSource plants for distributed hydrogen, electrolyzers can be used that are in essence, reverse fuel cells. Electrolyzers take electricity and convert it to hydrogen. The hydrogen can be used as it is generated, compressed and stored, or injected into the natural gas pipeline. Companies using fuel cell-based electrolyzer technology for transportation applications include NEL and Hydrogenics Corporation.

Hydrogen is an energy carrier and energy storage utilizing hydrogen is a growing market opportunity that we are pursuing with our SOFC/SOEC technology. Companies using PEM-based fuel cell electrolyzer technology for storage include Hydrogenics Corporation and ITM Power PLC.

Regulatory and Legislative Support

Distributed generation addresses certain power generation issues that central generation does not and regulatory policy can impact deployment of distributed generation. Regulatory and legislative support encompasses policy, incentive programs, and defined sustainability initiatives such as Renewable Portfolio Standards ("RPS").

Various states and municipalities in the U.S. have adopted programs for which our products qualify, including programs supporting self-generation, clean air power generation, combined heat and power applications, carbon reduction, grid resiliency/micro-grids and utility ownership of fuel cell projects.

The majority of states in the U.S. have enacted legislation adopting Clean Energy Standards ("CES") or RPS mechanisms. Under these standards, regulated utilities and other load serving entities are required to procure a specified percentage of their total electricity sales to end-user customers from eligible resources. CES and RPS legislation and implementing regulations vary significantly from state to state, particularly with respect to the percentage of renewable energy required to achieve the state's mandate, the definition of eligible clean and renewable energy resources, and the extent to which renewable energy credits (certificates representing the generation of renewable energy) qualify for CES or RPS compliance. Fuel cells using biogas qualify as renewable power generation technology in all of the CES and RPS states in the U.S., and eight states (Connecticut, Delaware, Indiana, New York, Ohio, Oklahoma, Pennsylvania and Maine) specify that fuel cells operating on natural gas are also eligible for these initiatives in recognition of the high efficiency and low pollutants of fuel cells. Massachusetts has recently promulgated regulations that will qualify certain fuel cells under its Alternative Portfolio Standard.

Internationally, South Korea has an RPS to promote clean energy, reduce carbon emissions, and develop local manufacturing of clean energy generation products to accelerate economic growth. The RPS is designed to increase new and renewable power generation to 10% of total power generation by 2023 from 2% when the RPS began in 2012. Eighteen of the largest power generators are obligated to achieve the RPS requirements in their generation or purchase offsetting renewable energy certificates. Financial penalties are levied by the government for non-compliance.

Government Regulation

Our Company and its products are subject to various federal, provincial, state and local laws and regulations relating to, among other things, land use, safe working conditions, handling and disposal of hazardous and potentially hazardous substances and emissions of pollutants into the atmosphere. Negligible emissions of SOx and NOx from our power plants are substantially lower than conventional combustion-based generating stations, and are far below existing and proposed regulatory limits. The primary emissions from our power plants, assuming no cogeneration application, are humid flue gas that is discharged at temperatures of 700-800° F, water that is discharged at temperatures of 10-20° F above ambient air temperatures, and CO_2 in per kW hour amounts that are much less than conventional fossil fuel central generation power plants due to the high efficiency of fuel cells. The discharge of water from our power plants requires permits that depend on whether the water is to be discharged into a storm drain or into the local wastewater system.

We are also subject to federal, state, provincial and/or local regulation with respect to, among other things, emissions and siting. In addition, utility companies and several states in the U.S. have created and adopted, or are in the process of creating, interconnection regulations covering both technical and financial requirements for interconnection of fuel cell power plants to utility grids. Our power plants are designed to meet all applicable laws, regulations and industry standards for use in their international markets. Our SureSource solutions are CARB 2007 certified, and our SureSource 1500, when operating on biogas, is certified for the CARB 2013 biogas standards.

We are committed to providing a safe and healthy environment for our employees, and we are dedicated to seeing that safety and health hazards are adequately addressed through appropriate work practices, training and procedures. All of our employees must observe the proper safety rules and environmental practices in work situations, consistent with these work practices, training and procedures, and consistent with all applicable health, safety and environmental laws and regulations.

Proprietary Rights and Licensed Technology

Our intellectual property consists of patents, trade secrets and institutional knowledge that we believe is a competitive advantage and represents a significant barrier to entry for potential competitors. Our Company was founded in 1969 as an applied research company and began focusing on carbonate fuel cells in the 1980s, with our first fully commercialized SureSource power plant sold in 2003. Over this time, we have gained extensive experience in designing, manufacturing, operating and maintaining fuel cell power plants. This experience cannot be easily or quickly replicated and, combined with our trade secrets, proprietary processes and patents, safeguards our intellectual property rights.

As of October 31, 2017, our Company, excluding its subsidiaries, had 92 patents in the U.S. and 106 patents in other jurisdictions covering our fuel cell technology (in certain cases covering the same technology in multiple jurisdictions), with patents directed to various aspects of our SureSource technology, SOFC technology, PEM fuel cell technology, and applications thereof. As of October 31, 2017, we also had 30 patent applications pending in the U.S. and 93 pending in other jurisdictions. Our U.S. patents will expire between 2018 and 2035, and the current average remaining life of our U.S. patents is approximately 9.2 years.

Our subsidiary, Versa Power Systems, Ltd., as of October 31, 2017, had 35 U.S. patents and 75 international patents covering the SOFC technology (in certain cases covering the same technology in multiple jurisdictions), with an average remaining U.S. patent life of approximately 6.8 years. As of October 31, 2017, Versa Power Systems, Ltd. also had four pending U.S. patent applications and 14 patent applications pending in other jurisdictions. In addition, our subsidiary, FuelCell Energy Solutions, GmbH, has license rights to use FuelCell Energy's carbonate fuel cell technology, and, as of October 31, 2017, had two U.S. patents and nine patents outside the U.S. for carbonate fuel cell technology licensed from Fraunhofer IKTS.

No patents have expired or will expire in 2018 that would have any material impact on our current or anticipated operations. As has historically been the case, we are continually innovating and have a significant number of invention disclosures that we are reviewing that may result in additional patent applications.

Many of our U.S. patents are the result of government-funded research and development programs, including our Department of Energy (DOE) programs. U.S. patents we own that resulted from government-funded research are subject to the government exercising "march-in" rights. We believe that the likelihood of the U.S. government exercising these rights is remote and would only occur if we ceased our commercialization efforts and there was a compelling national need to use the patents.

Significant Customers and Information about Geographic Areas

We contract with a concentrated number of customers for the sale of our products and for research and development contracts. For the years ended October 31, 2017, 2016 and 2015, our top customers, Hanyang Industrial Development Co., Ltd, Dominion Bridgeport Fuel Cell, LLC, the Department of Energy, ExxonMobil, POSCO Energy (which owns approximately 4% of the outstanding shares of common stock of the Company), and Avangrid Holdings (through its various subsidiaries), accounted for an aggregate of 78%, 75% and 90%, respectively, of our total annual consolidated revenue. Revenue percentage by major customer for the last three fiscal years is as follows:

	Years Ended October 31,		
	2017	2016	2015
Hanyang Industrial Development Co. Ltd	**40%**	—%	—%
Dominion Bridgeport Fuel Cell, LLC	**11%**	6%	3%
Department of Energy	**9%**	8%	5%
ExxonMobil	**9%**	3%	1%
POSCO Energy	**6%**	48%	67%
Avangrid Holdings (through its various subsidiaries)	**3%**	10%	14%
Total	**78%**	75%	90%

See "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Consolidated Financial Statements and Supplementary Data" for further information regarding our revenue and revenue recognition policies.

We have marketing and manufacturing operations both within and outside the United States. We source raw materials and BOP components from a diverse global supply chain. In 2017, the foreign country with the greatest concentration risk was South Korea, accounting for 46% of our consolidated net sales. The Company is entitled to receive royalties from POSCO Energy on the sale of power plants and module replacements related to service of fuel cell power plants in Asia. As part of our strategic plan, we are in the process of diversifying our sales mix from both a customer specific and geographic perspective.

The international nature of our operations subjects us to a number of risks, including fluctuations in exchange rates, adverse changes in foreign laws or regulatory requirements and tariffs, taxes, and other trade restrictions.

Sustainability

FuelCell Energy's ultra-clean, efficient and reliable fuel cell power plants help our customers achieve their sustainability goals. These highly efficient and environmentally friendly products support the "Triple Bottom Line" concept of sustainability, consisting of environmental, social and economic considerations.

Product efficiency

The electrical efficiency of our fuel cell solutions ranges from approximately 47% to 60% depending on the configuration. This compares favorably to the average efficiency of the U.S. electrical grid of about 35%. Our solutions deliver this high electrical efficiency where the power is used, avoiding transmission. Transmission line losses average about 6% to 9% for the U.S. grid, which represents inefficiency and is a hidden cost to ratepayers. In a combined heat and power configuration, total thermal efficiency of our fuel cell solutions can potentially be up to 90% depending on the application.

Energy management

We utilize our fuel cells to provide a portion of the electricity used at our corporate office and at our North American manufacturing facility.

Other examples of energy management include routing excess heat from production processes throughout the manufacturing facility to reduce both heating costs and associated emissions, utilizing the power produced by fuel cells undergoing R&D at our corporate office for a portion of the power needs of the facility, and installation of high efficiency lighting at our North American manufacturing facility and corporate office.

We have expanded our manufacturing facility in Torrington and consolidated other locations, reducing transportation emissions and transportation costs, incorporating energy efficient building standards and reducing leasing costs. We are pursuing additional consolidation initiatives in 2018 as we plan to relocate fuel cell module conditioning to Torrington from our Danbury facility, which will further reduce transportation emissions and costs. We recognize that there is more to be done and we are utilizing cross-functional teams to identify and evaluate additional areas for improvement.

Product end-of-life management

We continue to incorporate sustainability best practices into our corporate culture and into the design, manufacture, installation and servicing of our fuel cell power plants. For example, at the end-of-life of our power plants, we refurbish and re-use certain parts of the power plant and we are able to recycle most of what we cannot re-use. Some of the parts in the fuel cell module can be re-furbished, such as end plates, while the individual fuel cell components are sent to a smelter for recycling. The BOP has an operating life of twenty to twenty-five years, at which time metals such as steel and copper are reclaimed for scrap value. By weight, approximately 93% of the entire power plant is either re-used or recycled.

Our manufacturing process has a very low carbon footprint, utilizing an assembly oriented production strategy. While we continue to enhance and adopt sustainable business practices, we recognize this is an ongoing effort with more to be accomplished, such as further reducing the direct and indirect aspects of our carbon footprint.

Workforce Health & Safety

We work to continually improve what we feel is a robust safety program. This is demonstrated by an improving safety trend over each of the past 4 years. We have never had a workplace fatality at any of our facilities or power plant installations.

Sustainability also incorporates social risks and human rights and we will not knowingly support or do business with suppliers that treat workers improperly or unlawfully, including, without limitation, those that engage in child labor, human trafficking, slavery or other unlawful or morally reprehensible employment practices. We are continuing to implement comprehensive monitoring of our global supply chain to eliminate social risks and ensure respect for human rights. We contractually ensure that all qualified domestic suppliers in our supply chain comply with the Fair Labor Standards Act of 1938, as amended.

Materials sourcing

Assuring the absence of conflict minerals in our power plants is a continuing initiative. Our fuel cells, including the fuel cell components and completed fuel cell module, do not utilize any 3TG minerals (i.e. tin, tungsten, tantalum and gold) that are classified as conflict minerals. We do utilize componentry in the BOP such as computer circuit boards that utilize trace amounts of 3TG minerals. For perspective, total shipments in fiscal year 2016 weighed approximately 5.8 million pounds, of which 3 pounds, or 0.000052%, represented 3TG minerals, so the presence of these minerals is minimal. Our conflict mineral disclosure filed with the Securities and Exchange Commission ("SEC") on Form SD contains specific information on the actions we are taking to avoid the use of conflict minerals.

Associates

As of October 31, 2017, we had 458 full-time associates, of whom 173 were located at the Torrington manufacturing plant, 246 were located at the Danbury, Connecticut facility or other field offices within the U.S., and 39 were located abroad. None of our associates are represented by a labor union or covered by a collective bargaining agreement. We believe our relations with our associates are good.

Available Information

Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and all amendments to those reports are made available free of charge through the Investor Relations section of the Company's Internet website (http://www.fuelcellenergy.com) as soon as practicable after such material is electronically filed with, or furnished to, the SEC. Material contained on our website is not incorporated by reference in this report. Our executive offices are located at 3 Great Pasture Road, Danbury, CT 06810. The public may also read and copy any materials that we file with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC also maintains an Internet website that contains reports and other information regarding issuers that file electronically with the SEC located at http://www.sec.gov.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

OVERVIEW

FuelCell Energy delivers efficient, affordable and clean solutions for the supply, recovery and storage of energy. We design, manufacture, undertake project development of, install, operate and maintain megawatt-scale fuel cell systems, serving utilities and industrial and large municipal power users with solutions that include both utility-scale and on-site power generation, carbon capture, local hydrogen production for transportation and industrial users, and long duration energy storage. Our plants are operating in more than 50 locations on three continents and have generated more than 7.0 million megawatt hours (MWh) of electricity.

We provide comprehensive turn-key power generation solutions to our customers, including installation of the power plants as well as operating and maintaining the plants under multi-year service agreements. We target large-scale power users with our megawatt-class installations. As a reference, one megawatt is adequate to continually power approximately 1,000 average sized U.S. homes. Our customer base includes utility companies, municipalities, universities, government entities and businesses in a variety of industrial and commercial enterprises. Our leading geographic markets are South Korea and the United States, and we are pursuing expanding opportunities in Asia and Europe.

Our value proposition provides highly efficient and environmentally friendly power generation with easy-to-site stationary fuel cell power plants. The power plants are located in populated areas as they are virtually particulate pollutant free, operate quietly and without vibrations, and have only modest space requirements. Locating the power generation near the point of use provides many advantages, including less reliance on or even avoidance of the transmission grid, leading to enhanced energy security and power reliability. Our power plants provide electricity priced competitively to grid-delivered electricity in certain high cost regions, and our strategy is to continue to reduce costs, which is expected to lead to wider adoption.

We are developing Advanced Technologies which leverage our commercial platform and expertise. Our SureSource power plants utilize carbonate fuel cell technology, which is a very versatile type of fuel cell technology. Utilizing our core SureSource plants, we have developed and are commercializing both a tri-generation distributed hydrogen configuration that generates electricity, heat and hydrogen for industrial or transportation uses, and a carbon capture application for coal or gas-fired power plants. We also are developing and working to commercialize solid oxide fuel cells for adjacent sub-megawatt applications to the markets for our megawatt-class SureSource power plants as well as energy storage applications. These applications are complementary to our core products, leverage our existing customer base, project development, sales and service expertise, and are large markets.

RECENT DEVELOPMENTS

Korea Market Developments. In June 2017, an EPC contractor, Hanyang Industrial Development Co., Ltd ("HYD"), was awarded a 20MW project by a utility in South Korea utilizing the Company's SureSource technology. On August 29, 2017, we entered into a contract with HYD pursuant to which we will provide equipment to HYD for this 20 MW fuel cell project. The SureSource 3000™ power plants will cleanly produce electricity and thermal energy to support a district heating system. Construction began in fall 2017 and the installation is expected to be operational in August 2018. The value of the equipment sale contract to the Company is expected to be in excess of $60 million, a portion of which has been included backlog as of October 31, 2017.

U.S. Market Developments. During 2017, the Company received notices of award on multiple projects in the U.S. and there have been favorable policy developments summarized as follows:

- In November 2017, the Company announced a renewable hydrogen generation project under a hydrogen power purchase agreement with Toyota. The multi-megawatt SureSource Hydrogen plant will be located at the Port of Long Beach, California and will use renewable directed biogas for fuel. Toyota will purchase the hydrogen output of approximately 1,200 tons per day to fuel its fuel cell cars that arrive at the Port from overseas as well as fuel a Class 8 fuel cell truck located at the Port. Toyota will also purchase a portion of the renewable power generated, with the remainder of the power to be sold to the local utility under the California BioMAT program. The Company has executed a definitive agreement with Toyota and the project will be recorded as backlog in the first quarter of 2018. The Company is actively marketing its distributed hydrogen technology, which can provide a hydrogen fueling solution for fuel cell vehicles, and expects further market developments for this product offering.
- In October 2017, we executed a PPA with the Connecticut Municipal Electric Energy Cooperative ("CMEEC") for the long-term supply of power to the U.S. Navy Submarine Base in Groton, Connecticut. CMEEC is owned by six municipal utilities: Groton Utilities, Norwich Public Utilities, Jewett City Department of Public Utilities, Bozrah Light and Power, South Norwalk Electric and Water and Norwalk Third Taxing District. CMEEC will be acting through and working with Groton Utilities to implement the new power supply. Two SureSource 4000 power plants with total output of 7.4 MW will be located on the U.S. Submarine Base in Groton, Connecticut, to supply an existing electrical substation. The fuel cell plant is part of a multifaceted plan by CMEEC to provide new power resources and support the desire of the Department of Defense to add resiliency and grid independence to key military installations. We will begin construction of the plants in 2018 and full commercial operations are expected in 2019.

- In July 2017 the Company was awarded three fuel cell projects totaling 39.8 MW by LIPA under the Fuel Cell Resources Feed-in Tariff. This 40 MW FIT IV program is structured to enhance energy resiliency with clean local power generation for western Long Island, New York. LIPA will purchase the power from the fuel cell projects under 20 year power purchase agreements. The Company will install, operate and maintain the fuel cell power plants. The next steps in project development include working with the utility on the interconnection agreements, executing power purchase agreements, and finalizing site engineering. Upon execution of power purchase agreements (expected in 2018), the projects will become contracted backlog. Contracted revenues over the twenty year operating period are expected to be up to approximately $800.0 million based on committed pricing and expected power generation over the term. This total may vary depending on actual power generation or if the Company were to sell these projects.
- In June 2017, the State of Connecticut passed Public Act 17-144—An Act Promoting the use of Fuel Cells for Electric Distribution System Benefits and Reliability. The Act values cost of power, reliability and resiliency, along with the multiple economic development benefits that are unique to fuel cell projects. The Act has two parts, including enabling Connecticut electric utilities to purchase up to 30 MW of fuel cells. Separately, the Act includes a provision for the Connecticut Department of Energy and Environmental Protection (the "CT DEEP") to issue an RFP for the procurement of clean energy with a focus on enhancing the reliability and resiliency of energy supply and in a manner that promotes in-state economic development. A draft RFP was issued by the CT DEEP on December 15, 2017 with a schedule anticipating contract awards in late 2018.

Production Rate Adjustment. In June 2017, the Company reduced its production to approximately fifteen MW on an annualized basis. This adjustment was made to manage inventory levels, prepare to transition to new product introductions and complete certain building expansion activities. From June through September 2017, approximately 110 manufacturing employees worked shortened work weeks. The Company participated in the State of Connecticut's "Shared Work Program" allowing affected employees to collect unemployment benefits for days they did not work. Employees returned to work full time in October 2017 and the production rate is currently 25 MW on an annualized basis. The Company is evaluating an increase in the production rate during 2018 due to increased backlog and project awards.

Convertible Preferred Offering. On September 5, 2017, the Company priced an underwritten offering of 33,500 shares Series C Preferred Stock. The Series C Preferred Stock carries a 0.0% dividend and a $1.84 conversion price. Each share of Series C Preferred Stock was sold at a price of $895.52 for gross proceeds of approximately $30.0 million. FuelCell Energy intends to use the net proceeds from this offering for working capital, project financing, and general corporate purposes. The offering closed on September 8, 2017.

The Certificate of Designations with respect to the Series C Preferred Stock describes certain triggering events the occurrence of which would give the holders of the Series C Preferred Stock (i) the right to convert all or a portion of their shares of Series C Preferred Stock into shares of our common stock, and/or (ii) the right to require the Company to redeem all or a portion of their shares of Series C Preferred Stock. One of the specified triggering events is the Company's failure to receive certain payments under a sales contract on or prior to the earlier of (a) the Company's public announcement of its fiscal 2017 fourth quarter earnings and (b) January 15, 2018. As of January 11, 2018 (the date of filing of this report and public announcement of fiscal 2017 fourth quarter earnings), the Company has received such payments and none of the triggering events described in the Certificate of Designations have occurred.

In connection with the offering of the Series C Preferred Stock, we amended our loan and security agreement with Hercules Capital, Inc. ("Hercules") to permit us to make certain cash payments that may be required pursuant to the terms of the Series C Preferred Stock and to adjust the cash covenant. Effective December 14, 2017, the minimum cash covenant requires the Company to maintain an unrestricted cash balance in accounts subject to an account control agreement in favor of Hercules of at least $10.0 million.

RESULTS OF OPERATIONS

Management evaluates the results of operations and cash flows using a variety of key performance indicators, including revenues compared to prior periods and internal forecasts, costs of our products and results of our cost reduction initiatives, and operating cash use. These are discussed throughout the "Results of Operations" and "Liquidity and Capital Resources" sections. Results of Operations are presented in accordance with accounting principles generally accepted in the United States ("GAAP").

COMPARISON OF THE YEARS ENDED OCTOBER 31, 2017 AND 2016

Revenues and Costs of Revenues

Our revenues and cost of revenues for the years ended October 31, 2017 and 2016 were as follows:

	Years Ended October 31,		Change	
(dollars in thousands)	**2017**	2016	$	%
Total revenues	**$95,666**	$108,252	$(12,586)	(12)%
Total costs of revenues	**92,932**	108,609	(15,677)	(14)%
Gross profit (loss)	**$ 2,734**	$ (357)	$ 3,091	866%
Gross margin	**2.9%**	(0.3)%		

Total revenues for the year ended October 31, 2017 decreased $12.6 million, or 12%, to $95.7 million from $108.3 million during the year ended October 31, 2016, due primarily to decreased product sales as discussed below. Total cost of revenues for the year ended October 31, 2017 decreased by $15.7 million, or 14%, to $92.9 million from $108.6 million during the year ended October 31, 2016. The Company's gross margin was 2.9% in fiscal year 2017, as compared to the prior year gross margin loss of 0.3%. A discussion of the changes in product sales, service agreement and license revenues, Advanced Technologies contract revenues, and generation revenues follows. Refer to "Critical Accounting Policies and Estimates" for more information on revenue and cost of revenue classifications.

Product sales

Our product sales, cost of product sales and gross profit for the years ended October 31, 2017 and 2016 were as follows:

	Years Ended October 31,		Change	
(dollars in thousands)	**2017**	2016	$	%
Product sales	**$ 43,047**	$ 62,563	$ (19,516)	(31)%
Cost of product sales	**49,843**	63,474	(13,631)	(21)%
Gross loss profit from product sales	**$ (6,796)**	$ (911)	$ (5,885)	(646)%
Product sales gross margin	**(15.8)%**	(1.5)%		

Product sales for the year ended October 31, 2017 included $41.0 million of power plant revenue and $2.0 million of revenue primarily related to power plant component sales and engineering, procurement and construction services ("EPC services"). This is compared to product sales for the year ended October 31, 2016 which included $11.7 million of power plant revenue, $41.8 million of fuel cell kits revenue and $9.1 million of revenue primarily from power plant component sales and EPC services. Product sales decreased $19.5 million, or 31%, for the year ended October 31, 2017 to $43.0 million from $62.5 million for the prior year period.

The decline in revenue during the period is due primarily to lower revenue from POSCO Energy due to (i) the lack of kit sales for the year ended October 31, 2017 as the Company's multi-year kit order with POSCO Energy concluded at the end of fiscal year 2016 and (ii) the transition to a royalty-only based model. The Company is entitled to receive a 3.0% royalty on POSCO Energy net product sales manufactured in South Korea as well as a royalty on each scheduled fuel cell module replacement under service agreements for modules that were built by POSCO Energy. Also contributing to the decline in revenue over the comparable period is the increase in instances in which the Company installs power plants for customers that have executed PPAs. The power plants are recognized as "Project assets" on the Consolidated Balance Sheets and generation revenue is recognized as earned over the life of the PPA or as a product sale in the event the Company sells the entire project (service agreement revenues would accompany a product sale). The decrease in kit revenue is partially offset by an increase in power plant revenue primarily relating to the 20 MW order from HYD of which a substantial portion of revenue has been recorded for the delivered components.

Cost of product sales decreased $13.7 million for the year ended October 31, 2017, to $49.8 million compared to $63.5 million in the prior year period. The decrease in cost of sales in fiscal year 2017 was driven by lower overall product volume which included no kit sales during the fiscal year and retention of project assets on balance sheet rather than sales to end customer or investors. Cost of product sales includes costs to design, engineer, manufacture and ship our power plants and power plant components to customers, site engineering and construction costs where we are responsible for power plant system installation, costs for assembly and conditioning equipment sold to POSCO Energy, warranty expense and inventory excess and obsolescence charges. The decrease in product sales gross margin is primarily due to lower manufacturing production for the year ended October 31, 2017 resulting in a higher level of under-absorbed fixed costs.

As of October 31, 2017, product sales backlog totaled approximately $31.3 million compared to $24.9 million as of October 31, 2016.

Service and license revenues

Our service agreements and license revenues and associated cost of revenues for the years ended October 31, 2017 and 2016 were as follows:

	Years Ended October 31,		Change	
(dollars in thousands)	**2017**	2016	$	%
Service and license revenues	**$ 27,050**	$ 31,491	$ (4,441)	(14)%
Cost of service and license revenues	**25,285**	32,592	(7,307)	(22)%
Gross profit (loss) from service and license revenues	**$ 1,765**	$ (1,101)	$ 2,866	260 %
Service and license revenues gross margin	**6.5%**	(3.5)%		

Revenues for the year ended October 31, 2017 from service agreements and license fee and royalty agreements totaled $27.1 million, compared to $31.5 million for the prior year. The decrease relates primarily to fewer module exchanges under service agreements performed in 2017. Revenue for license fee and royalty agreements totaled $2.7 million and $6.2 million for the years ended October 31, 2017 and 2016, respectively, due to lower royalties recognized. The Company's license and royalty agreements with POSCO Energy included a minimum royalty which expired in December 2016.

Service agreements and license cost of revenues decreased to $25.3 million for fiscal year 2017 from $32.6 million for the prior year. Gross margin for the year ended October 31, 2017 was 6.5% which improved from a gross margin loss of 3.5%.

The improvement in gross margin over the prior year was a result of the fact that the prior year included contract loss accruals recorded in connection with the extension of certain legacy contracts as well as due to changes in estimated costs for certain legacy contracts and charges which were incurred in connection with the termination of service agreements at certain sites. The fiscal year 2017 gross margin also included MW module replacements with favorable margins.

As of October 31, 2017, service backlog totaled approximately $182.3 million compared to $204.8 million as of October 31, 2016. Service backlog does not include future royalties or license revenues. This backlog is for service agreements of up to twenty years and is expected to generate positive margins and cash flows based on current estimates.

Generation revenues

	Years Ended October 31,		Change	
(dollars in thousands)	**2017**	2016	$	%
Generation revenues	**$7,233**	$1,267	$5,966	471%
Cost of generation revenues	**5,076**	664	4,412	664%
Gross profit from generation revenues	**$2,157**	$ 603	$1,554	258%
Generation revenues gross margin	**29.8%**	47.6%		

Revenues for the year ended October 31, 2017 from generation totaled $7.2 million, compared to $1.3 million for the prior year period. Revenues for the year ended October 31, 2017 reflects revenue from electricity generated pursuant to the Company's PPAs. Cost of generation totaled $5.1 million for the year ended October 31, 2017, compared to $0.7 million for the prior year period. Gross profit from generation revenues increased to $2.2 million for the year ended October 31, 2017, compared to $0.6 million for the prior year period. The increases represent the growth in the Company's operating portfolio. The reduction in generation revenues gross margin percentage is the result of higher costs and lower revenues from electricity generation on certain plants during the initial startup operation period. As of October 31, 2017, the Company had 11.2 MW of operating power plants in its portfolio.

As of October 31, 2017, generation backlog totaled approximately $296.3 million compared to $142.5 million as of October 31, 2016.

Advanced Technologies contract revenues

	Years Ended October 31,		Change	
(dollars in thousands)	**2017**	2016	$	%
Advanced Technologies contract revenues	**$18,336**	$12,931	$5,405	42%
Cost of Advanced Technologies contract revenues	**12,728**	11,879	849	7%
Advanced Technologies contract revenues gross profit	**$ 5,608**	$ 1,052	$4,556	433%
Advanced Technologies contract revenues gross margin	**30.6%**	8.1%		

Advanced Technologies contract revenues for the year ended October 31, 2017 was $18.3 million, representing an increase of $5.4 million compared to $12.9 million of revenue for the year ended October 31, 2016. Cost of Advanced Technologies contract revenues increased to $12.7 million for the year ended October 31, 2017, compared to $11.9 million for the prior year. Gross profit from Advanced Technologies contracts for the year ended October 31, 2017 was $5.6 million compared to $1.1 million for the year ended October 31, 2016, and gross margin was 30.6% for the year ended October 31, 2017 compared to 8.1% during the prior year period. The increase in gross margin is related to the timing and mix of contracts currently being performed, particularly a higher proportion related to private industry contracts.

At October 31, 2017, Advanced Technologies contract backlog totaled approximately $44.3 million compared to $60.1 million at October 31, 2016.

Administrative and selling expenses

Administrative and selling expenses were $25.9 million for the year ended October 31, 2017 compared to $25.2 million for the year ended October 31, 2016. The increase results primarily from higher business development costs incurred. Business development costs may vary from period to period depending on the nature and frequency of customer and state-level requests for proposals.

Research and development expenses
Research and development expenses decreased $0.4 million to $20.4 million for the year ended October 31, 2017, compared to $20.8 million during the year ended October 31, 2016.

Restructuring expense
Restructuring expense of $1.4 million was recorded for the year ended October 31, 2017, relating to personnel separation costs from the business restructuring that was undertaken to reduce costs and align production levels with the level of production needs at the time.

Loss from operations
Loss from operations for the year ended October 31, 2017 was $44.9 million compared to $46.4 million for the year ended October 31, 2016, primarily as a result of higher gross margins in fiscal year 2017, which were partially offset by higher operating expenses primarily for restructuring expense.

Interest expense
Interest expense for the years ended October 31, 2017 and 2016 was $9.2 million and $5.0 million, respectively. The increase results from borrowings under the Company's Loan and Security Agreement with Hercules and interest expense related to sale-leaseback transactions recorded under the finance method. The interest expense for the years ended October 31, 2017 and 2016 includes interest for the amortization of the redeemable preferred stock of a subsidiary fair value discount of $2.0 million and $1.8 million, respectively.

Other income, net
Other income, net, was $0.2 million for the year ended October 31, 2017 compared to other income, net of $0.6 million for the year ended October 31, 2016. Unrealized foreign exchange (losses) gains aggregated to ($0.7) million and $0.1 million in fiscal year 2017 and 2016, respectively, which primarily related to the preferred stock obligation of our Canadian subsidiary, FCE Ltd. FCE Ltd.'s functional currency is U.S. dollars, while the preferred stock obligation is payable in Canadian dollars. Refundable research and development tax credits for the years ended October 31, 2017 and 2016 were $0.9 million and $0.4 million, respectively.

Provision for income taxes
We have not paid federal or state income taxes in several years due to our history of net operating losses ("NOLs"), although we have paid income taxes in South Korea. For the year ended October 31, 2017, our provision for income taxes was $0.04 million, compared to $0.5 million in the prior year. We cannot estimate when production volumes will be sufficient to generate taxable domestic income. Accordingly, no tax benefit has been recognized for these NOLs or other deferred tax assets as significant uncertainty exists surrounding the recoverability of these deferred tax assets.

As of October 31, 2017, we had $752.7 million of federal NOL carryforwards that expire in the years 2019 through 2037 and $414.7 million in state NOL carryforwards that expire in the years 2018 through 2037. Additionally, we had $11.6 million of state tax credits available, of which $0.6 million expires in 2018. The remaining credits do not expire.

Net loss attributable to noncontrolling interest
The net loss attributed to the noncontrolling interest for the year ended October 31, 2016 was $0.3 million. During October 2016, the Company purchased the noncontrolling interest in FuelCell Energy Services, GmbH, from Fraunhofer IKTS, giving the Company sole ownership and eliminating future noncontrolling interest.

Preferred Stock dividends
Dividends recorded and paid on the Series B Preferred Stock were $3.2 million in each of the years ended October 31, 2017 and 2016.

Net loss attributable to common stockholders and loss per common share
Net loss attributable to common stockholders represents the net loss for the period, less the net loss attributable to noncontrolling interest and less the preferred stock dividends on the Series B Preferred Stock. For the years ended October 31, 2017 and 2016, net loss attributable to common stockholders was $57.1 million and $54.2 million, respectively, and basic and diluted loss per common share was $1.14 and $1.82, respectively.

COMPARISON OF THE YEARS ENDED OCTOBER 31, 2016 AND 2015

Revenues and Costs of Revenues
Our revenues and cost of revenues for the years ended October 31, 2016 and 2015 were as follows:

	Years Ended October 31,		Change	
(dollars in thousands)	2016	2015	$	%
Total revenues	$108,252	$163,077	$(54,825)	(34)%
Total costs of revenues	108,609	150,301	(41,692)	(28)%
Gross (loss) profit	$ (357)	$ 12,776	$(13,133)	(103)%
Gross margin	(0.3)%	7.8%		

Total revenues for the year ended October 31, 2016 decreased $54.8 million, or 34%, to $108.3 million from $163.1 million during the year ended October 31, 2015, due primarily to decreased product sales as discussed below. Total cost of revenues for the year ended October 31, 2016 decreased by $41.7 million, or 28%, to $108.6 million from $150.3 million for the year ended October 31, 2015. The Company's gross margin was a loss of 0.3% in fiscal year 2016, as compared to the prior year margin of 7.8%. A discussion of the changes in product sales, service agreement and license revenues, and Advanced Technologies contract revenues follows. Refer to "Critical Accounting Policies and Estimates" for more information on revenue and cost of revenue classifications.

Product sales

Our product sales, cost of product sales and gross profit for the years ended October 31, 2016 and 2015 were as follows:

	Years Ended October 31,		Change	
(dollars in thousands)	2016	2015	$	%
Product sales	$62,563	$128,595	$(66,032)	(51)%
Cost of product sales	63,474	118,530	(55,056)	(46)%
Gross (loss) profit from product sales	$ (911)	$ 10,065	$(10,976)	(109)%
Product sales gross margin	(1.5)%	7.8%		

Product sales for the year ended October 31, 2016 included $11.7 million of power plant revenue, $41.8 million from sales of fuel cell kits and $9.1 million of revenue primarily related to power plant component sales and EPC services. This is compared to product sales for the year ended October 31, 2015 which included $19.6 million of power plant revenue, $84.5 million of fuel cell kits and module revenue and $24.5 million of revenue primarily from power plant component sales and EPC services. Product sales decreased $66.0 million, or 51%, for the year ended October 31, 2016 to $62.6 million from $128.6 million for the prior year period.

The decline in revenue during the period as compared to the prior year period is due primarily to lower revenue from POSCO Energy due to the transition of the kit and module sales to POSCO Energy to a royalty based model.

Also contributing to the decline in revenue over the comparable prior year period is certain power plants that are being recognized as Project assets on the balance sheet, as product and EPC revenue is not recognized with respect to these Project assets when sales are made. As the Company's development business expands, it is installing power plants for customers that have executed PPAs. These assets generally are the subject of sale-leaseback transactions with PNC Energy Capital, LLC ("PNC"), which are recorded under the financing method of accounting for a sale-leaseback. Under the finance method, the Company does not recognize the proceeds received from the lessor as a sale of such assets. The power plants are recognized as Project assets on the balance sheet and revenue will be recognized as electricity revenue is earned over the life of the PPA or when a definitive sales agreement is executed.

Cost of product sales decreased $55.1 million for the year ended October 31, 2016, to $63.5 million compared to $118.5 million in the prior year period. The decrease in cost of sales in fiscal year 2016 was driven by lower overall product volume during the fiscal year and retention of project assets on the balance sheet rather than sales to end customers or investors.

As of October 31, 2016, product sales backlog totaled approximately $24.9 million compared to $90.7 million as of October 31, 2015.

Service and License Revenues

Our service agreements and license revenues and associated cost of revenues for the years ended October 31, 2016 and 2015 were as follows:

	Years Ended October 31,		Change	
(dollars in thousands)	2016	2015	$	%
Service and license revenues	$31,491	$21,012	$10,479	50%
Cost of service and license revenues	32,592	18,301	14,291	78%
Gross (loss) profit from service and license revenues	$ (1,101)	$ 2,711	$ (3,812)	(141)%
Service and license revenues gross margin	(3.5)%	12.9%		

Revenues for the year ended October 31, 2016 from service agreements and license fee and royalty agreements totaled $31.5 million, compared to $21.0 million for the prior year. The increase relates primarily to more module exchanges performed in 2016, some of which resulted from service contract extensions for certain projects. Revenue for license fee and royalty agreements totaled $6.2 million and $4.7 million for the years ended October 31, 2016 and 2015, respectively.

Service agreements and license cost of revenues increased to $32.6 million for the fiscal year ended October 31, 2016 from $18.3 million for the prior year, resulting in a decrease in gross margin to a loss of 3.5% from a profit of 12.9% during the prior year period. The decrease in gross margin over the prior year relates to an increase in performance guarantee accruals due to plant performance at certain sites, contract loss accruals recorded in connection with the extension of certain legacy contracts as well as due to changes in estimated costs for certain legacy contracts, and charges incurred in connection with termination of service agreements at certain sites.

At October 31, 2016, service backlog totaled approximately $204.8 million compared to $254.1 million as of October 31, 2015. Service backlog does not include future royalties or license revenues. This backlog is for service agreements of up to twenty years.

Generation revenues

	Years Ended October 31,		Change	
(dollars in thousands)	2016	2015	$	%
Generation revenues	$1,267	$—	$1,267	100%
Cost of generation revenues	664	—	664	100%
Generation revenues gross profit	$ 603	$—	$ 603	100 %
Generation revenues gross margin	47.6%	—		

Revenues for the year ended October 31, 2016 from generation totaled $1.3 million. Revenues are from electricity generated pursuant to the Company's PPAs. Cost of generation totaled $0.7 million for the year ended October 31, 2016. The increases represent the growth in the Company's operating portfolio. The Company did not have any operating assets in its generation portfolio during fiscal 2015.

Advanced Technologies contract revenues

Advanced Technologies contracts revenue and related costs for the years ended October 31, 2016 and 2015 were as follows:

	Years Ended October 31,		Change	
(dollars in thousands)	2016	2015	$	%
Advanced Technologies contract revenues	$12,931	$13,470	$ (539)	(4)%
Cost of Advanced Technologies contract revenues	11,879	13,470	(1,591)	(12)%
Advanced Technologies contract revenues gross profit	$ 1,052	$ —	$ 1,052	100%
Advanced Technologies contract revenues gross margin	8.1%	—		

Advanced Technologies contract revenues for the year ended October 31, 2016 was $12.9 million, representing a decrease of $0.5 million when compared to $13.5 million of revenue for the year ended October 31, 2015. Cost of Advanced Technologies contracts decreased $1.6 million to $11.9 million for the year ended October 31, 2016, compared to $13.5 million for the prior year. Gross profit from Advanced Technologies contracts for the year ended October 31, 2016 was $1.1 million compared to breakeven for the year ended October 31, 2015, and gross margin was 8.1% compared to breakeven during the prior year period. The increase in gross margin is related to the timing and mix of contracts currently being performed, particularly the transition to a larger mix of private industry contracts.

As of October 31, 2016, Advanced Technologies contract backlog totaled approximately $60.1 million compared to $36.5 million as of October 31, 2015.

Administrative and selling expenses

Administrative and selling expenses were $25.2 million for the year ended October 31, 2016 compared to $24.2 million for the year ended October 31, 2015. The increase results primarily from higher business development costs incurred early in the year. Business development costs may vary from period to period depending on the nature of customer and state-level requests for proposals.

Research and development expenses

Research and development expenses increased $3.4 million to $20.8 million for the year ended October 31, 2016, compared to $17.4 million during the year ended October 31, 2015. The increase in research and development expenses reflects increased research and development activity related to near-term product introductions, including the high efficiency fuel cell. This configuration has an overall electrical efficiency of approximately 60% and is designed for utility scale applications and data centers. The first power plant is currently being installed and is expected to be fully operational in fiscal year 2018.

Loss from operations

Loss from operations for the year ended October 31, 2016 was $46.4 million compared to a loss of $28.9 million for the year ended October 31, 2015, primarily as a result of lower gross margins in fiscal year 2016.

Interest expense

Interest expense for the years ended October 31, 2016 and 2015 was $5.0 million and $3.0 million, respectively. The increase results from borrowings under the Company's Loan and Security Agreement with Hercules, the $10.0 million low-cost loan granted by the State of Connecticut in early 2016, and interest expense related to sales-leaseback transactions recorded under the finance method. The interest expense for both periods includes interest for the amortization of the redeemable preferred stock of a subsidiary fair value discount of $1.8 million.

Other income, net

Other income, net, was $0.6 million for the year ended October 31, 2016 compared to other income, net of $2.4 million for the year ended October 31, 2015. Unrealized foreign exchange gains aggregated to $0.1 million and $1.7 million in fiscal year 2016 and 2015, respectively, which primarily related to the preferred stock obligation of our Canadian subsidiary, FCE Ltd. FCE Ltd.'s

functional currency is U.S. dollars, while the preferred stock obligation is payable in Canadian dollars. Refundable research and development tax credits for the years ended October 31, 2016 and 2015 were $0.4 million and $0.6 million, respectively.

Provision for income taxes
We have not paid federal or state income taxes in several years due to our history of NOLs, although we have paid income taxes in South Korea. For the year ended October 31, 2016, our provision for income taxes was $0.5 million, compared to $0.3 million in the prior year. We cannot estimate when production volumes will be sufficient to generate taxable domestic income. Accordingly, no tax benefit has been recognized for these NOLs or other deferred tax assets as significant uncertainty exists surrounding the recoverability of these deferred tax assets.

Net loss attributable to noncontrolling interest
The net loss attributed to the noncontrolling interest for each of the years ended October 31, 2016 and 2015 was $0.3 million. During October 2016, the Company purchased the noncontrolling interest in FuelCell Energy Services, GmbH, from Fraunhofer IKTS, giving the Company sole ownership and eliminating future noncontrolling interest in earnings.

Preferred Stock dividends
Dividends recorded and paid on the Series B Preferred Stock were $3.2 million in each of the years ended October 31, 2016 and 2015.

Net loss attributable to common stockholders and loss per common share
Net loss attributable to common stockholders represents the net loss for the period, less the net loss attributable to noncontrolling interest and less the preferred stock dividends on the Series B Preferred Stock. For the years ended October 31, 2016 and 2015, net loss attributable to common stockholders was $54.2 million and $32.6 million, respectively, and basic and diluted loss per common share was $1.82 and $1.33, respectively.

LIQUIDITY AND CAPITAL RESOURCES

As of October 31, 2017, we believe that our cash and cash equivalents on hand, cash flows from operating activities, availability under our loan facilities and access to the capital markets will be sufficient to meet our working capital and capital expenditure needs for at least the next twelve months.

We intend to maintain appropriate cash and debt levels based upon our expected cash requirements for operations, capital expenditures, construction of project assets as well as principal, interest and dividend payments. In the future, we may also engage in additional debt or equity financings, including project specific debt financings. We believe that when necessary, we will have adequate access to the capital markets, although the timing and size of any financing will depend on multiple factors including market conditions, future order flow and the need to adjust production capacity. If we are unable to raise additional capital, our growth potential may be adversely affected and we may have to modify our plans.

Cash and cash equivalents including restricted cash, totaled $87.5 million as of October 31, 2017 compared to $118.3 million as of October 31, 2016. As of October 31, 2017:

- Unrestricted cash and cash equivalents was $49.3 million compared to $84.2 million as of October 31, 2016, and
- Restricted cash and cash equivalents was $38.2 million, of which $4.6 million was classified as current and $33.5 million was classified as non-current, compared to $34.1 million total restricted cash and cash equivalents as of October 31, 2016, of which $9.4 million was classified as current and $24.7 million was classified as non-current.

During the third quarter of fiscal year 2017, the Company completed an equity capital raise netting $13.9 million of proceeds which included common stock and two tranches of warrants. Warrants to purchase 9.8 million shares of common stock were exercised in the third and fourth quarters of fiscal year 2017, yielding proceeds of $12.7 million. If all remaining warrants related to this equity offering are exercised in periods subsequent to October 31, 2017, the Company could receive additional cash proceeds of up to $19.6 million.

In addition to the cash and cash equivalents described above, the Company has $40.0 million of availability under its project finance loan agreement with NRG Energy through FuelCell Finance, which can be used for project asset construction. Draws under the facility are subject to traditional project finance conditions precedent, including the existence of a PPA with the end-user of the power and customary project documentation, economic performance and compliance with applicable laws and regulations. Projects must be located in the United States.

We also have an effective shelf registration statement on file with the SEC for issuance of debt and equity securities.

The Company's future liquidity will be dependent on obtaining a combination of increased order and contract volumes, increased cash flows from our generation and service portfolios and cost reductions necessary to achieve profitable operations. Our expanding development of large-scale turn-key projects in the United States requires liquidity and is expected to continue to have increasing liquidity requirements. A key element of our business model includes the development of turn-key projects and we may commence construction upon the execution of a multi-year PPA with an end-user that has a strong credit profile. Project development and construction cycles, which span the time between securing a PPA and commercial operations of the plant, vary substantially and can take years. As a result of these project cycles and strategic decisions to finance the construction of certain projects, we may need to make significant up-front investments of resources in advance of the receipt of any cash from the sale or long-term financing of such projects. These up-front investments may include using our working capital availability under our construction financing facility or other project financing arrangements. We may choose to substantially complete the construction of a project before it is sold to a project investor. Alternatively, we may choose to retain ownership of one or more of these projects after they become operational if we determine it would be of economic and strategic benefit to do so. If, for example, we cannot sell a project at economics that are attractive to us, we may instead elect to own and operate such project, generally until such time

that we can sell such project on economically attractive terms. In markets where there is a compelling value proposition, we may also build one or more power plants on an uncontracted "merchant" basis in advance of securing long-term contracts for the project attributes (including energy, renewable energy credits and capacity). Delays in construction progress or in completing the sale of our projects which we are self-financing may impact our liquidity.

Our operating portfolio (11.2 MW as of October 31, 2017) contributes higher long-term cash flows to the Company than if these projects had been sold. The Company plans to continue to grow this portfolio while also selling projects to investors. As of October 31, 2017, the Company had an additional 19.5 MW under construction some of which would be expected to generate operating cash flows in fiscal 2018. Retaining long-term cash flow positive projects combined with our service fleet reduces reliance on new project sales to achieve cash flow positive operations. We have partnered with financial institutions to secure long-term debt and sale-leasebacks for our project asset portfolio as well as NRG for construction period financing. Through October 31, 2017, we have financed four projects through sale-leaseback transactions. As of October 31, 2017, total finance obligations and debt outstanding related to project assets was $48.3 million. Our generation portfolio provides the Company with the full benefit of future cash flows.

The Company had a contract backlog totaling approximately $554.2 million as of October 31, 2017. This backlog includes approximately $182.3 million of service agreements and $296.3 million of PPAs, combined for an average term of approximately 17 years weighted based on dollar backlog and utility service contracts up to twenty years in duration, providing a committed source of revenue to the year 2037. Backlog also includes $31.3 million of product sales contracts, which are expected to generate revenue in 2018. Product sales are primarily related to the Korean utility market and complements the U.S. PPA market. Backlog represents firm definitive agreements executed by the Company and our customers. This backlog excludes the following recent awards: LIPA for 39.8 MW projects, the Toyota hydrogen project and the Korean 20 MW twenty year service agreement. Backlog is expected to increase by over $1.0 billion once these project awards are converted to definitive agreements. Project awards referenced by the Company are notifications that the Company has been selected, typically through a competitive bidding process, to enter into definitive agreements. These awards have been publicly disclosed. Negotiations are in process and if successfully completed, project awards will become backlog.

The Company also has a strong sales and service pipeline of potential projects in various stages of development in North America, Asia and Europe. This pipeline includes projects for on-site 'behind-the-meter' applications and for grid support multi-megawatt fuel cell parks. Behind-the-meter applications provide end users with predictable long-term economics, on-site power including micro-grid capabilities and reduced carbon emissions. In addition, a number of multi-megawatt utility grid support projects are being developed for utilities and independent power producers to support the grid where power is needed. These projects help both utilities and governments meet their renewable portfolio standards.

Factors that may impact our liquidity in fiscal year 2018 and beyond include:

- Timing of project awards and factory production rate. The Company bids on large projects into diverse markets which can have long decision cycles and uncertain outcomes. In fiscal year 2017, given the timing of market development activities, the Company took certain actions to reduce costs and manage inventory levels as follows:
  - On November 30, 2016, the Company announced a business restructuring to reduce costs and align production levels with then-current levels of demand. The Company reduced its materials spend and implemented various cost control initiatives. The workforce was reduced at both the North American production facility in Torrington, Connecticut, as well as at corporate offices in Danbury, Connecticut and remote locations. A total of ninety-six positions, or approximately 17% of the global workforce, was eliminated. The production rate was reduced to twenty-five MW annually, from the prior rate of fifty MW annually, in order to position for delays in anticipated order flow.
  - In June 2017, the Company further reduced its production to approximately fifteen MW on an annualized basis. This adjustment was made to manage inventory levels, prepare to transition to new product introductions and complete certain building expansion activities. From June through September 2017, approximately 110 manufacturing employees worked shortened work weeks. The Company participated in the State of Connecticut's "Shared Work Program" allowing affected employees to collect unemployment benefits for days they do not work. Employees returned to work in October 2017 and the Company is now operating at a 25 MW annualized run-rate.
- As project sizes evolve, project cycle times may increase. We may need to make significant up-front investments of resources in advance of the receipt of any cash from the sale of our projects. These amounts include development costs, interconnection costs, posting of letters of credit, bonding or other forms of security, and incurring engineering, permitting, legal, and other expenses.
- The amount of accounts receivable as of October 31, 2017 and 2016 was $81.3 million ($12.8 million of which is classified as "Other assets, net") and $38.7 million ($14.1 million of which is classified as "Other assets, net"), respectively. The increase in 2017 relates to increasing utility scale activity in the South Korean market. Included in accounts receivable as of October 31, 2017 and October 31, 2016 was $38.3 million and $29.7 million, respectively, of unbilled accounts receivable. Unbilled accounts receivable represents revenue that has been recognized in advance of billing the customer under the terms of the underlying contracts. Such costs have been funded with working capital and the unbilled amounts are expected to be billed and collected from customers once we meet the billing criteria under the contracts. Our accounts receivable balances may fluctuate as of any balance sheet date depending on the timing of individual contract milestones and progress on completion of our projects.

- The amount of total inventory as of October 31, 2017 and 2016 was $74.5 million and $73.8 million, respectively, which includes work in process inventory totaling $54.4 million and $48.5 million, respectively. As we continue to execute on our business plan, we must produce fuel cell modules and procure BOP components in required volumes to support our planned construction schedules and potential customer contractual requirements. As a result, we may manufacture modules or acquire BOP in advance of receiving payment for such activities. This may result in fluctuations of inventory and use of cash as of any balance sheet date. The Company reduced its production rate during fiscal year 2017 and expects to operate at lower levels for a period of time in order to deploy inventory to new projects and mitigate future increases in inventory. A total of approximately $25.0 million of inventory is expected to be deployed during the first quarter of 2018 for the HYD contract.
- Cash and cash equivalents as of October 31, 2017 included $3.0 million of cash advanced by POSCO Energy for raw material purchases made on its behalf by FuelCell Energy. Under an inventory procurement agreement that ensures coordinated purchasing from the global supply chain, FuelCell Energy provides procurement services for POSCO Energy and receives compensation for services rendered. While POSCO Energy makes payments to us in advance of supplier requirements, quarterly receipts may not match disbursements.
- The amount of total project assets as of October 31, 2017 and 2016 was $73.0 million and $47.1 million, respectively. Project assets consist of capitalized costs for fuel cell projects that are either operating and producing revenue or under construction. Project assets as of October 31, 2017 consist of $32.1 million, representing completed installations currently operating and $40.9 million of project assets representing projects in development. As of October 31, 2017, we had 11.2 MW of our operating project assets that generated $7.2 million of revenue for the Company in fiscal year 2017. Also, as of October 31, 2017 the Company had an additional 19.5 MW under construction which would be expected to generate operating cash flows in fiscal year 2018. We expect this portfolio to continue to grow.
- Under the terms of certain contracts, the Company will provide performance security for future contractual obligations. As of October 31, 2017, we had pledged approximately $38.2 million of our cash and cash equivalents as collateral for performance security and for letters of credit for certain banking requirements and contracts. This balance may increase with a growing backlog and installed fleet.
- For fiscal year 2018, we forecast capital expenditures in the range of $11.0 million to $13.0 million compared to $12.4 million in fiscal year 2017. We have substantially completed the first phase of our project to expand our 65,000 square foot manufacturing facility in Torrington, Connecticut by approximately 102,000 square feet for a total size of 167,000 square feet. Initially, this additional space will be used to enhance and streamline logistics functions through consolidation of satellite warehouse locations and will provide the space needed to reconfigure the existing production process to improve manufacturing efficiencies and realize cost savings. On November 9, 2015, the Company closed on a definitive Assistance Agreement with the State of Connecticut and received a disbursement of $10.0 million that was used for this first phase of our expansion project. Pursuant to the terms of the loan, payment of principal is deferred for the first four years of this 15 year loan. Interest at a fixed rate of 2% is payable beginning in December 2015. Up to 50% of the principal balance is forgivable if certain job creation and retention targets are met. In April 2017, the Company entered into an amendment to the Assistance Agreement extending certain job creation target dates by two years to October 28, 2019.

Cash Flows

Cash and cash equivalents and restricted cash and cash equivalents totaled $87.4 million as of October 31, 2017 compared to $118.3 million as of October 31, 2016. As of October 31, 2017, restricted cash and cash equivalents was $38.2 million, of which $4.6 million was classified as current and $33.5 million was classified as non-current, compared to $34.1 million total restricted cash and cash equivalents as of October 31, 2016, of which $9.4 million was classified as current and $24.7 million was classified as non-current.

The following table summarizes our consolidated cash flows:

	2017	2016	2015
Consolidated Cash Flow Data:			
Net cash used in operating activities	**$(71,845)**	$(46,595)	$(44,274)
Net cash used in investing activities	**(31,444)**	(41,452)	(6,930)
Net cash provided by financing activities	**72,292**	120,658	28,219
Effects on cash from changes in foreign currency rates	**129**	(35)	(108)
Net (decrease) increase in cash and cash equivalents	**$(30,868)**	$ 32,576	$(23,093)

The key components of our cash inflows and outflows were as follows:

Operating Activities—Net cash used in operating activities was $71.8 million during fiscal year 2017 compared to $46.6 million used in operating activities during fiscal year 2016.

Net cash used in operating activities during fiscal year 2017 is primarily a result of the net loss of $53.9 million, increases in accounts receivable of $51.3 million and inventory of $8.0 million, and decreases in accrued liabilities of $2.3 million and deferred revenue of $0.9 million. The decreases were offset by non-cash adjustments of $20.2 million and an increase in accounts payable of $25.0 million.

Net cash used in operating activities during fiscal year 2016 is primarily the result of a net loss of $51.2 million and a $26.6 million decrease in deferred revenue, partially offset by a $30.2 million decrease in accounts receivable. Cash used in operating activities also included a $3.0 million reduction in accounts payable, and an $8.1 million increase in inventories.

Investing Activities—Net cash used in investing activities was $31.4 million during fiscal year 2017 compared to net cash used in investing activities of $41.5 million during fiscal year 2016.

Net cash used in investing activities during fiscal year 2017 included a $19.7 million investment in project assets to expand our operating portfolio and $12.4 million for capital expenditures which was primarily for the substantial completion of the Torrington facility expansion. Net cash used for the year was offset by cash received in connection with an asset acquisition of $0.6 million.

Net cash used in investing activities during fiscal year 2016 consists of a $33.7 million investment in project assets as a result of expanding our portfolio to retain long-term positive cash flow projects (many under PPAs with contract durations of up to twenty years). Capital expenditures totaled $7.7 million and primarily related to the expansion of our Torrington facility.

Financing Activities—Net cash provided by financing activities was $72.3 million during fiscal year 2017 compared to $120.7 million in fiscal year 2016.

Net cash provided by financing activities during fiscal year 2017 includes net proceeds received from the issuance of preferred shares of $27.9 million, cash received from a common stock offering of $14.2 million, cash received from warrant exercises of $12.7 million, and net proceeds from open market sales of common stock of $12.6 million. Net cash provided by financing activities also included $17.9 million of net proceeds from debt primarily relating to a sale-leaseback transaction with PNC. Cash received was offset by the repayment of debt of $8.6 million, the payment of preferred dividends and the return of capital of $4.2 million.

Net cash provided by financing activities during the year ended October 31, 2016 includes net proceeds from open market sales of common stock of $36.2 million and proceeds from a registered direct offering of common stock and warrants to a single institutional investor totaling $34.7 million. The Company also had net debt proceeds of $55.5 million consisting of long-term debt issued to (i) the State of Connecticut for our facility expansion, (ii) Hercules pursuant to the loan and security agreement to support working capital and (iii) NRG Energy and PNC to support long-term project financing. Proceeds of financing activities were partially offset primarily by the payment of preferred dividends and return of capital payments of $4.2 million and the payment of deferred finance costs of $1.8 million.

Commitments and Significant Contractual Obligations

A summary of our significant future commitments and contractual obligations as of October 31, 2017 and the related payments by fiscal year is summarized as follows:

	Payments Due by Period				
(dollars in thousands) Contractual Obligations	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
Purchase commitments [1]	$ 29,107	$25,909	$ 3,043	$ 155	$ —
Series 1 Preferred obligation [2]	6,369	972	1,943	3,454	—
Term loans (principal and interest)	46,115	26,391	2,621	3,506	13,597
Capital and operating lease commitments [3]	7,261	1,534	1,577	773	3,377
Sale-leaseback financing obligation [4]	25,032	3,802	7,277	5,564	8,389
Option fee [5]	950	400	400	150	—
Series B Preferred dividends payable [6]	—	—	—	—	—
Total	$114,834	$59,008	$16,861	$13,602	$25,363

(1) Purchase commitments with suppliers for materials, supplies and services incurred in the normal course of business.

(2)The terms of the Class A Cumulative Redeemable Exchangeable Preferred Share Agreement (the "Series 1 Preferred Share Agreement") require payments of (i) an annual amount of Cdn. $500,000 for dividends and (ii) an amount of Cdn. $750,000 as return of capital payments payable in cash. These payments will end on December 31, 2020. Dividends accrue at a 1.25% quarterly rate on the unpaid principal balance, and additional dividends will accrue on the cumulative unpaid dividends at a rate of 1.25% per quarter, compounded quarterly. On December 31, 2020 the amount of all accrued and unpaid dividends on the Series 1 Preferred Shares of Cdn. $21.1 million and the balance of the principal redemption price of Cdn. $4.4 million will be due to the holders of the Series 1 Preferred Shares. The Company has the option of making dividend payments in the form of common stock or cash under terms outlined in the Series 1 Preferred Share Agreement. For purposes of preparing the above table, the final balance of accrued and unpaid dividends due December 31, 2020 of Cdn. $21.1 million is assumed to be paid in the form of common stock and not included in this table.

(3) Future minimum lease payments on capital and operating leases.

(4) The amount represents payments due on sale-leaseback transactions of our wholly-owned subsidiary, under its financing agreement with PNC. Projects financed under this facility are generally payable in fixed quarterly installments over a ten-year period.

(5) The Company entered into an agreement with one of its customers on June 29, 2016 which includes a fee for the purchase of the plants at the end of the term of the agreement. The fee is payable in installments over the term of the agreement.

(6) We pay $3.2 million in annual dividends on our Series B Preferred Stock. The $3.2 million annual dividend payment has not been included in this table as we cannot reasonably determine the period when or if we will be able to convert the Series B Preferred Stock into shares of our common stock. We may, at our option, convert these shares into the number of shares of our common stock that are issuable at the then prevailing conversion rate if the closing price of our common stock exceeds 150% of the then prevailing conversion price ($141.00 per share) for 20 trading days during any consecutive 30 trading day period.

In March 2017, the Connecticut Green Bank approved a $5.0 million credit facility for a 3.7 MW project under construction in Danbury, Connecticut. The credit facility will be funded after the power plant achieves commercial operations and is secured by the power plant and the underlying revenues from the sale of electricity, renewable energy credits ("RECs"), and capacity. The 20 year credit facility bears a fixed interest rate. Construction is currently in process and commercial operation is expected in early 2018. The credit facility is subject to execution of definitive documentation and customary closing conditions. This project will distribute power to the Connecticut grid and is expected to demonstrate electrical efficiency and the ability of utilities to affordably and cleanly solve power generation challenges in land-constrained areas.

In November 2016, the Company's wholly-owned subsidiary, FuelCell Finance, entered into a membership interest purchase agreement with GW Power LLC ("Seller") whereby FuelCell Finance purchased all of the outstanding membership interests in New Britain Renewable Energy, LLC ("NBRE") from Seller. Seller assigned the NBRE interest to FuelCell Finance free and clear of all liens other than a pledge in favor of Webster Bank, National Association ("Webster Bank"). FuelCell Finance assumed the debt outstanding with Webster Bank in the amount of $2.3 million. The term loan interest is 5.0% and payment due on a quarterly basis commenced in January 2017. The balance outstanding as of October 31, 2017 was $1.7 million.

In April 2016, the Company entered into a loan and security agreement (the "Hercules Agreement") with Hercules for an aggregate principal amount of up to $25.0 million, subject to certain terms and conditions. The Hercules Agreement was subsequently amended in the fourth fiscal quarter of 2017. The Company received an initial term loan advance on the date of closing of $15.0 million and an additional $5.0 million in September 2016. As of October 31, 2017, drawdowns and accrued amortization of the end of term payment on the facility aggregated $21.5 million. The loan is a 30 month secured facility and the term loan interest was previously 9.5% and increased to 9.75% resulting from the increase in the prime rate. Interest is paid on a monthly basis. Interest only payments were to be made for the first 18 months as a result of the Company achieving certain milestones. In addition to interest, principal payments commenced on November 1, 2017 in equal monthly installments. The loan balance and all accrued and unpaid interest is due and payable by October 1, 2018. Per the terms of the Hercules Agreement, there is an end of term payment of $1.7 million which is being accreted using the effective interest rate method.

As collateral for obligations under the Hercules Agreement, the Company granted Hercules a security interest in FuelCell Energy, Inc.'s existing and hereafter-acquired assets except for intellectual property and certain other excluded assets. Collateral does not include assets held by FuelCell Finance or any project subsidiary thereof. The Company may continue to collateralize and finance its project subsidiaries through other lenders and partners. Under the Hercules Agreement, as amended, there is a minimum cash covenant which requires the Company to maintain an unrestricted cash balance in accounts subject to an account control agreement in favor of Hercules of at least the greater of (x) (a) 75% of the outstanding loan balance plus (b) the amount of accounts payable (as defined under GAAP) not paid within 90 days of the invoice date and (y) (a) at all times prior to the Stockholder Approval Date (as defined in the Certificate of Designations for the Series C Preferred Stock), $20.0 million and (b) at all times on and after the Stockholder Approval Date, $10.0 million (the Stockholder Approval Date was December 14, 2017, which was the date on which stockholder approval of the issuance of certain shares upon the conversion and/or redemption of the Company's Series C Preferred Stock was obtained).

The second phase of our manufacturing expansion, for which we will be eligible to receive an additional $10.0 million in low-cost financing from the State of Connecticut, will commence as demand supports. This includes adding manufacturing equipment to increase annual capacity from the current 100 MW to at least 200 MW. Plans for this phase also include the installation of a megawatt scale tri-generation fuel cell plant to power and heat the facility as well as provide hydrogen for the manufacturing process of the fuel cell components, and the creation of an Advanced Technologies Center for technology testing and prototype manufacturing. In addition, the final stage of the fuel cell module manufacturing will be relocated to the Torrington facility from its current location at the Danbury, Connecticut headquarters, which will reduce logistics costs. The total cost of both phases of the expansion could be up to $65.0 million over a five year period, including the proposed Advanced Technologies Center and tri-generation fuel cell power plant.

On July 30, 2014, the Company's subsidiary, FuelCell Finance, entered into a Loan Agreement with NRG. Pursuant to the Loan Agreement, NRG has extended a $40.0 million revolving construction and term financing facility to FuelCell Finance for the purpose of accelerating project development by the Company and its subsidiaries. FuelCell Finance and its subsidiaries may draw on the facility to finance the construction of projects through the commercial operating date of the power plants. FuelCell Finance has the option to continue the financing term for each project after the commercial operating date for a maximum term of five years per project. The interest rate is 8.5% per annum for construction-period financing and 8.0% thereafter. As of October 31, 2017, there was no outstanding balance on this facility.

In March 2013, we closed on a long-term loan agreement with Connecticut Green Bank totaling $5.9 million in support of the Bridgeport Fuel Cell Park Project. The loan agreement carries an interest rate of 5.0% and principal repayments will commence on the eighth anniversary of the project's provisional acceptance date, which is in December 2021. Outstanding amounts are secured by future cash flows from the Bridgeport contracts. The outstanding balance on the Connecticut Green Bank Note as of October 31, 2017 was $6.1 million.

In April 2008, we entered into a 10-year loan agreement with the Connecticut Development Authority allowing for a maximum amount borrowed of $4.0 million. As of October 31, 2017, we had an outstanding balance of $2.3 million on this loan. The interest rate is 5%. Interest only payments commenced in January 2014 and the loan is collateralized by the assets procured under this loan as well as $4.0 million of additional machinery and equipment. Repayment terms require interest and principal payments through May 2018.

We have pledged approximately $38.2 million of our cash and cash equivalents as performance security and for letters of credit for certain banking requirements and contracts. As of October 31, 2017, outstanding letters of credit totaled $2.9 million. These expire on various dates through April 2019. Under the terms of certain contracts, the Company will provide performance security for future contractual obligations. The restricted cash balance as of October 31, 2017 includes $15.0 million which was placed in a Grantor's Trust account to secure certain Company obligations under the 15-year service agreement for the Bridgeport Fuel Cell Park Project and is reflected as long-term restricted cash. The restrictions on the $15.0 million will be removed upon completion of the final module exchange at the Bridgeport Fuel Cell Park Project under the terms of the services agreement. The restricted cash balance as of October 31, 2017 also includes $17.0 million to support obligations of the power purchase and service agreements related to the PNC sale-leaseback transactions.

As of October 31, 2017, we have uncertain tax positions aggregating $15.7 million and have reduced our NOLs carryforwards by this amount. Because of the level of NOLs and valuation allowances, unrecognized tax benefits, even if not resolved in our favor, would not result in any cash payment or obligation and therefore have not been included in the contractual obligation table above.

In addition to the commitments listed in the table above, we have the following outstanding obligations:

Power purchase agreements
Under the terms of our PPAs, customers agree to purchase power from our fuel cell power plants at negotiated rates. Electricity rates are generally a function of the customers' current and future electricity pricing available from the grid. We are responsible for all operating costs necessary to maintain, monitor and repair our fuel cell power plants. Under certain agreements, we are also responsible for procuring fuel, generally natural gas, to run our fuel cell power plants. We are typically not required to produce minimum amounts of power under our PPAs and we typically have the right to terminate PPAs by giving written notice to the customer, subject to certain exit costs. As of October 31, 2017, our operating portfolio is 11.2 MW.

Service and warranty agreements
We warranty our products for a specific period of time against manufacturing or performance defects. Our standard U.S. warranty period is generally fifteen months after shipment or twelve months after acceptance of the product. In addition to the standard product warranty, we have contracted with certain customers to provide services to ensure the power plants meet minimum operating levels for terms up to twenty years. Pricing for service contracts is based upon estimates of future costs, which could be materially different from actual expenses. Also see "Critical Accounting Policies and Estimates" for additional details.

Advanced Technologies contracts (Research and development contracts)
We have contracted with various government agencies and certain companies from private industry to conduct research and development as either a prime contractor or sub-contractor under multi-year, cost-reimbursement and/or cost-share type contracts or cooperative agreements. Cost-share terms require that participating contractors share the total cost of the project based on an agreed upon ratio. In many cases, we are reimbursed only a portion of the costs incurred or to be incurred on the contract. While government research and development contracts may extend for many years, funding is often provided incrementally on a year-by-year basis if contract terms are met and Congress authorizes the funds. As of October 31, 2017, Advanced Technologies contracts backlog totaled $44.3 million, of which $24.5 million is funded. Should funding be delayed or if business initiatives change, we may choose to devote resources to other activities, including internally funded research and development.

Off-Balance Sheet Arrangements
We have no off-balance sheet debt or similar obligations, other than operating leases, which are not classified as debt. We do not guarantee any third-party debt. See Note 18 "Commitments and Contingencies" to our consolidated financial statements for the year ended October 31, 2017 included in this Annual Report for further information.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

The preparation of financial statements and related disclosures requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses and the disclosure of contingent assets and liabilities. Actual results could differ from those estimates. Estimates are used in accounting for, among other things, revenue recognition, contract loss accruals, excess, slow-moving and obsolete inventories, product warranty accruals, loss accruals on service agreements, share-based compensation expense, allowance for doubtful accounts, depreciation and amortization, impairment of goodwill and in-process research and development intangible assets, impairment of long-lived assets (including project assets) and contingencies. Estimates and assumptions are reviewed periodically, and the effects of revisions are reflected in the consolidated financial statements in the period they are determined to be necessary.

Our critical accounting policies are those that are both most important to our financial condition and results of operations and require the most difficult, subjective or complex judgments on the part of management in their application, often as a result of the need to make estimates about the effect of matters that are inherently uncertain. Our accounting policies are set forth below.

Goodwill and Intangible Assets

Goodwill represents the excess of the aggregate purchase price over the fair value of the net assets acquired in a purchase business combination and is reviewed for impairment at least annually. The intangible asset represents indefinite lived in-process research and development for cumulative research and development efforts associated with the development of solid oxide fuel cells (SOFC) stationary power generation and is also reviewed at least annually for impairment.

Accounting Standards Codification Topic 350, "Intangibles—Goodwill and Other," (ASC 350) permits the assessment of qualitative factors to determine whether events and circumstances lead to the conclusion that it is necessary to perform the two-step goodwill impairment test required under ASC 350.

The Company completed its annual impairment analysis of goodwill and in-process research and development assets as of July 31, 2017. The Company had performed a quantitative assessment in the prior year and determined that the estimated fair value of the reporting unit and in-process research and development intangible asset exceeded the respective carrying value and therefore no impairment was recognized as of July 31, 2016. The Company performed a qualitative assessment for fiscal year 2017 and determined that it was more likely than not that there was no impairment of goodwill or the indefinite lived intangible asset.

Impairment of Long-Lived Assets (including Project Assets)

Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset group may not be recoverable. If events or changes in circumstances indicate that the carrying amount of the asset group may not be recoverable, we compare the carrying amount of an asset group to future undiscounted net cash flows, excluding interest costs, expected to be generated by the asset group and their ultimate disposition. If the sum of the undiscounted cash flows is less than the carrying value, the impairment to be recognized is measured by the amount by which the carrying amount of the asset group exceeds the fair value of the asset group. Assets to be disposed of are reported at the lower of the carrying amount or fair value, less costs to sell. No impairment charges were recorded during any of the years presented.

Revenue Recognition

We earn revenue from (i) the sale and installation of fuel cell power plants including site engineering and construction services, (ii) equipment only sales (modules, BOPs, component part kits and spare parts to customers), (iii) performance under long-term service agreements, (iv) the sale of electricity and other value streams under PPAs and utility tariffs from project assets retained by the Company, (v) license fees and royalty income from manufacturing and technology transfer agreements, and (vi) government and customer-sponsored Advanced Technologies projects.

Given the growing revenue related to PPAs and project assets retained by the Company, beginning in the first quarter of 2017, the Company began classifying such revenues in a separate line item called Generation, and prior period amounts have been reclassified. As further clarification, revenue elements are classified as follows:

Product. Includes the sale and installation of fuel cell power plants and site engineering and construction services, and the sale of component part kits, modules, BOPs and spare parts to customers.

Service and license. Includes performance under long-term service agreements for power plants owned by third parties and license fees and royalty income from manufacturing and technology transfer agreements.

Generation. Includes the sale of electricity under PPAs and utility tariffs from project assets retained by the Company. This also includes revenue received from the sale of other value streams from these assets including the sale of heat, steam and renewable energy credits.

Advanced Technologies. Includes revenue from customer-sponsored and government-sponsored Advanced Technologies projects.

Our revenue is generated from customers located throughout the U.S., Europe and Asia and from agencies of the U.S. government.

For customer contracts where the Company is responsible for supply of equipment and site construction (full turn-key construction project) and has adequate cost history and estimating experience, and with respect to which management believes it can reasonably estimate total contract costs, revenue is recognized under the percentage of completion method of accounting. The use of percentage of completion accounting requires significant judgment relative to estimating total contract costs, including assumptions relative to the length of time to complete the contract, the nature and complexity of the work to be performed and total project costs. Our estimates are based upon the professional knowledge and experience of our engineers, project managers and other personnel, who review each long-term contract on a quarterly basis to assess the contract's schedule, performance, technical matters and estimated cost at completion. When changes in estimated contract costs are identified, such revisions may result in current period adjustments to operations applicable to performance in prior periods. Revenues are recognized based on the percentage of the contract value that incurred costs to date bear to estimated total contract costs, after giving effect to estimates of costs to complete based on most recent information. For customer contracts for new or significantly customized products, where management does not believe it has the ability to reasonably estimate total contract costs, revenue is recognized using the completed contract method and therefore all revenue and costs for the contract are deferred and not recognized until installation and acceptance of the power plant is complete. We recognize anticipated contract losses as soon as they become known and estimable. Actual results could vary from initial estimates and estimates will be updated as conditions change.

Revenue from equipment only sales where the Company does not have the obligations associated with overall construction of the project (modules, BOPs, fuel cell kits and spare parts sales) are recognized upon shipment or title transfer under the terms of the customer contract. Terms for certain contracts provide for a transfer of title and risk of loss to our customers at our factory locations and certain key suppliers upon completion of our contractual requirement to produce products and prepare the products for shipment. A shipment in place may occur in the event that the customer is not ready to take delivery of the products on the contractually specified delivery dates.

Revenue from service agreements is generally recorded ratably over the term of the service agreement, as our performance of routine monitoring and maintenance under these service agreements is generally expected to be incurred on a straight-line basis. For service agreements where we expect to have a module exchange at some point during the term (generally service agreements in excess of five years), the costs of performance are not expected to be incurred on a straight-line basis, and therefore, a portion of the initial contract value related to the module exchange(s) is deferred and is recognized upon such module replacement event(s).

The Company receives license fees and royalty income from POSCO Energy as a result of manufacturing and technology transfer agreements entered into in 2007, 2009 and 2012. The Cell Technology Transfer Agreement we entered into on October 31, 2012 provides POSCO Energy with a technology license to manufacture SureSource power plants in South Korea. On March 17, 2017, the Company entered into a Memorandum of Understanding ("2017 MOU") with POSCO Energy to engage in discussions to further amend the above referenced agreements and other agreements between the parties, as well as to engage in discussions relating to entering into new agreements to further the parties' mutual interests.

Pursuant to the 2017 MOU, the Company commenced marketing the entire suite of SureSource solutions in South Korea as well as the broader Asian markets for the supply, recovery and storage of energy.

Under PPAs and project assets retained by the Company, revenue from the sale of electricity and other value streams is recognized as electricity is provided to the customer. These revenues are classified as a component of generation revenues.

Advanced Technologies contracts include both private industry and government entities. Revenue from most government sponsored Advanced Technologies projects is recognized as direct costs are incurred plus allowable overhead less cost share requirements, if any. Revenue from fixed price Advanced Technologies projects is recognized using percentage of completion accounting. Advanced Technologies programs are often multi-year projects or structured in phases with subsequent phases dependent on reaching certain milestones prior to additional funding being authorized. Government contracts are typically structured with cost-reimbursement and/or cost-shared type contracts or cooperative agreements. We are reimbursed for reasonable and allocable costs up to the reimbursement limits set by the contract or cooperative agreement, and on certain contracts we are reimbursed only a portion of the costs incurred.

Sale-Leaseback Accounting

From time to time, the Company, through a wholly-owned subsidiary, enters into sale-leaseback transactions for commissioned projects where we have entered into a PPA with a customer who is both the site host and end user of the power. The Company uses the financing method to account for these transactions.

Under the financing method of accounting for a sale-leaseback, the Company does not recognize as income any of the sale proceeds received from the lessor that contractually constitutes payment to acquire the assets subject to these arrangements. Instead, the sale proceeds received are accounted for as financing obligations and leaseback payments made by the Company are allocated between interest expense and a reduction to the financing obligation. Interest on the financing obligation is calculated using the Company's incremental borrowing rate at the inception of the arrangement on the outstanding financing obligation. Judgment is required to determine the appropriate borrowing rate for the arrangement and in determining any gain or loss on the transaction that would be recorded at the end of the lease term. While we have received financing for the full value of the related power plant assets, we have not recognized revenue on the sale leaseback transaction. Instead, revenue is recognized through the sale of electricity and energy credits which are generated as energy is produced.

Inventories

Inventories consist principally of raw materials and work-in-process. Inventories are reviewed to determine if valuation adjustments are required for obsolescence (excess, obsolete, and slow-moving inventory). This review includes analyzing inventory levels of individual parts considering the current design of our products and production requirements as well as the expected inventory needs for maintenance on installed power plants.

Warranty and Service Expense Recognition

We warranty our products for a specific period of time against manufacturing or performance defects. Our U.S. warranty is limited to a term generally 15 months after shipment or 12 months after acceptance of our products. We accrue for estimated future warranty costs based on historical experience. We also provide for a specific accrual if there is a known issue requiring repair during the warranty period. Estimates used to record warranty accruals are updated as we gain further operating experience. As of October 31, 2017 and October 31, 2016, the warranty accrual, which is classified in accrued liabilities on the consolidated balance sheet, totaled $0.3 million and $0.5 million, respectively.

In addition to the standard product warranty, we have entered into service agreements with certain customers to provide monitoring, maintenance and repair services for fuel cell power plants. Under the terms of these service agreements, the power plant must meet a minimum operating output during the term. If minimum output falls below the contract requirement, we may be subject to performance penalties or may be required to repair and/or replace the customer's fuel cell module. The Company has accrued for performance guarantees of $2.2 million and $3.3 million as of October 31, 2017 and October 31, 2016, respectively.

The Company provides for loss accruals on all service agreements when the estimated cost of future module exchanges and maintenance and monitoring activities exceed the remaining contract value. Estimates for future costs on service agreements are determined by a number of factors including the estimated remaining life of the module, used replacement modules available, our limit of liability on service agreements and future operating plans for the power plant. Our estimates are performed on a contract by contract basis and include cost assumptions based on what we anticipate the service requirements will be to fulfill obligations for each contract. As of October 31, 2017 and October 31, 2016, our accruals on service agreement contracts totaled $1.1 million and $2.7 million, respectively.

At the end of our service agreements, customers are expected to either renew the service agreement or, based on the Company's rights to title for the module, the module will be returned to the Company as the plant is no longer being monitored or having routine service performed. As of October 31, 2017, the related residual value asset was $1.0 million. As of October 31, 2016, the Company did not have a residual value asset recorded.

MANAGEMENT'S ANNUAL REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

We, as members of management of FuelCell Energy, Inc., and its subsidiaries (the "Company"), are responsible for establishing and maintaining adequate internal control over financial reporting. The Company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles in the United States of America. Internal control over financial reporting includes those policies and procedures that:

- Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the Company;
- Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles in the United States of America, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and
- 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.

Under the supervision and with the participation of management, including our principal executive and financial officers, we assessed the Company's internal control over financial reporting as of October 31, 2017, based on criteria for effective internal control over financial reporting established in the *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on this assessment, we have concluded that the Company maintained effective internal control over financial reporting as of October 31, 2017 based on the specified criteria.

Arthur A. Bottone
President and Chief Executive Officer

Michael Bishop
Senior Vice President, Chief Financial Officer and Treasurer

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Stockholders
FuelCell Energy, Inc.:

We have audited the accompanying consolidated balance sheets of FuelCell Energy, Inc. and subsidiaries as of October 31, 2017 and 2016, and the related consolidated statements of operations and comprehensive loss, changes in equity, and cash flows for each of the years in the three year period ended October 31, 2017. We also have audited FuelCell Energy, Inc.'s internal control over financial reporting as of October 31, 2017, based on criteria established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). FuelCell Energy, Inc.'s management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on these consolidated financial statements and an opinion on the Company's internal control over financial reporting 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 audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the consolidated financial statements included 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, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

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

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

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of FuelCell Energy, Inc. and subsidiaries as of October 31, 2017 and 2016, and the results of their operations and their cash flows for each of the years in the three-year period ended October 31, 2017, in conformity with U.S. generally accepted accounting principles. Also in our opinion, FuelCell Energy, Inc. maintained, in all material respects, effective internal control over financial reporting as of October 31, 2017, based on criteria established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

Hartford, Connecticut

January 11, 2018

CONSOLIDATED BALANCE SHEETS

(Amounts in thousands, except share and per share amounts)

	October 31, 2017	2016
ASSETS		
Current assets:		
Cash and cash equivalents	**$ 49,294**	$ 84,187
Restricted cash and cash equivalents—short-term	**4,628**	9,437
Accounts receivable, net of allowance for doubtful accounts of $79 and $193 as of October 31, 2017 and 2016, respectively	**68,521**	24,593
Inventories	**74,496**	73,806
Other current assets	**6,571**	10,181
Total current assets	**203,510**	202,204
Restricted cash and cash equivalents—long-term	**33,526**	24,692
Project assets noncurrent	**73,001**	47,111
Property, plant and equipment, net	**43,565**	36,640
Goodwill	**4,075**	4,075
Intangible assets	**9,592**	9,592
Other assets, net	**16,517**	16,415
Total assets	**$ 383,786**	$ 340,729
LIABILITIES AND EQUITY		
Current liabilities:		
Current portion of long-term debt	**$ 28,281**	$ 5,010
Accounts payable	**42,616**	18,475
Accrued liabilities	**18,381**	20,900
Deferred revenue	**7,964**	6,811
Preferred stock obligation of subsidiary	**836**	802
Total current liabilities	**98,078**	51,998
Long-term deferred revenue	**18,915**	20,974
Long-term preferred stock obligation of subsidiary	**14,221**	12,649
Long-term debt and other liabilities	**63,759**	80,855
Total liabilities	**194,973**	166,476
Redeemable preferred stock (liquidation preference of $64,020 as of October 31, 2017 and October 31, 2016)	**59,857**	59,857
Redeemable Series C preferred stock (liquidation preference of $33,300 as of October 31, 2017)	**27,700**	—
Total equity:		
Stockholders' equity		
Common stock ($0.0001 par value; 125,000,000 and 75,000,000 shares authorized as of October 31, 2017 and 2016, respectively; 69,492,816 and 35,174,424 shares issued and outstanding as of October 31, 2017 and 2016, respectively)	**7**	4
Additional paid-in capital	**1,045,197**	1,004,566
Accumulated deficit	**(943,533)**	(889,630)
Accumulated other comprehensive loss	**(415)**	(544)
Treasury stock, Common, at cost (88,861 and 21,527 shares as of October 31, 2017 and 2016, respectively)	**(280)**	(179)
Deferred compensation	**280**	179
Total stockholders' equity	**101,256**	114,396
Total liabilities and stockholders' equity	**$ 383,786**	$ 340,729

See accompanying notes to consolidated financial statements.

CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS

(Amounts in thousands, except share and per share amounts)

	For the Years Ended October 31,		
	2017	2016	2015
Revenues:			
Product sales (including $0.4 million, $43.6 million and $100.5 million of related party revenue)	**$ 43,047**	$ 62,563	$ 128,595
Service agreements and license revenues (including $5.4 million, $8.5 million and $11.4 million of related party revenue)	**27,050**	31,491	21,012
Generation revenues	**7,233**	1,267	—
Advanced Technologies contract revenue (including $0, $0 and $0.6 million of related party revenue)	**18,336**	12,931	13,470
Total revenues	**95,666**	108,252	163,077
Costs of revenues:			
Cost of product sales	**49,843**	63,474	118,530
Cost of service agreements and license revenues	**25,285**	32,592	18,301
Cost of generation revenues	**5,076**	664	—
Cost of Advanced Technologies contract revenues	**12,728**	11,879	13,470
Total cost of revenues	**92,932**	108,609	150,301
Gross profit (loss)	**2,734**	(357)	12,776
Operating expenses:			
Administrative and selling expenses	**25,916**	25,150	24,226
Research and development expenses	**20,398**	20,846	17,442
Restructuring expense	**1,355**	—	—
Total operating expenses	**47,669**	45,996	41,668
Loss from operations	**(44,935)**	(46,353)	(28,892)
Interest expense	**(9,171)**	(4,958)	(2,960)
Other income, net	**247**	622	2,442
Loss before provision for income taxes	**(53,859)**	(50,689)	(29,410)
Provision for income taxes	**(44)**	(519)	(274)
Net loss	**(53,903)**	(51,208)	(29,684)
Net loss attributable to noncontrolling interest	**—**	251	325
Net loss attributable to FuelCell Energy, Inc.	**(53,903)**	(50,957)	(29,359)
Preferred stock dividends	**(3,200)**	(3,200)	(3,200)
Net loss to common stockholders	**$ (57,103)**	$ (54,157)	$ (32,559)
Net loss to common stockholders per share			
Basic	**$ (1.14)**	$ (1.82)	$ (1.33)
Diluted	**$ (1.14)**	$ (1.82)	$ (1.33)
Weighted average shares outstanding			
Basic	**49,914,904**	29,773,700	24,513,731
Diluted	**49,914,904**	29,773,700	24,513,731

	For the Years Ended October 31,		
	2017	2016	2015
Net loss	**$ (53,903)**	$ (51,208)	$ (29,684)
Other comprehensive loss:			
Foreign currency translation adjustments	**129**	(35)	(350)
Comprehensive loss	**$ (53,774)**	$ (51,243)	$ (30,034)

See accompanying notes to consolidated financial statements.

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

For the Years Ended October 31, 2017, 2016 and 2015
(Amounts in thousands, except share and per share amounts)

	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Treasury Stock	Deferred Compensation	Noncontrolling Interest in Subsidiaries	Total Equity
Balance, October 31, 2014	23,930,000	$ 2	$ 909,458	$ (809,314)	$ (159)	$ (95)	$ 95	$ (1,538)	$ 98,449
Sale of common stock	1,845,166	1	26,920	—	—	—	—	—	26,921
Share based compensation	—	—	3,157	—	—	—	—	—	3,157
Taxes paid upon vesting of restricted stock awards, net of stock issued under benefit plans	191,593	—	(539)	—	—	—	—	—	(539)
Reclassification of noncontrolling interest due to liquidation of subsidiary	—	—	(1,308)	—	—	—	—	1,308	—
Noncontrolling interest in subsidiaries	—	—	—	—	—	—	—	(325)	(325)
Preferred dividends — Series B	—	—	(3,200)	—	—	—	—	—	(3,200)
Adjustment for deferred compensation	(2,049)	—	—	—	—	17	(17)	—	—
Effect of foreign currency translation	—	—	—	—	(350)	—	—	—	(350)
Net loss attributable to FuelCell Energy, Inc.	—	—	—	(29,359)	—	—	—	—	(29,359)
Balance, October 31, 2015	25,964,710	$ 3	$ 934,488	$ (838,673)	$ (509)	$ (78)	$ 78	$ (555)	$ 94,754
Sale of common stock, prepaid warrants and warrants, public offering	1,474,000	—	34,736	—	—	—	—	—	34,736
Exercise of prepaid warrants	1,100,000	—	—	—	—	—	—	—	—
Sale of common stock	6,023,372	1	36,055	—	—	—	—	—	36,056
Common stock issued, non-employee compensation	24,379	—	157	—	—	—	—	—	157
Share based compensation	—	—	3,425	—	—	—	—	—	3,425
Taxes paid upon vesting of restricted stock awards, net of stock issued under benefit plans	587,963	—	(286)	—	—	—	—	—	(286)
Noncontrolling interest in subsidiaries	—	—	—	—	—	—	—	(251)	(251)
Purchase of noncontrolling shares of subsidiary	—	—	(809)	—	—	—	—	806	(3)
Preferred dividends—Series B	—	—	(3,200)	—	—	—	—	—	(3,200)
Adjustment for deferred compensation	—	—	—	—	—	(101)	101	—	—
Effect of foreign currency translation	—	—	—	—	(35)	—	—	—	(35)
Net loss attributable to FuelCell Energy, Inc.	—	—	—	(50,957)	—	—	—	—	(50,957)
Balance, October 31, 2016	35,174,424	$ 4	$ 1,004,566	$ (889,630)	$(544)	$(179)	$ 179	$ —	$114,396
Sale of common stock, warrants and public offering	**12,000,000**	**1**	**13,883**	**—**	**—**	**—**	**—**	**—**	**13,884**
Exercise of prepaid warrants and warrants	**13,660,926**	**1**	**12,721**	**—**	**—**	**—**	**—**	**—**	**12,722**
Sale of common stock	**7,245,430**	**1**	**12,430**	**—**	**—**	**—**	**—**	**—**	**12,431**
Common stock issued, non-employee compensation	**86,001**	**—**	**129**	**—**	**—**	**—**	**—**	**—**	**129**
Share based compensation	**—**	**—**	**4,585**	**—**	**—**	**—**	**—**	**—**	**4,585**
Taxes paid upon vesting of restricted stock awards, net of stock issued under benefit plans	**1,284,673**	**—**	**(84)**	**—**	**—**	**—**	**—**	**—**	**(84)**
Series C convertible preferred stock conversions	**108,696**	**—**	**167**	**—**	**—**	**—**	**—**	**—**	**167**
Preferred dividends — Series B	**—**	**—**	**(3,200)**	**—**	**—**	**—**	**—**	**—**	**(3,200)**
Effect of foreign currency translation	**—**	**—**	**—**	**—**	**129**	**—**	**—**	**—**	**129**
Adjustment for deferred compensation	**(67,334)**	**—**	**—**	**—**	**—**	**(101)**	**101**	**—**	**—**
Net loss attributable to FuelCell Energy, Inc.	**—**	**—**	**—**	**(53,903)**	**—**	**—**	**—**	**—**	**(53,903)**
Balance, October 31, 2017	**69,492,816**	**$ 7**	**$1,045,197**	**$(943,533)**	**$(415)**	**$(280)**	**$ 280**	**$ —**	**$101,256**

See accompanying notes to consolidated financial statements.

CONSOLIDATED STATEMENTS OF CASH FLOWS

(Amounts in thousands, except share and per share amounts)

	For the Years Ended October 31,		
	2017	2016	2015
Cash flows from operating activities:			
Net loss	**$ (53,903)**	$ (51,208)	$ (29,684)
Adjustments to reconcile net loss to net cash used in operating activities:			
Share-based compensation	**4,585**	3,425	3,157
Loss (gain) from change in fair value of embedded derivatives	**91**	(14)	(23)
Depreciation	**8,518**	4,949	4,099
Amortization of non-cash interest expense	**6,256**	3,207	1,830
Foreign currency transaction losses (gains)	**581**	(324)	(2,075)
Other non-cash transactions	**165**	451	412
Decrease (increase) in operating assets:			
Accounts receivable	**(51,276)**	30,235	3,173
Inventories	**(7,972)**	(8,052)	(10,100)
Project assets	**—**	—	(11,398)
Other assets	**(714)**	(837)	1,022
(Decrease) increase in operating liabilities:			
Accounts payable	**25,020**	(3,019)	(7,224)
Accrued liabilities	**(2,290)**	1,240	6,435
Deferred revenue	**(906)**	(26,648)	(3,898)
Net cash used in operating activities	**(71,845)**	(46,595)	(44,274)
Cash flows from investing activities:			
Capital expenditures	**(12,351)**	(7,726)	(6,930)
Expenditures for long-term project assets	**(19,726)**	(33,726)	—
Cash acquired from acquisition	**633**	—	—
Net cash used in investing activities	**(31,444)**	(41,452)	(6,930)
Cash flows from financing activities:			
Repayment of debt	**(8,571)**	(30,452)	(1,535)
Proceeds from debt	**17,877**	85,935	6,763
Payments of deferred finance costs	**(206)**	(1,758)	—
Purchase of non-controlling shares of subsidiary	**—**	(3)	—
Net proceeds from issuance of Series C preferred shares	**27,866**	—	—
Proceeds from common stock issuance and warrants exercises, net of registration fees	**39,396**	70,929	27,060
Payment of preferred dividends and return of capital	**(4,156)**	(4,170)	(4,202)
Common stock issued for stock plans and related expenses	**86**	177	133
Net cash provided by financing activities	**72,292**	120,658	28,219
Effects on cash from changes in foreign currency rates	**129**	(35)	(108)
Net (decrease) increase in cash, cash equivalents, and restricted cash	**(30,868)**	32,576	(23,093)
Cash, cash equivalents, and restricted cash—beginning of year	**118,316**	85,740	108,833
Cash, cash equivalents, and restricted cash—end of year	**$ 87,448**	$118,316	$ 85,740

See accompanying notes to consolidated financial statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

For the years ended October 31, 2017, 2016 and 2015

Note 1. Nature of Business, Basis of Presentation and Significant Accounting Policies

Nature of Business and Basis of Presentation

FuelCell Energy, Inc. together with its subsidiaries (the "Company", "FuelCell Energy", "we", "us", or "our") is a leading integrated fuel cell company with a growing global presence. We design, manufacture, install, operate and service ultra-clean, efficient and reliable stationary fuel cell power plants. Our SureSource power plants generate electricity and usable high quality heat for commercial, industrial, government and utility customers. We have commercialized our stationary carbonate fuel cells and are also pursuing the complementary development of planar solid oxide fuel cells and other fuel cell technologies. Our operations are funded primarily through sales of equity instruments to strategic investors or in public markets, corporate and project level debt financing and local or state government loans or grants. In order to produce positive cash flow from operations, we need to be successful at increasing annual order volume and production and in our cost reduction efforts.

The consolidated financial statements include our accounts and those of our wholly-owned subsidiaries. All intercompany accounts and transactions have been eliminated. In October 2016, the Company purchased the noncontrolling interest in FuelCell Energy Services, GmbH.

Certain reclassifications have been made to conform to the fiscal year 2017 presentation. The Company has adopted Accounting Standards Update ("ASU") 2015-03, Interest—Imputation of Interest effective January 31, 2017, and retrospective application is required which resulted in a reclassification in our Consolidated Balance Sheet as of October 31, 2016 of $0.3 million of debt issuance costs from Current assets to be a direct deduction from Current portion of long-term debt and a reclassification of $1.1 million of debt issuance costs from Other assets, net to be a direct deduction from Long-term debt and other liabilities. The Company has also included an additional line item, "Generation," in the "Revenues" and "Cost of revenues" sections of the Statements of Operations to include revenues generated from the Company's project assets (refer to the Revenue Recognition section below for more information). The prior year amounts associated with power purchase agreements have been reclassified to the new "Generation" line item.

Significant Accounting Policies

Cash and Cash Equivalents and Restricted Cash

All cash equivalents consist of investments in money market funds with original maturities of three months or less at date of acquisition. We place our temporary cash investments with high credit quality financial institutions. As of October 31, 2017, $38.2 million of cash and cash equivalents was pledged as collateral for letters of credit and for certain banking requirements and contractual commitments, compared to $34.1 million pledged as of October 31, 2016. The restricted cash balance includes $15.0 million as of October 31, 2017 and 2016, which has been placed in a Grantor's Trust account to secure certain obligations of the Company under a 15-year service agreement for the Bridgeport Fuel Cell Park project and has been classified as Restricted cash and cash equivalents—long-term. As of October 31, 2017 and 2016, we had outstanding letters of credit of $2.9 million and $7.9 million, respectively, which expire on various dates through April 2019. Cash and cash equivalents as of October 31, 2017 and 2016 also included $3.0 million and $5.3 million, respectively, of cash advanced by POSCO Energy for raw material purchases made on its behalf by FuelCell Energy. Under an inventory procurement agreement that ensures coordinated purchasing from the global supply chain, FuelCell Energy provides procurement services for POSCO Energy and receives compensation for services rendered. While POSCO Energy makes payments to us in advance of supplier requirements, quarterly receipts may not match disbursements.

Inventories and Advance Payments to Vendors

Inventories consist principally of raw materials and work-in-process. Cost is determined using the first-in, first-out cost method. In certain circumstances, we will make advance payments to vendors for future inventory deliveries. These advance payments are recorded as Other current assets on the consolidated balance sheets.

Inventories are reviewed to determine if valuation allowances are required for obsolescence (excess and obsolete). This review includes analyzing inventory levels of individual parts considering the current design of our products and production requirements as well as the expected inventory requirements for maintenance on installed power plants.

Project Assets

Project assets consist of capitalized costs for fuel cell projects in various stages of development, whereby we have entered into power purchase agreements prior to entering into a definitive sales or long-term financing agreement for the project, or of capitalized costs for fuel cell projects which are the subject of a sale-leaseback transaction with PNC

or projects in development for which we expect to secure long-term contracts. These projects are actively being marketed and intended to be sold, although we may choose to retain ownership of one or more of these projects after they become operational if we determine it would be of economic and strategic benefit. Additionally, Project assets include capitalized costs for fuel cell projects which are the subject of a sale-leaseback transaction (see "Sale-Leaseback Facility" below). Project asset costs include costs for developing and constructing a complete turn-key fuel cell project. Development costs can include legal, consulting, permitting, interconnect, and other similar costs. Once we enter into a definitive sales agreement we expense project assets to cost of sales after the respective project asset is sold to a customer and all revenue recognition criteria have been met. We classify project assets as current if the expected commercial operation date is less than twelve months and long-term if it is greater than twelve months from the balance sheet date. There were no short-term project assets as of October 31, 2017. We review project assets for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable.

Property, Plant and Equipment
Property, plant and equipment are stated at cost, less accumulated depreciation provided on the straight-line method over the estimated useful lives of the respective assets. Leasehold improvements are amortized on the straight-line method over the shorter of the estimated useful lives of the assets or the term of the lease. When property is sold or otherwise disposed of, the cost and related accumulated depreciation are removed from the accounts and any resulting gain or loss is reflected in operations for the period.

Intellectual Property
Intellectual property, including internally generated patents and know-how, is carried at no value.

Goodwill and Intangible Assets
Goodwill represents the excess of the aggregate purchase price over the fair value of the net assets acquired in a purchase business combination and is reviewed for impairment at least annually.

Accounting Standards Codification Topic 350, "Intangibles—Goodwill and Other," ("ASC 350") permits the assessment of qualitative factors to determine whether events and circumstances lead to the conclusion that it is necessary to perform the two-step goodwill impairment test required under ASC 350.

The Company completed its annual impairment analysis of goodwill and the in-process research & development assets (IPR&D) as of July 31, 2017. The goodwill and IPR&D asset are both held by the Company's Versa reporting unit. Goodwill and the IPR&D asset are also reviewed for possible impairment whenever changes in conditions indicate that the fair value of a reporting unit or IPR&D asset are more likely than not below its carrying value. No impairment charges were recorded during any of the years presented.

Impairment of Long-Lived Assets (including Project Assets)
Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset group may not be recoverable. If events or changes in circumstances indicate that the carrying amount of the asset group may not be recoverable, we compare the carrying amount of an asset group to future undiscounted net cash flows, excluding interest costs, expected to be generated by the asset group and their ultimate disposition. If the sum of the undiscounted cash flows is less than the carrying value, the impairment to be recognized is measured by the amount by which the carrying amount of the asset group exceeds the fair value of the asset group. Assets to be disposed of are reported at the lower of the carrying amount or fair value, less costs to sell. No impairment charges were recorded during any of the years presented.

Revenue Recognition
We earn revenue from (i) the sale and installation of fuel cell power plants including site engineering and construction services, (ii) equipment only sales (modules, balance of plants ("BOP"), component part kits and spare parts to customers), (iii) performance under long-term service agreements, (iv) the sale of electricity and other value streams under power purchase agreements ("PPAs") and utility tariffs from project assets retained by the Company, (v) license fees and royalty income from manufacturing and technology transfer agreements, and (vi) government and customer-sponsored Advanced Technologies projects.

Given the growing revenue related to PPAs and project assets retained by the Company, beginning in the first quarter of 2017, the Company began classifying such revenues in a separate line item called Generation, and prior period amounts have been reclassified. As further clarification, revenue elements are classified as follows:

Product. Includes the sale and installation of fuel cell power plants and site engineering and construction services, and, the sale of component part kits, modules, BOPs and spare parts to customers.

Service and license. Includes performance under long-term service agreements for power plants owned by third parties and license fees and royalty income from manufacturing and technology transfer agreements.

Generation. Includes the sale of electricity under PPAs and utility tariffs from project assets retained by the Company. This also includes revenue received from the sale of other value streams from these assets including the sale of heat, steam and renewable energy credits.

Advanced Technologies. Includes revenue from customer-sponsored and government-sponsored Advanced Technologies projects.

Our revenue is generated from customers located throughout the U.S., Europe and Asia and from agencies of the U.S. government.

For customer contracts where the Company is responsible for supply of equipment and site construction (full turn-key construction project) and has adequate cost history and estimating experience, and with respect to which management believes it can reasonably estimate total contract costs, revenue is recognized under the percentage of completion method of accounting. The use of percentage of completion accounting requires significant judgment relative to estimating total contract costs, including assumptions relative to the length of time to complete the contract, the nature and complexity of the work to be performed and total project costs. Our estimates are based upon the professional knowledge and experience of our engineers, project managers and other personnel, who review each long-term contract on a quarterly basis to assess the contract's schedule, performance, technical matters and estimated cost at completion. When changes in estimated contract costs are identified, such revisions may result in current period adjustments to operations applicable to performance in prior periods. Revenues are recognized based on the percentage of the contract value that incurred costs to date bear to estimated total contract costs, after giving effect to estimates of costs to complete based on most recent information. For customer contracts for new or significantly customized products, where management does not believe it has the ability to reasonably estimate total contract costs, revenue is recognized using the completed contract method and therefore all revenue and costs for the contract are deferred and not recognized until installation and acceptance of the power plant is complete. We recognize anticipated contract losses as soon as they become known and estimable. Actual results could vary from initial estimates and estimates will be updated as conditions change.

Revenue from equipment only sales where the Company does not have the obligations associated with overall construction of the project (modules, BOPs, fuel cell kits and spare parts sales) is recognized upon shipment or title transfer under the terms of the customer contract. Terms for certain contracts provide for a transfer of title and risk of loss to our customers at our factory locations and certain key suppliers upon completion of our contractual requirement to produce products and prepare the products for shipment. A shipment in place may occur in the event that the customer is not ready to take delivery of the products on the contractually specified delivery dates.

In June 2017, an EPC contractor, Hanyang Industrial Development Co., Ltd ("HYD"), was awarded a 20 MW project by a utility in South Korea (Korea Southern Power Company) utilizing the Company's SureSource technology. On August 29, 2017, the Company entered into a contract with HYD pursuant to which the Company will provide equipment to HYD for this 20 MW fuel cell project as well as ancillary services including plant commissioning. Construction began in fall 2017 and the installation is expected to be operational in the summer of 2018. The value of the contract to the Company is in excess of $60 million. The Company assessed the contract using the multi-element revenue recognition guidance and determined that each of the modules and BOPs as well as the ancillary services each represent separate deliverables with stand-alone value. The full contract value was allocated to each element based on estimated selling prices using cost plus expected margins and revenue recognition will occur upon completion of shipping and customer acceptance of each piece of equipment and the proportional performance method is being used for ancillary services as provided. Approximately $39 million of revenue was recognized in the fourth quarter of fiscal 2017 related to this contract. The contract includes performance penalties and partial termination rights if certain delivery dates are not met or if individual equipment deliverables do not pass final acceptance tests after three tries due to issues solely attributable to the Company.

Revenue from service agreements is generally recorded ratably over the term of the service agreement, as our performance of routine monitoring and maintenance under these service agreements is generally expected to be incurred on a straight-line basis. For service agreements where we expect to have module exchanges at some point during the term (generally service agreements in excess of five years), the costs of performance are not expected to be incurred on a straight-line basis, and therefore, a portion of the initial contract value related to the module exchange(s) is deferred and is recognized upon such module replacement event(s).

We generally recognize license fees and other revenue over the term of the associated agreement. License fees and royalty income have been included within revenues on the consolidated statement of operations. The Company receives license fees and royalty income from POSCO Energy as a result of manufacturing and technology transfer agreements entered into in 2007, 2009 and 2012. The Cell Technology Transfer Agreement we entered into on October 31, 2012 provides POSCO Energy with the technology rights to manufacture SureSource power plants in South Korea. On March 17, 2017, the Company entered into a Memorandum of Understanding ("2017 MOU") with POSCO Energy to permit us to directly develop the Asian fuel cell business, including the right for us to sell SureSource solutions in South Korea and the broader Asian market. We and POSCO Energy also agreed to undertake to amend certain technology transfer and other agreements by a target date of September 30, 2017 to reflect our new relationship. Although these agreements have not yet been amended, we continue to engage in discussions with POSCO Energy regarding our relationship and the direction of the fuel cell business in the South Korean and Asian markets.

Pursuant to the 2017 MOU, the Company commenced marketing the entire suite of SureSource solutions in South Korea as well as the broader Asian markets for the supply, recovery and storage of energy.

Under PPAs and project assets retained by the Company, revenue from the sale of electricity and other value streams is recognized as electricity is provided to the customer. These revenues are classified as a component of generation revenues.

Advanced Technologies contracts include both private industry and government entities. Revenue from most government sponsored Advanced Technologies projects is recognized as direct costs are incurred plus allowable overhead less cost share requirements, if any. Revenue from fixed price Advanced Technologies projects is recognized using percentage of completion accounting. Advanced Technologies programs are often multi-year projects or structured in phases with subsequent phases dependent on reaching certain milestones prior to additional funding being authorized. Government contracts are typically structured with cost-reimbursement and/or cost-shared type contracts or cooperative agreements. We are reimbursed for reasonable and allocable costs up to the reimbursement limits set by the contract or cooperative agreement, and on certain contracts we are reimbursed only a portion of the costs incurred.

Sale-Leaseback Accounting

From time to time, the Company, through a wholly-owned subsidiary, enters into sale-leaseback transactions for commissioned projects where we have entered into a PPA with a customer who is both the site host and end user of the power (the "Customer"). Due to the Company's continuing involvement with the project and because the projects are considered integral equipment, sale accounting is precluded by ASC 840-40. Accordingly, the Company uses the financing method to account for these transactions.

Under the financing method of accounting for a sale-leaseback, the Company does not recognize as income any of the sale proceeds received from the lessor that contractually constitutes payment to acquire the assets subject to these arrangements. Instead, the sale proceeds received are accounted for as financing obligations and leaseback payments made by the Company are allocated between interest expense and a reduction to the financing obligation. Interest on the financing obligation is calculated using the Company's incremental borrowing rate at the inception of the arrangement on the outstanding financing obligation. Judgment is required to determine the appropriate borrowing rate for the arrangement and in determining any gain or loss on the transaction that would be recorded at the end of the lease term. While we receive financing for the full value of the related power plant asset, we have not recognized revenue on the sale leaseback transaction. Instead, revenue is recognized through the sale of electricity and energy credits which are generated as energy is produced.

Warranty and Service Expense Recognition

We warranty our products for a specific period of time against manufacturing or performance defects. Our U.S. warranty is limited to a term generally 15 months after shipment or 12 months after acceptance of our products. We accrue for estimated future warranty costs based on historical experience. We also provide for a specific accrual if there is a known issue requiring repair during the warranty period. Estimates used to record warranty accruals are updated as we gain further operating experience. As of October 31, 2017 and 2016, the warranty accrual, which is classified in accrued liabilities on the consolidated balance sheet, totaled $0.3 million and $0.5 million, respectively.

In addition to the standard product warranty, we have entered into service agreements with certain customers to provide monitoring, maintenance and repair services for fuel cell power plants. Under the terms of these service agreements, the power plant must meet a minimum operating output during the term. If minimum output falls below the contract requirement, we may be subject to performance penalties or may be required to repair and/or replace the customer's fuel cell module. The Company has accrued for performance guarantees of $2.2 million and $3.3 million as of October 31, 2017 and 2016, respectively.

The Company provides for loss accruals for all service agreements when the estimated cost of future module exchanges and maintenance and monitoring activities exceeds the remaining contract value. Estimates for future costs on service agreements are determined by a number of factors including the estimated remaining life of the module, used replacement modules available, our limit of liability on service agreements and future operating plans for the power plant. Our estimates are performed on a contract by contract basis and include cost assumptions based on what we anticipate the service requirements will be to fulfill obligations for each contract. As of October 31, 2017, our loss accruals on service agreements totaled $1.1 million compared to $2.7 million as of October 31, 2016.

At the end of our service agreements, customers are expected to either renew the service agreement or based on the Company's rights to title of the module, the module will be returned to the Company as the plant is no longer being monitored or having routine service performed. As of October 31, 2016, the Company did not have an asset related to the residual value of replacement modules in power plants under service agreements compared to $1.0 million as of October 31, 2017.

License Agreements and Royalty Income

The Cell Technology Transfer and License Agreement dated October 31, 2012 by and between the Company and POSCO Energy, Co., (the "CTTA") provides POSCO Energy with the technology to manufacture SureSource power plants in South Korea and the exclusive market access to sell power plants throughout Asia. In connection with the CTTA, fees totaling $18.0 million were paid between fiscal year 2012 and 2015 and are being amortized over the term of the CTTA.

The Company also receives royalties from POSCO Energy under the 2007 Technology Transfer, Distribution and Licensing Agreement ("TTA") and the 2009 Stack Technology Transfer and License Agreement ("STTA") at the rate of 3.0% of POSCO Energy net sales. Additionally, under the STTA certain license fee income aggregating $7.0 million is being recognized ratably over fifteen years beginning November 1, 2012. Under the terms of the TTA, POSCO Energy manufactures BOP in South Korea using its design, procurement and manufacturing expertise. The STTA allows POSCO Energy to produce fuel cell modules which will be combined with BOP manufactured in South Korea to complete electricity-producing fuel cell power plants for sale in South Korea.

The Company has a Master Service Agreement with POSCO Energy, whereby POSCO Energy has more responsibility for servicing installations in Asia that utilize power plants manufactured by POSCO Energy. The Company performs engineering and support services for each unit in the installed fleet and receives quarterly fees as well as a 3.0% royalty on each fuel cell module replacement under service agreements that were built by POSCO Energy and installed at any plant in Asia.

In April 2014, the Company entered into an Integrated Global Supply Chain Plan Agreement ("IGSCP") with POSCO Energy. FuelCell Energy provides procurement services for POSCO Energy and receives fixed compensation for services rendered.

The Company recorded revenue of $2.7 million, $6.2 million and $3.9 million for the years ended October 31, 2017, 2016 and 2015, respectively, relating to the above agreements.

Deferred Revenue and Customer Deposits

We receive payments from customers upon the acceptance of a purchase order and when contractual milestones are reached. These payments may be deferred based on the nature of the payment and status of the specific project. Deferred revenue is recognized as revenue in accordance with our revenue recognition policies summarized above.

Research and Development Costs

We perform both customer-sponsored research and development projects based on contractual agreement with customers and company-sponsored research and development projects. Costs incurred for customer-sponsored projects include manufacturing and engineering labor, applicable overhead expenses, materials to build and test prototype units and other costs associated with customer-sponsored research and development contracts. These costs are recorded as Advanced Technologies contract revenues in the consolidated statements of operations.

Costs incurred for company-sponsored research and development projects consist primarily of labor, overhead, materials to build and test prototype units and consulting fees. These costs are recorded as research and development expenses in the consolidated statements of operations.

Concentrations

We contract with a concentrated number of customers for the sale of our products, for service agreement contracts and for Advanced Technologies contracts. For the years ended October 31, 2017, 2016 and 2015, our top customers accounted for 78%, 75% and 90%, respectively, of our total annual consolidated revenue.

The percent of consolidated revenues from each customer for the years ended October 31, 2017, 2016 and 2015, respectively, are presented below.

	2017	2016	2015
Hanyang Industrial Development Co., LTD	**40%**	—%	—%
Dominion Bridgeport Fuel Cell, LLC	**11%**	6%	3%
Department of Energy	**9%**	8%	5%
ExxonMobil	**9%**	3%	1%
POSCO Energy	**6%**	48%	67%
Avangrid Holdings (through its various subsidiaries)	**3%**	10%	14%
Total	**78%**	75%	90%

Derivatives

We do not use derivatives for speculative purposes and through fiscal year end 2017, have not used derivatives for hedging or trading purposes. Our derivative instruments consist of embedded derivatives in our Series 1 Preferred Shares. We account for these derivatives using the fair-value method with changes in fair value recorded to operations. Refer to Note 13 for additional information.

Use of Estimates

The preparation of financial statements and related disclosures in conformity with accounting principles generally accepted in the U.S. requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses and the disclosure of contingent assets and liabilities. Estimates are used in accounting for, among other things, revenue recognition, excess and obsolete inventories, product warranty costs, accruals for service agreements, allowance for uncollectible receivables, depreciation and amortization, impairment of goodwill, indefinite-lived intangible assets and long-lived assets, income taxes, and contingencies. Estimates and assumptions are reviewed periodically, and the effects of revisions are reflected in the consolidated financial statements in the period they are determined to be necessary. Due to the inherent uncertainty involved in making estimates, actual results in future periods may differ from those estimates.

Foreign Currency Translation

The translation of the financial statements of FuelCell Korea Ltd's, FCES GmbH's and Versa Power Systems Ltd's. results in translation gains or losses, which are recorded in accumulated other comprehensive loss within stockholders' equity.

Our Canadian subsidiary, FCE Ltd., is financially and operationally integrated and the functional currency is the U.S. dollar. We are subject to foreign currency transaction gains and losses as certain transactions are denominated in foreign currencies. We recognized (losses) gains of $(0.7) million, $0.3 million and $1.7 million for the years ended October 31, 2017, 2016 and 2015, respectively. These amounts have been classified as other income, net in the consolidated statements of operations.

Recently Adopted Accounting Guidance

In August 2014, the Financial Accounting Standards Board ' (the "FASB") issued Accounting Standards Update ("ASU") 2014-15, "Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern," which requires an entity to evaluate at each reporting period whether there are conditions or events, in the aggregate, that raise substantial doubt about the entity's ability to continue as a going concern within one year from the date the financial statements are issued and to provide related footnote disclosures in certain circumstances. The Company adopted the provisions of this ASU for the annual reporting period ended October 31, 2017. The adoption of this update did not have a significant impact on the Company's consolidated financial statements.

In April 2015, the FASB issued ASU 2015-03, "Interest – Imputation of Interest (Subtopic 835-30): Simplifying the Presentation of Debt Issuance Costs." This ASU simplifies the presentation of debt issuance costs by requiring that such costs be presented in the balance sheet as a direct deduction from the carrying value of the associated debt instrument, consistent with debt discounts. The Company has adopted ASU 2015-03 effective January 31, 2017 and retrospective application is required which resulted in a reclassification in our Consolidated Balance Sheet as of October 31, 2016 of $0.3 million of debt issuance costs from Current assets to be a direct deduction from "Current portion of long-term debt" and a reclassification of $1.1 million of debt issuance costs from "Other assets" to be a direct deduction from Long-term debt and other liabilities.

In January 2017, the FASB issued ASU 2017-01, "Business Combinations." ASU 2017-01 was issued to clarify the definition of a business with the objective of adding guidance to assist entities with evaluating whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. The Company has elected to early adopt ASU 2017-01 effective November 1, 2016 which did not have a significant impact on the Company's consolidated financial statements.

Recent Accounting Guidance Not Yet Effective

In May 2014, the FASB issued ASU No. 2014-09, "Revenue from Contracts with Customers (Topic 606)." This topic provides for five principles which should be followed to determine the appropriate amount and timing of revenue recognition for the transfer of goods and services to customers. The principles in this ASU should be applied to all contracts with customers regardless of industry. The amendments in this ASU are effective for fiscal years, and interim periods within those years beginning after December 15, 2016, with two transition methods of adoption allowed. Early adoption for reporting periods prior to December 15, 2016 is not permitted. In March 2015, the FASB voted to defer the effective date by one year to fiscal years, and interim periods within those fiscal years beginning after December 15, 2017 (first quarter of fiscal year 2019 for the Company), but allow adoption as of the original adoption date. The Company has numerous different revenue sources including the sale and installation of fuel cell power plants, site engineering and construction services, sale of modules, BOPs and spare parts, extended warranty service agreements, sale of electricity under power purchase agreements, license fees and royalty income from manufacturing and technology transfer agreements and customer-sponsored Advanced Technologies projects. This requires application of various revenue recognition methods under current accounting guidance. Although we anticipate that, upon adoption of this new ASU the timing of revenue recognition for certain of our revenue sources might change, we are still evaluating the financial statement impacts of the guidance in this ASU and determining which transition method we will utilize. In May 2016, the FASB issued ASU 2016-12, "Revenue from Contracts with Customers (Topic 606)." This topic provides narrow-scope improvements and practical expedients regarding collectability, presentation of sales tax collected from customers, non-cash consideration, contract modifications at transition, completed contracts at transition and other technical corrections. We have initiated a review of the contracts for our significant revenue streams to understand the impact of the adoption of this ASU.

In February 2016, the FASB issued ASU 2016-02, "Leases" which, for operating leases, requires a lessee to recognize a right-of-use asset and a lease liability, initially measured at the present value of the lease payments, in its balance sheet. The standard also requires a lessee to recognize a single lease cost, calculated so that the cost of the lease is allocated over the lease term, on a generally straight-line basis. This ASU is effective for public companies for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years (first quarter of fiscal year 2020 for the Company). Early adoption is permitted. The Company has both operating and capital leases (refer to Note 18. Commitments and contingences) as well as sale-leasebacks accounted for under the finance method and may have other arrangements that contain embedded leases as characterized in this ASU. We expect that adoption of this ASU will result in the recognition of right-of-use assets and lease liabilities not currently recorded in our consolidated financial statements under existing accounting guidance. However we are still evaluating all of the Company's contractual arrangements and the impact that adoption of ASU 2016-02 will have on the Company's consolidated financial statements.

Note 2. Restructuring

On November 30, 2016, a business restructuring was announced to reduce costs and align production levels with current levels of demand in a manner that is consistent with the Company's long-term strategic plan.

The Company reduced materials spend as well as implemented various cost control initiatives. The workforce was reduced at both the North American production facility in Torrington, Connecticut, as well as at the corporate offices in Danbury, Connecticut and remote locations. A total of 96 positions, or approximately 17% of the Company's global workforce, were eliminated. The production rate was reduced to twenty-five MW annually, from the prior rate of fifty MW annually, in order to position for delays in anticipated order flow. This production level is anticipated to be temporary and will be reevaluated as order flow dictates. Restructuring expense relating to eliminated positions of $1.4 million has been recorded and paid for the year ended October 31, 2017, which has been presented on a separate caption in the Consolidated Statement of Operations.

Note 3. Accounts Receivable

Accounts receivable as of October 31, 2017 and 2016 consisted of the following (in thousands):

	2017	2016
Advanced Technology (including U.S. Government [1]):		
Amount billed	**$ 1,934**	$ 2,463
Unbilled recoverable costs	**7,352**	3,068
	9,286	5,531
Commercial customers:		
Amount billed	**41,073**	5,411
Unbilled recoverable costs	**18,162**	13,651
	59,235	19,062
Accounts receivable	**$68,521**	$24,593

(1) Total U.S. government accounts receivable outstanding as of October 31, 2017 and 2016 is $3.2 million and $2.2 million, respectively.

We bill customers for power plant and power plant component sales based on certain contractual milestones being reached. We bill service agreements based on the contract price and billing terms of the contracts. Generally, our Advanced Technologies contracts are billed based on actual recoverable costs incurred, typically in the month subsequent to incurring costs. Some Advanced Technologies contracts are billed based on contractual milestones or costs incurred. Unbilled recoverable costs relate to revenue recognized on customer contracts that has not been billed. Accounts receivable are presented net of an allowance for doubtful accounts of $0.1 million and $0.2 million as of October 31, 2017 and 2016, respectively. Uncollectible accounts receivable are charged against the allowance for doubtful accounts when all collection efforts have failed and it is deemed unlikely that the amount will be recovered.

Accounts receivable from commercial customers (including unbilled recoverable costs) include amounts due from POSCO Energy of $6.2 million and $5.0 million, and amounts due from NRG of $0.1 million as of each of October 31, 2017 and 2016. The Company also had amounts due to POSCO Energy of $32.7 million and $0 as of October 31, 2017 and 2016, respectively, for the purchase of inventory.

Note 4. Inventories

Inventories as of October 31, 2017 and 2016 consisted of the following (in thousands):

	2017	2016
Raw materials	**$20,065**	$25,286
Work-in-process [1]	**54,431**	48,520
Inventories	**$74,496**	$73,806

(1) Work-in-process includes the standard components of inventory used to build the typical modules or module components that are intended to be used in future power plant orders or to service our service agreements. Included in Work-in-process as of October 31, 2017 and 2016 is $46.3 million and $40.6 million, respectively, of completed standard components.

Raw materials consist mainly of various nickel powders and steels, various other components used in producing cell stacks and purchased components for balance of plant. Work-in-process inventory is comprised of material, labor, and overhead costs incurred to build fuel cell stacks and modules, which are subcomponents of a power plant.

Raw materials and work in process are net of a valuation allowance of approximately $0.2 million and $0.8 million as of October 31, 2017 and 2016, respectively.

Note 5. Project Assets

Project assets as of October 31, 2017 and 2016 were $73.0 million and $47.1 million, respectively. Project assets as of October 31, 2017 include $30.2 million which represents four completed, commissioned installations where we have a PPA with the end-user of power and site host. Project assets as of October 31, 2016 include $6.2 million which represents one completed, commissioned installation where we have a PPA with the end-user of power and site host. These assets are the subject of sale-leaseback arrangements with PNC Energy Capital, LLC ("PNC"), which are recorded under the financing method of accounting for a sale-leaseback. Under the finance method, the Company does not recognize the proceeds received from the lessor as a sale of such assets. The Project assets balance as of October 31, 2017 also includes assets aggregating $40.9 million which are being constructed by the Company under PPAs which have been executed or are expected to be executed in fiscal year 2018.

Depreciation expense for project assets was $4.1 million and $0.7 million for the years ended October 31, 2017 and 2016, respectively. There was no depreciation expense recorded for the year ended October 31, 2015 since there were no project assets in service.

In November 2016, the Company's wholly-owned subsidiary, FuelCell Energy Finance, LLC ("FuelCell Finance") entered into a membership interest purchase agreement with GW Power LLC ("Seller") whereby FuelCell Finance purchased all of the outstanding membership interests in New Britain Renewable Energy, LLC ("NBRE") from Seller. Seller assigned the NBRE interest to FuelCell Finance free and clear of all liens other than a pledge in favor of Webster Bank, National Association. The Company adopted ASU 2017-01 which resulted in the transaction being accounted for as an asset acquisition of a power plant for a relative fair value of $2.3 million (carrying amount of $1.9 million as of October 31, 2017) which has been classified as a long-term project asset in support of an Energy Purchase Agreement.

Project construction costs incurred for the long-term project assets are reported as investing activities in the Consolidated Statements of Cash Flows. The proceeds received from the sale and subsequent leaseback of project assets are classified as "Cash flows from financing activities" within the Consolidated Statements of Cash Flows and are classified as a financing obligation within "Current portion of long-term debt" and "Long-term debt and other liabilities" on the Consolidated Balance Sheets (refer to Note 11 for more information).

Note 6. Property, Plant and Equipment

Property, plant and equipment at October 31, 2017 and 2016 consisted of the following:

	2017	2016	Estimated Useful Life
Land	**$ 524**	$ 524	—
Building and improvements	**9,331**	9,218	10-26 years
Machinery, equipment and software	**91,680**	87,350	3-8 years
Furniture and fixtures	**3,576**	3,509	10 years
Construction in progress	**23,163**	16,388	—
	128,274	116,989	
Accumulated depreciation	**(84,709)**	(80,349)	
Property, plant and equipment, net	**$ 43,565**	$ 36,640	

The Company substantially completed the first phase of its project to expand the existing 65,000 square foot manufacturing facility in Torrington, Connecticut by approximately 102,000 square feet for a total size of 167,000 square feet during the year ended October 31, 2017.

Depreciation expense for property, plant and equipment was $4.4 million, $4.3 million and $4.1 million for the years ended October 31, 2017, 2016 and 2015, respectively.

Note 7. Goodwill and Intangible Assets

As of October 31, 2017 and 2016, the Company had goodwill of $4.1 million and intangible assets of $9.6 million associated with the 2012 Versa acquisition. The intangible asset represents indefinite lived in-process research and development for cumulative research and development efforts associated with the development of solid oxide fuel cells stationary power generation.

The Company completed its annual impairment analysis of goodwill and in-process research and development assets as of July 31, 2017. The Company performed a quantitative assessment in the prior year and determined that the estimated fair value of the reporting unit and in-process research and development intangible asset exceeded the respective carrying value and therefore no impairment was recognized as of July 31, 2016. The Company performed a qualitative assessment for fiscal year 2017 and determined that it was more likely than not that there was no impairment of goodwill or the indefinite lived intangible asset.

Note 8. Other Current Assets

Other current assets as of October 31, 2017 and 2016 consisted of the following (in thousands):

	2017	2016
Advance payments to vendors [1]	**$ 1,035**	$ 1,247
Deferred finance costs [2]	**129**	152
Notes receivable [3]	**—**	1,007
Prepaid expenses and other [4]	**5,407**	7,775
Other current assets	**$ 6,571**	$ 10,181

(1) Advance payments to vendors relate to payments for inventory purchases ahead of receipt.
(2) Represents the current portion of direct deferred finance costs that relate primarily to securing a $40.0 million loan facility with NRG which is being amortized over the five-year life of the facility.
(3) Represents a note receivable from NBRE prior to the acquisition in November 2016 discussed in Note 5.
(4) Primarily relates to other prepaid vendor expenses including insurance, rent and lease payments.

Note 9. Other Assets, net

Other assets, net at October 31, 2017 and 2016 consisted of the following (in thousands):

	2017	2016
Long-term accounts receivable [1]	**$ —**	$ 8,353
Long-term unbilled recoverable costs [2]	**12,806**	5,714
Deferred finance costs [3]	**97**	225
Long-term stack residual value [4]	**987**	—
Other [5]	**2,627**	2,123
Other assets, net	**$16,517**	$ 16,415

(1) The balance as of October 31, 2016 represents receivables which were subsequently collected and relate to project and stack replacement reserve accounts for a sale-leaseback transaction. As of October 31, 2017, the funds were recorded as long-term restricted cash.

(2) Represents unbilled recoverable costs that relate to revenue recognized on customer contracts that will be billed in future periods in excess of twelve months from the balance sheet date.

(3) Represents the long-term portion of direct deferred finance costs relating to the Company's loan facility with NRG which is being amortized over the five-year life of the facility.

(4) Relates to estimated residual value for module exchanges performed under the Company's service agreements where the useful life extends beyond the contractual term of the service agreement and the Company obtains title for the module from the customer upon expiration or non-renewal of the service agreement. If the Company does not obtain rights to title from the customer, the full cost of the module is expensed at the time of the module exchange. The increase from October 31, 2016 represents residual value for two module replacements performed during the year ended October 31, 2017.

(5) The Company entered into an agreement with one of its customers on June 29, 2016 which includes a fee for the purchase of the plants at the end of the term of the agreement. The option fee is payable in installments over the term of the agreement and the total paid as of October 31, 2017 was $1.6 million. Also included within other are long-term security deposits.

Note 10. Accrued Liabilities

Accrued liabilities at October 31, 2017 and 2016 consisted of the following (in thousands):

	2017	2016
Accrued payroll and employee benefits	**$ 5,315**	$ 4,183
Accrued contract loss	**37**	—
Accrued product warranty costs [1]	**348**	516
Accrued material purchases [2]	**2,396**	6,908
Accrued service agreement costs [3]	**3,319**	6,030
Accrued taxes, legal, professional and other [4]	**6,966**	3,263
Accrued liabilities	**$18,381**	$ 20,900

(1) Activity in the accrued product warranty costs for the years ended October 31, 2017 and 2016 included additions for estimates of future warranty obligations of $0.6 million and $0.3 million, respectively, on contracts in the warranty period and reductions related to actual warranty spend of $0.8 million and $0.7 million, respectively, as contracts progress through the warranty period or are beyond the warranty period.

(2) The Company acts as a procurement agent for POSCO Energy under an Integrated Global Supply Chain Agreement whereby the Company procures materials on POSCO Energy's behalf for its Asian production facility. This liability represents amounts received for the purchase of materials on behalf of POSCO Energy. Amounts due to vendors is recorded as "Accounts payable."

(3) Activity in service agreement costs represents a decrease in loss accruals on service contracts of $1.6 million from $2.7 million as of October 31, 2016 to $1.1 million as of October 31, 2017. The decrease primarily relates to module exchanges performed during the year ended October 31, 2017. The accruals for performance guarantees also decreased from $3.3 million as of October 31, 2016 to $2.2 million as of October 31, 2017 resulting from guarantee payments to customers partially offset by additional accruals for the minimum output falling below the contract requirements for certain service agreements.

(4) Other includes $4.4 million which represents contractual milestone billings for inventory that will be provided to POSCO Energy within the next twelve months and will not result in revenue recognition. An additional $10.4 million will be billed and collected under this arrangement.

Note 11. Debt

Debt as of October 31, 2017 and 2016 consisted of the following (in thousands):

	2017	2016
Hercules Loan and Security Agreement	**$ 21,468**	$ 20,521
State of Connecticut Loan	**10,000**	10,000
Finance obligation for sale-leaseback transactions	**46,937**	41,603
NRG loan agreement	**—**	1,755
Connecticut Green Bank Note	**6,052**	6,050
Connecticut Development Authority Note	**2,349**	2,589
New Britain Renewable Energy Term Loan	**1,697**	—
Capitalized lease obligations	**632**	660
Deferred finance costs	**(1,344)**	(1,408)
Total debt	**$ 87,791**	$ 81,770
Current portion of long-term debt	**(28,281)**	(5,010)
Long-term debt	**$ 59,510**	$ 76,760

Aggregate annual principal payments under our loan agreements and capital lease obligations for the years subsequent to October 31, 2017 are as follows (in thousands):

Year 1	$ 28,583
Year 2	4,518
Year 3	4,863
Year 4	4,057
Year 5	4,089
Thereafter	43,025
	$ 89,135

In April 2016, the Company entered into a loan and security agreement with Hercules Capital, Inc. ("Hercules") subject to certain terms and conditions of which the Company drew down $20.0 million during fiscal year 2016. The loan is a 30 month secured facility and the term loan interest was previously 9.5 percent and increased to 9.75 percent resulting from the increase in the prime rate. Interest is paid on a monthly basis. Interest only payments were to be made for the first 18 months as a result of the Company achieving certain milestones. In addition to interest, principal payments commenced on November 1, 2017 in equal monthly installments. The loan balance and all accrued and unpaid interest is due and payable by October 1, 2018. Per the terms of the loan and security agreement, there is an end of term payment of $1.7 million which is being accreted over the 30 month term using the effective interest rate method.

As collateral for obligations under Hercules Agreement, the Company granted Hercules a security interest in FuelCell Energy, Inc.'s existing and hereafter-acquired assets except for intellectual property and certain other excluded assets. Collateral does not include assets held by FuelCell Finance or any project subsidiary thereof. The Company may continue to collateralize and finance its project subsidiaries through other lenders and partners. Under the Hercules Agreement, as amended, there is a minimum cash covenant which requires the Company to maintain an unrestricted cash balance in accounts subject to an account control agreement in favor of Hercules of at least the greater of (x) (a) 75% of the outstanding loan balance plus (b) the amount of accounts payable (as defined under GAAP) not paid within 90 days of the invoice date and (y) (a) at all times prior to the Stockholder Approval Date (as defined in the Certificate of Designations for the Series C Preferred Stock), $20.0 million and (b) at all times on and after the Stockholder Approval Date, $10.0 million (the Stockholder Approval Date was December 14, 2017, which was the date on which stockholder approval of the issuance of certain shares upon the conversion and/or redemption of the Company's Series C Preferred Stock was obtained).

In November 2015, the Company closed on a definitive Assistance Agreement with the State of Connecticut and received a disbursement of $10.0 million for the first phase of the expansion project to expand the existing 65,000 square foot manufacturing facility in Torrington, Connecticut by approximately 102,000 square feet for a total size of 167,000 square feet. In conjunction with this financing, the Company entered into a $10.0 million Promissory Note and related security agreement securing the loan with equipment liens and a mortgage on its Danbury, Connecticut location. Pursuant to the terms of the loan, payment of principal is deferred for the first four years. Interest at a fixed rate of 2.0 percent is payable beginning in December 2015. The financing is payable over 15 years, and is predicated on certain terms and conditions, including the forgiveness of up to half of the loan principal if certain job retention and job creation targets are reached. On April 17, 2017, the Company entered into an amendment to the Assistance Agreement extending certain of the job creation target dates by two years to October 28, 2019.

In 2015, the Company entered into an agreement with PNC, whereby the Company's project finance subsidiaries may enter into sale-leaseback agreements for commissioned projects where we have entered into a PPA with the site host/end-user of produced power. Under the financing method of accounting for a sale-leaseback, the Company does not recognize as income any of the sale proceeds received from the lessor that contractually constitute payment to acquire the assets subject to these arrangements. Instead, the sale proceeds received are accounted for as financing obligations. The outstanding finance obligation balance as of October 31, 2017 was $46.9 million and the increase from the October 31, 2016 balance of $41.6 million includes a sale-leaseback transaction of $5.4 million which was completed in December 2016 and the recognition of imputed interest expense offset by lease payments. New sale-leaseback transactions of $41.5 million were entered into during the year ended October 31, 2016. The sale-leaseback transactions include a fair value purchase option at the end of the lease term.

In July 2014, the Company, through its wholly-owned subsidiary, FuelCell Finance, entered into a Loan Agreement with NRG. Pursuant to the Loan Agreement, NRG has extended a $40.0 million revolving construction and term financing facility for the purpose of accelerating project development by the Company and its subsidiaries. We may draw on the facility to finance the construction of projects through the commercial operating date of the power plants. The interest rate is 8.5 percent per annum for construction-period financing and 8.0 percent thereafter. Fees that were paid by FuelCell Finance to NRG for making the loan facility available and related legal fees incurred were capitalized and are being amortized straight-line over the life of the related loan agreement, which is five years. The term of the loans are up to five years but may be repaid early should the projects be sold or refinanced at the option of the Company.

The Company has a long-term loan agreement with the Connecticut Green Bank totaling $5.9 million in support of the Bridgeport Fuel Cell Park project. The loan agreement carries an interest rate of 5.0 percent. Interest only payments commenced in January 2014 and principal payments will commence on the eighth anniversary of the project's provisional acceptance date, which is December 20, 2021, payable in forty-eight equal monthly installments. Outstanding amounts are secured by future cash flows from the Bridgeport Fuel Cell Park service agreement.

The Company has a loan agreement with the Connecticut Development Authority to finance equipment purchases associated with manufacturing capacity expansion allowing for a maximum amount borrowed of $4.0 million. The interest rate is 5.0 percent and the loan is collateralized by the assets procured under this loan as well as $4.0 million of additional machinery and equipment. Repayment terms require monthly interest and principal payments through May 2018.

In November 2016, in connection with the acquisition of NBRE, debt with Webster Bank was assumed as a part of the transaction in the amount of $2.3 million. The term loan interest rate is 5.0 percent and payments are due on a quarterly basis commencing in January 2017. The balance outstanding as of October 31, 2017 was $1.7 million.

The Company leases computer equipment under master lease agreements. Lease payment terms are generally thirty-six months from the date of acceptance for leased equipment.

Direct deferred finance costs relate primarily to sale-leaseback transactions entered into with PNC which are being amortized over the ten-year term and direct deferred finance costs relating to the Hercules loan and security agreement entered into in April 2016 is being amortized over the 30 month life of the loan.

Note 12. Stockholders' Equity

Authorized Common Stock

In April 2017, the number of authorized shares of the Company's common stock was increased from 75,000,000 to 125,000,000, by vote of the holders of a majority of the outstanding shares of the Company's common stock.

Public Offerings and Outstanding Warrants

On May 3, 2017, the Company completed an underwritten public offering of (i) 12,000,000 shares of its common stock, (ii) Series C warrants to purchase 12,000,000 shares of its common stock and (iii) Series D warrants to purchase 12,000,000 shares of its common stock, for gross proceeds of approximately $15.4 million, at a public offering price of $1.28 per share and accompanying warrants. Total net proceeds to the Company were approximately $13.9 million. The Series C warrants have an exercise price of $1.60 per share and a term of five years. A total of 419,100 shares of common stock were issued during the fourth quarter of fiscal year 2017 upon the exercise of Series C warrants and the Company received total proceeds of $0.7 million. The Series D warrants have an exercise price of $1.28 per share and a term of one year. A total of 9,415,826 shares of common stock were issued during the third and fourth quarters of fiscal year 2017 upon the exercise of Series D warrants and the Company received total proceeds of $12.1 million.

On July 12, 2016, the Company closed on a registered public offering of securities to a single institutional investor pursuant to a placement agent agreement with J.P. Morgan Securities LLC. In conjunction with the offering the Company issued 7,680,000 Series A Warrants, all of which remained outstanding as of October 31, 2017, at an exercise price of $5.83 per share. They are initially exercisable beginning on the date that is six months and one day after the issue date and will expire on the fifth anniversary of the initial exercisability date. The Company also issued 4,926,000 prefunded Series B Warrants which are immediately exercisable. They have an exercise price of $0.0001 per share and will expire on the fifth anniversary of the issue date. There were 3,826,000 prefunded Series B Warrants outstanding as of October 31, 2016, all of which were exercised during the year ended October 31, 2017.

On July 30, 2014, the Company issued a warrant to NRG in conjunction with the entry into a Securities Purchase Agreement for the sale of common stock. Pursuant to the warrant agreement, NRG had the right to purchase up to 0.2 million shares of the Company's common stock at an exercise price of $40.20 per share. The warrants expired on July 30, 2017.

The following table outlines the warrant activity during the year ended October 31, 2017:

	Series A Warrants	Series B Warrants	Series C Warrants	Series D Warrants	NRG Warrants
Balance as of October 31, 2016	7,680,000	3,826,000	—	—	166,000
Warrants issued on May 3, 2017	**—**	**—**	**12,000,000**	**12,000,000**	**—**
Warrants exercised	**—**	**(3,826,000)**	**(419,100)**	**(9,415,826)**	**—**
Warrants expired	**—**	**—**	**—**	**—**	**(166,000)**
Balance as of October 31, 2017	**7,680,000**	**—**	**11,580,900**	**2,584,174**	**—**

Other Common Stock Sales

The Company may sell common stock on the open market from time to time. The proceeds of these sales may be used for general corporate purposes or to pay obligations related to the Company's outstanding Series 1 and Series B preferred shares. During the years ended October 31, 2017 and 2016, respectively, the Company sold 7.2 million shares and 6.0 million shares of the Company's common stock at prevailing market prices through periodic trades on the open market and raised approximately $12.6 million and $36.1 million, net of aggregate selling commissions of $0.1 million and $0.1 million, respectively.

Note 13. Redeemable Preferred Stock

The Company is authorized to issue up to 250,000 shares of preferred stock, par value $0.01 per share, issuable in one or more series of which shares to date have been issued and designated as Series C Convertible Preferred Stock and 5% Series B Cumulative Convertible Perpetual Preferred Stock.

Series C Preferred Shares

The Company issued an aggregate of 33,500 shares of its Series C Convertible Preferred Stock ("Series C Preferred Stock" and such shares, the "Series C Preferred Shares"), $0.01 par value and $1,000 stated value per share, for net proceeds of

$27.9 million on September 5, 2017. Each share of Series C Preferred Stock was sold at a price of $895.52 for gross proceeds of approximately $30.0 million. As of October 31, 2017, there were 33,300 shares of Series C Preferred Stock issued and outstanding with a carrying value of $27.7 million.

The Series C Preferred Shares are convertible into shares of common stock subject to the beneficial ownership limitations provided in the Certificate of Designations for Series C Preferred Stock (the "Certificate of Designations"), at a conversion price equal to $1.84 per share of common stock ("Conversion Price"), subject to adjustment as provided in the Certificate of Designations, at any time at the option of the holder. In the event of a triggering event, as defined in the Certificate of Designations, the Series C Preferred Shares are convertible into shares of common stock at a conversion price of the lower of $1.84 per share and 85% of the lowest volume weighted average price ("VWAP") of the common stock of the five Trading Days (as such term is defined in the Certificate of Designations) immediately prior to delivery of the applicable conversion notice. The holders will be prohibited from converting Series C Preferred Shares into shares of common stock if, as a result of such conversion, such holder, together with its affiliates, would own more than 8.99% of the total number of shares of common stock then issued and outstanding. Each holder has the right to increase its maximum percentage up to 9.99% upon 60 days' notice to the Company.

On November 1, 2017 and on the sixteenth day and first day of each calendar month thereafter until March 1, 2019, subject to extension in certain circumstances (the "Maturity Date"), inclusive, the Company will redeem the stated value of Series C Preferred Shares in thirty-three equal installments of $1.0 million (each bimonthly amount, an "Installment Amount" and the date of each such payment, an "Installment Date"). The holders will have the ability to defer Installment payments, but not beyond the Maturity Date. In addition, during each period commencing on the 11th trading day prior to an Installment Date and prior to the immediately subsequent Installment Date, the holders may elect to accelerate the conversion of Series C Preferred Shares at then applicable installment conversion price, provided that the holders may not elect to effect any such acceleration during such installment period if either (x) in the aggregate, all the accelerations in such installment period exceeds the sum of three other Installment Amounts, or (y) the number of Series C Preferred Shares subject to prior accelerations exceeds in the aggregate twelve Installment Amounts.

Subject to certain conditions as provided in the Certificate of Designations, the Company may elect to pay the Installment Amounts in cash or shares of common stock or in a combination of cash and shares of common stock.

Installment Amounts paid in shares will be that number of shares of common stock equal to (a) the applicable Installment Amount, to be paid in common stock divided by (b) the least of (i) the then existing conversion price, (ii) 87.5% of the VWAP of the common stock on the trading day immediately prior to the applicable Installment Date, and (iii) 87.5% of the arithmetic average of the two lowest VWAPs of the common stock during the ten consecutive Trading Day period ending and including the Trading Day immediately prior to the applicable Installment Date as applicable, provided that the Company meets standard equity conditions. The Company shall make such election no later than the eleventh trading day immediately prior to the applicable Installment Date.

If the Company elects or is required to effect an Installment Amount in whole or in part in cash, the amount paid will be equal to the 108% of the applicable Installment Amount.

Each holder of the Series C Preferred Shares shall be entitled to receive dividends (i) if no triggering event, as defined in the Certificate of Designations, has occurred and is continuing when and as declared by the Board of Directors, in its sole and absolute discretion or (ii) if a triggering event has occurred and until such triggering event has been cured, a dividend of 15% per annum based on the holder's outstanding number of Series C Preferred Shares multiplied by the stated value. There were no triggering events or dividends declared in fiscal year 2017.

In the event of a triggering event, as defined in the Certificate of Designations, the holders of the Series C Preferred Shares can force redemption at a price equal to the greater of (i) the conversion amount to be redeemed multiplied by 125% and (ii) the product of (X) the Conversion Rate with respect to the Conversion Amount in effect at such time as such Holder delivers a Triggering Event Redemption Notice multiplied by (Y) the greatest Closing Sale Price of the common stock on any Trading Day during the period commencing on the date immediately preceding such Triggering Event and ending on the date the Company makes the entire payment required.

In the event of the Company's liquidation, dissolution, or winding up, prior to distribution to holders of securities ranking junior to the Series C Preferred Shares, holders of Series C Preferred Shares will be entitled to receive the amount of cash, securities or other property equal to the greater of (A) the stated value thereof on the date of such payment plus accrued dividends, if any and (B) the amount per share such holder would receive if such holder converted such Series C Preferred Shares into common stock immediately prior to the date of such payment.

Shares of Series C Preferred Stock rank with respect to dividend rights and rights upon our liquidation, winding up or dissolution:

- senior to shares of our common stock;
- junior to our debt obligations;
- junior to our outstanding Series B Preferred Stock; and
- effectively junior to our subsidiaries' (i) existing and future liabilities and (ii) capital stock held by others.

The holders of the Series C Preferred Shares have no voting rights, except as required by law. Any amendment to the Company's certificate of incorporation, bylaws or certificate of designation that adversely affects the powers, preferences and rights of the Series C Preferred Shares requires the approval of the holders of a majority of the Series C Preferred Shares then outstanding.

Based on review of pertinent accounting literature including ASC 470—*Debt*, ASC 480—*Distinguishing Liabilities from Equity* and ASC 815—*Derivative and Hedging*, the Series C Preferred Shares are classified as temporary equity on the consolidated balance sheets and recorded at fair value on the issuance date (proceeds from the issuance, net of direct issuance cost). An assessment of the probability of the potential redemption features in the Series C Preferred instrument is performed at each reporting date to determine whether any changes in classification are required. As of October 31, 2017, the Company determined that none of the contingent redemption features were probable. As Series C Preferred Shares are converted to common shares, a proportional reduction in the carrying value will be recorded to equity. For the year ended October 31, 2017, 200 shares of the Series C Preferred Shares were converted to common shares resulting in a reduction of $0.2 million to the carrying value recorded in temporary equity.

Redeemable Series B Preferred Stock

We have 105,875 shares of our 5% Series B Cumulative Convertible Perpetual Preferred Stock (Liquidation Preference $1,000.00 per share) ("Series B Preferred Stock") authorized for issuance. As of October 31, 2017 and 2016, there were 64,020 shares of Series B Preferred Stock issued and outstanding, with a carrying value of $59.9 million. The following is a summary of certain provisions of our Series B Preferred Stock.

- *Ranking* — Shares of Series B Preferred Stock rank with respect to dividend rights and rights upon our liquidation, winding up or dissolution:
  - senior to shares of our common stock;
  - junior to our debt obligations; and
  - effectively junior to our subsidiaries' (i) existing and future liabilities and (ii) capital stock held by others.
- *Dividends* — The Series B Preferred Stock pays cumulative annual dividends of $50.00 per share which are payable quarterly in arrears on February 15, May 15, August 15 and November 15, and if declared by the board of directors. Dividends accumulate and are cumulative from the date of original issuance. Accumulated dividends on the Series B Preferred Stock do not bear interest. The terms of our Series B preferred shares prohibit the payment of dividends on our common stock unless all dividends on the Series B Preferred Stock have been paid in full.

  The dividend rate is subject to upward adjustment as set forth in the Certificate of Designation if we fail to pay, or to set apart funds to pay, any quarterly dividend. The dividend rate is also subject to upward adjustment as set forth in the Registration Rights Agreement entered into with the Initial Purchasers if we fail to satisfy our registration obligations with respect to the Series B Preferred Stock (or the underlying common shares) under the Registration Rights Agreement.

  The dividend on the Series B Preferred Stock may be paid in cash; or at the option of the Company, in shares of our common stock, which will be registered pursuant to a registration statement to allow for the immediate sale of these common shares in the public market. Dividends of $3.2 million were paid in cash in each of the years ended October 31, 2017, 2016 and 2015. There were no cumulative unpaid dividends as of October 31, 2017 and 2016.
- *Liquidation* — The Series B Preferred Stock stockholders are entitled to receive, in the event that we are liquidated, dissolved or wound up, whether voluntary or involuntary, $1,000.00 per share plus all accumulated and unpaid dividends to the date of that liquidation, dissolution, or winding up ("Liquidation Preference"). Until the holders of Series B Preferred Stock receive their Liquidation Preference in full, no payment will be made on any junior shares, including shares of our common stock. After the Liquidation Preference is paid in full, holders of the Series B Preferred Stock will not be entitled to receive any further distribution of our assets. As of October 31, 2017 and 2016, the Series B Preferred Stock had a Liquidation Preference of $64.0 million.
- *Conversion Rights* — Each Series B Preferred Stock share may be converted at any time, at the option of the holder, into 7.0922 shares of our common stock (which is equivalent to an initial conversion price of $141.00 per share) plus cash in lieu of fractional shares. The conversion rate is subject to adjustment upon the occurrence of certain events, as described below, but will not be adjusted for accumulated and unpaid dividends. If converted, holders of Series B Preferred Stock do not receive a cash payment for all accumulated and unpaid dividends; rather, all accumulated and unpaid dividends are canceled.

We may, at our option, cause shares of Series B Preferred Stock to be automatically converted into that number of shares of our common stock that are issuable at the then prevailing conversion rate. We may exercise our conversion right only if the closing price of our common stock exceeds 150% of the then prevailing conversion price ($141.00 per share as of October 31, 2017) for 20 trading days during any consecutive 30 trading day period, as described in the Certificate of Designation.

If holders of Series B Preferred Stock elect to convert their shares in connection with certain fundamental changes, as defined, we will in certain circumstances increase the conversion rate by a number of additional shares of common stock upon conversion or, in lieu thereof, we may in certain circumstances elect to adjust the conversion rate and related conversion obligation so that shares of our Series B Preferred Stock are converted into shares of the acquiring or surviving company, in each case as described in the Certificate of Designation.

The adjustment of the conversion price is to prevent dilution of the interests of the holders of the Series B Preferred Stock from certain dilutive transactions with holders of common stock.

- *Redemption* — We do not have the option to redeem the shares of Series B Preferred Stock. However, holders of the Series B Preferred Stock can require us to redeem all or part of their shares at a redemption price equal to the Liquidation Preference of the shares to be redeemed in the case of a fundamental change, as defined.

  We may, at our option, elect to pay the redemption price in cash or in shares of our common stock, valued at a discount of 5% from the market price of shares of our common stock, or any combination thereof. Notwithstanding the foregoing, we may only pay such redemption price in shares of our common stock that are registered under the Securities Act of 1933 and eligible for immediate sale in the public market by non-affiliates of the Company.

- *Voting Rights* — Holders of Series B Preferred Stock currently have no voting rights.

Class A Cumulative Redeemable Exchangeable Preferred Shares (the "Series 1 Preferred Shares")

FuelCell Energy Ltd. ("FCE Ltd"), the Company's wholly owned subsidiary, has 1,000,000 Class A Cumulative Redeemable Exchangeable Preferred Shares (the "Series 1 Preferred Shares") outstanding, which are held by Enbridge, Inc. ("Enbridge"). FuelCell guarantees the return of principal and dividend obligations of FCE Ltd. to the holders of Series 1 Preferred Shares.

The terms of the Series 1 Preferred Shares includes payments of (i) annual dividend payments of Cdn. $500,000 and (ii) annual return of capital payments of Cdn. $750,000. These payments commenced on March 31, 2011 and will end on December 31, 2020. On December 31, 2020, the amount of all accrued and unpaid dividends on the Series 1 Preferred Shares of Cdn. $21.1 million and the balance of the principal redemption price of Cdn. $4.4 million shall be paid to the holders of the Series 1 Preferred Shares. FCE Ltd. has the option of making dividend payments in the form of common stock or cash under the terms of the Series 1 Preferred Shares.

Because the Series 1 Preferred Shares are classified as a mandatorily redeemable financial instrument, they are presented as a liability on the consolidated balance sheet.

The Company made its scheduled payments of Cdn. $1.3 million during each of fiscal year 2017, 2016 and 2015, under the terms of the agreement. The Company also recorded interest expense, which reflects the amortization of the fair value discount of approximately Cdn. $2.6 million, Cdn. $2.4 million and Cdn. $2.3 million, respectively. As of October 31, 2017 and 2016, the carrying value of the Series 1 Preferred shares was Cdn. $19.4 million ($15.1 million) and Cdn. $18.0 million ($13.5 million), respectively and is classified as preferred stock obligation of subsidiary on the consolidated balance sheets.

In addition to the above, the significant terms of the Series 1 Preferred Shares include the following:

- *Voting Rights* — The holders of the Series 1 Preferred Shares are not entitled to any voting rights.

- *Dividends* — Dividend payments can be made in cash or common stock of the Company, at the option of FCE Ltd., and if common stock is issued it may be unregistered. If FCE Ltd. elects to make such payments by issuing common stock of the Company, the number of common shares is determined by dividing the cash dividend obligation by 95% of the volume weighted average price in U.S. dollars at which board lots of the common shares have been traded on NASDAQ during the 20 consecutive trading days preceding the end of the calendar quarter for which such dividend in common shares is to be paid converted into Canadian dollars using the Bank of Canada's noon rate of exchange on the day of determination.

- *Redemption* — The Series 1 Preferred Shares are redeemable by FCE Ltd. for Cdn. $25.00 per share less any amounts paid as a return of capital in respect of such share plus all unpaid dividends and accrued interest.

- *Liquidation or Dissolution* — In the event of the liquidation or dissolution of FCE Ltd., the holders of Series 1 Preferred Shares will be entitled to receive Cdn. $25.00 per share less any amounts paid as a return of capital in respect of such share plus all unpaid dividends and accrued interest. The Company has guaranteed any liquidation obligations of FCE Ltd.

- *Exchange Rights* — A holder of Series 1 Preferred Shares has the right to exchange such shares for fully paid and non-assessable common stock of the Company at the following exchange prices:
  - Cdn. $1,664.52 per share of common stock after July 31, 2015 until July 31, 2020; and
  - at any time after July 31, 2020, at a price equal to 95% of the then current market price (in Cdn. $) of the Company's common stock at the time of conversion.

  The exchange rates set forth above shall be adjusted if the Company: (i) subdivides or consolidates the common stock; (ii) pays a stock dividend; (iii) issues rights, options or other convertible securities to the Company's common stockholders enabling them to acquire common stock at a price less than 95% of the then-current price; or (iv) fixes a record date to distribute to the Company's common stockholders shares of any other class of securities, indebtedness or assets.

Derivative liability related to Series 1 Preferred Shares

The conversion feature and variable dividend contained in the terms of the Series 1 Preferred Shares are not clearly and closely related to the characteristics of the Series 1 Preferred Shares. Accordingly, these features qualify as embedded derivative instruments and are required to be bifurcated and recorded as derivative financial instruments at fair value.

The conversion feature is valued using a lattice model. Based on the pay-off profiles of the Series 1 Preferred Shares, it is assumed that we will exercise the call option to force conversion in 2020. Conversion after 2020 delivers a fixed pay-off to the investor, and is modeled as a fixed payment in 2020. The cumulative dividend is modeled as a quarterly cash dividend component (to satisfy minimum dividend payment requirement), and a one-time cumulative dividend payment in 2020.

The variable dividend is valued using a Monte Carlo simulation model.

The assumptions used in these valuation models include historical stock price volatility, risk-free interest rate and a credit spread based on the yield indexes of technology high yield bonds, foreign exchange volatility as the security is denominated in Canadian dollars, and the closing price of our common stock. The aggregate fair value of these derivatives included within long-term debt and other liabilities on the consolidated balance sheets as of October 31, 2017 and 2016 was $0.8 million and $0.7 million, respectively.

Note 14. Segment Information

We are engaged in the development, design, production, construction and servicing of high temperature fuel cells for clean electric power generation. Critical to the success of our business is, among other things, our research and development efforts, both through customer-sponsored projects and Company-sponsored projects. The research and development activities are viewed as another product line that contributes to the development, design, production and sale of fuel cell products, however, it is not considered a separate operating segment. The chief operating decision maker does not review and assess financial information at a discrete enough level to be able to assess performance of research and development activities as if it operated as a standalone business segment, we have identified one business segment: fuel cell power plant production and research.

Revenues, by geographic location (based on the customer's ordering location) for the years ended October 31, 2017, 2016 and 2015 were as follows (in thousands):

	2017	2016	2015
United States	**$47,539**	$ 48,697	$ 52,109
South Korea	**44,217**	52,007	109,953
England	**368**	277	142
Germany	**2,740**	7,147	764
Canada	**729**	124	—
Spain	**73**	—	109
Total	**$95,666**	$108,252	$163,077

Service agreement revenue which is included within Service agreements and license revenues on the consolidated statement of operations was $24.4 million, $26.6 million and $16.3 million, for the years ended October 31, 2017, 2016 and 2015, respectively.

Long-lived assets located outside of the United States as of October 31, 2017 and 2016 are not significant individually or in the aggregate.

Note 15. Benefit Plans

We have stockholder approved equity incentive plans, a stockholder approved Section 423 Stock Purchase Plan (the "ESPP") and an employee tax-deferred savings plan, which are described in more detail below.

Equity Incentive Plans

The Company has a 2010 Equity Incentive Plan. In April 2017, the number of shares of common stock reserved for issuance under the 2010 Equity Incentive Plan was increased to 4.5 million shares. The Board is authorized to grant incentive stock options, nonstatutory stock options, stock appreciation rights ("SARs"), restricted stock awards ("RSAs"), restricted stock units ("RSUs"), performance units, performance shares, dividend equivalent rights and other stock-based awards to our officers, key employees and non-employee directors. Stock options, RSAs and SARs have restrictions as to transferability. Stock option exercise prices are fixed by the Board but shall not be less than the fair market value of our common stock on the date of the grant. SARs may be granted in conjunction with stock options. Stock options generally vest ratably over 4 years and expire 10 years

from the date of grant. The Company also has an international award program to provide RSUs for the benefit of certain employees outside the United States. As of October 31, 2017, there were 0.2 million shares available for grant. At October 31, 2017, equity awards outstanding consisted of incentive stock options, nonstatutory stock options, RSAs and RSUs.

The Company's 1998 and 2006 Equity Incentive Plans remain in effect only to the extent of awards outstanding under the plan as of October 31, 2017.

Share-based compensation was reflected in the consolidated statements of operations as follows (in thousands):

	2017	2016	2015
Cost of revenues	**$1,050**	$ 745	$ 769
General and administrative expense	**2,721**	2,110	1,990
Research and development expense	**679**	504	360
Share-based compensation	**$4,450**	$3,359	$3,119

Stock Options

We account for stock options awarded to employees and non-employee directors under the fair value method. The fair value of stock options is estimated on the grant date using the Black-Scholes option valuation model and the following weighted-average assumptions:

	2017	2016	2015
Expected life (in years)	**7.0**	7.0	7.0
Risk free interest rate	**2.2%**	1.5%	1.7%
Volatility	**79.5%**	80.1%	80.3%
Dividend yield	**—%**	—%	—%

The expected life is the period over which our employees are expected to hold the options and is based on historical data for similar grants. The risk free interest rate is based on the expected U.S. Treasury rate over the expected life. Expected volatility is based on the historical volatility of our stock. Dividend yield is based on our expected dividend payments over the expected life.

The following table summarizes our stock option activity for the year ended October 31, 2017:

Options	Shares	Weighted-Average Option Price
Outstanding at October 31, 2016	246,923	$44.88
Granted	**103,819**	**$ 1.50**
Cancelled	**(40,792)**	**$94.63**
Outstanding at October 31, 2017	**309,950**	**$23.81**

The weighted average grant-date fair value per share for options granted during the years ended October 31, 2017, 2016 and 2015 was $1.50, $6.44 and $13.24, respectively. There were no options exercised in fiscal year 2017, 2016 or 2015.

The following table summarizes information about stock options outstanding and exercisable as of October 31, 2017:

	Options Outstanding			Options Exercisable	
Range of Exercise Prices	Number outstanding	Weighted Average Remaining Contractual Life	Weighted Average Exercise Price	Number exercisable	Weighted Average Exercise Price
$ 0.00 — $ 3.23	103,819	9.4	$ 1.50	77,865	$ 1.50
$ 3.24 — $ 61.20	165,164	5.2	$ 18.72	161,832	$ 18.86
$ 61.21 — $119.04	40,833	0.3	$100.78	40,833	$ 100.78
$119.05 — $176.88	134	0.6	$121.56	134	$ 121.56
	309,950	6.0	$ 23.81	280,664	$ 26.00

The intrinsic value for options outstanding and exercisable at October 31, 2017 was $0.07 million and $0.05 million, respectively.

Restricted Stock Awards and Units

The following table summarizes our RSA and RSU activity for the year ended October 31, 2017:

Restricted Stock Awards and Units	Shares	Weighted-Average Fair Value
Outstanding at October 31, 2016	990,035	$ 9.52
Granted	**2,510,216**	**$ 1.48**
Vested	**392,458**	**$12.39**
Forfeited	**99,107**	**$ 6.62**
Outstanding at October 31, 2017	**3,008,686**	**$ 2.52**

RSA and RSU expense is based on the fair value of the award at the date of grant and is amortized over the vesting period, which is generally over 3 or 4 years. As of October 31, 2017, the 3.0 million outstanding RSAs and RSUs had an average remaining life of 2.5 years and an aggregate intrinsic value of $6.1 million.

As of October 31, 2017, total unrecognized compensation cost related to RSAs including RSUs was $6.0 million which is expected to be recognized over the next 2.5 years on a weighted-average basis.

Stock Awards
During the years ended October 31, 2017, 2016 and 2015, we awarded 86,001, 24,379 and 2,399 shares, respectively, of fully vested, unrestricted common stock to the independent members of our board of directors as a component of board of director compensation which resulted in recognizing $0.1 million, $0.2 million and $0.1 million of expense for each of the respective years.

Employee Stock Purchase Plan
Under the ESPP, eligible employees have the right to purchase shares of common stock at the lesser of (i) 85% of the last reported sale price of our common stock on the first business day of the offering period, or (ii) 85% of the last reported sale price of the common stock on the last business day of the offering period, in either case rounded up to avoid impermissible trading fractions. Shares issued pursuant to the ESPP contain a legend restricting the transfer or sale of such common stock for a period of 0.5 years after the date of purchase.

ESPP activity for the year ended October 31, 2017 was as follows:

ESPP	Number of Shares
Balance at October 31, 2016	62,226
Issued at $2.85 per share	**(25,988)**
Issued at $0.98 per share	**(36,168)**
Available for issuance as of October 31, 2017	**70**

The fair value of shares under the ESPP was determined at the grant date using the Black-Scholes option-pricing model with the following weighted average assumptions:

	2017	2016	2015
Expected life (in years)	**0.5**	0.5	0.5
Risk free interest rate	**0.46%**	0.30%	0.07%
Volatility	**75.0%**	37.0%	72.0%
Dividends yield	**—%**	—%	—%

The weighted-average fair value of shares issued under the ESPP during fiscal year 2017 and 2016 was $1.76 and $6.86 per share, respectively.

The ESPP was suspended as of May 1, 2017 because we did not have sufficient shares of common stock available for issuance.

Employee Tax-Deferred Savings Plans
We offer a 401(k) plan (the "Plan") to all full time employees that provides for tax-deferred salary deductions for eligible employees (beginning the first month following an employee's hire date). Employees may choose to make voluntary contributions of their annual compensation to the Plan, limited to an annual maximum amount as set periodically by the Internal Revenue Service. Employee contributions are fully vested when made. Under the Plan, there is no option available to the employee to receive or purchase our common stock. Matching contributions of 2% under the Plan aggregated $0.5 million, $0.6 million and $0.4 million for the years ended October 31, 2017, 2016, and 2015, respectively.

Note 16. Income Taxes

The components of loss before income taxes for the years ended October 31, 2017, 2016, and 2015 were as follows (in thousands):

	2017	2016	2015
U.S.	**$ (49,723)**	$ (46,708)	$ (26,459)
Foreign	**(4,136)**	(3,981)	(2,951)
Loss before income taxes	**$ (53,859)**	$ (50,689)	$ (29,410)

There was current income tax expense of $0.04 million, $0.5 million and $0.3 million related to foreign withholding taxes and income taxes in South Korea and no deferred federal income tax expense (benefit) for the years ended October 31, 2017, 2016 and 2015, respectively. Franchise tax expense, which is included in administrative and selling expenses, was $0.5 million, $0.4 million and $0.2 million for the years ended October 31, 2017, 2016 and 2015, respectively.

The reconciliation of the federal statutory income tax rate to our effective income tax rate for the years ended October 31, 2017, 2016 and 2015 was as follows:

	2017	2016	2015
Statutory federal income tax rate	**(34.0)%**	(34.0)%	(34.0)%
Increase (decrease) in income taxes resulting from:			
State taxes, net of Federal benefits	**(1.3)%**	(0.2)%	(0.1)%
Foreign withholding tax	**0.1%**	1.1%	0.9%
Net operating loss adjustment and true-ups	**(4.6)%**	3.3%	4.7%
Nondeductible expenditures	**1.9%**	0.9%	0.1%
Change in state tax rate	**(0.8)%**	(0.3)%	1.6%
Other, net	**0.6%**	0.2%	0.4%
Valuation allowance	**38.2%**	30.1%	27.3%
Effective income tax rate	**0.1%**	1.1%	0.9%

Our deferred tax assets and liabilities consisted of the following at October 31, 2017 and 2016 (in thousands):

	2017	2016
Deferred tax assets:		
Compensation and benefit accruals	**$ 11,158**	$ 9,625
Bad debt and other allowances	**605**	1,276
Capital loss and tax credit carry-forwards	**13,398**	12,772
Net operating losses (domestic and foreign)	**282,022**	265,799
Deferred license revenue	**7,850**	8,616
Inventory valuation allowances	**111**	278
Accumulated depreciation	**5,095**	4,653
Grant revenue	**1,522**	1,327
Gross deferred tax assets:	**321,761**	304,346
Valuation allowance	**(321,761)**	(304,346)
Deferred tax assets after valuation allowance	**—**	—
Deferred tax liability:		
In process research and development	**(3,377)**	(3,377)
Net deferred tax liability	**$ (3,377)**	$ (3,377)

We continually evaluate our deferred tax assets as to whether it is "more likely than not" that the deferred tax assets will be realized. In assessing the realizability of our deferred tax assets, management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies. Based on the projections for future taxable income over the periods in which the deferred tax assets are realizable, management believes that significant uncertainty exists surrounding the recoverability of the deferred tax assets. As a result, we recorded a full valuation allowance against our deferred tax assets. None of the valuation allowance will reduce additional paid in capital upon subsequent recognition of any related tax benefits. In connection with our fiscal year 2013 acquisition of Versa we recorded a deferred tax liability for IPR&D, which has an indefinite life. Accordingly, we do not consider it to be a source of taxable income in evaluating the recoverability of our deferred tax assets.

As of October 31, 2017, we had federal and state NOL carryforwards of $752.7 million and $414.7 million, respectively, a portion of which ($7.4 million and $6.3 million of federal and state NOL carryforwards, respectively) have not been recognized as they relate to windfall benefits arising from share-based compensation. The federal NOL carryforwards expire in varying amounts from 2019 through 2037 while state NOL carryforwards expire in varying amounts from fiscal year 2018 through 2037. Additionally, we had $11.6 million of state tax credits available, of which $0.6 million expires in fiscal year 2018. The remaining credits do not expire.

Certain transactions involving the Company's beneficial ownership occurred in fiscal year 2014 and prior years, which could have resulted in a stock ownership change for purposes of Section 382 of the Internal Revenue Code of 1986, as amended. We completed a detailed Section 382 study in fiscal year 2017 to determine if any of our NOL and credit carryovers will be subject to limitation. Based on that study we have determined that there was no ownership change as of the end of our fiscal year 2017 under Section 382. The acquisition of Versa in fiscal year 2013 triggered a Section 382 ownership change which will limit the future usage of some of the federal and state NOLs. The federal and state NOLs that are non 382-limited are included in the NOL deferred tax assets as disclosed.

As discussed in Note 1, the Company's financial statements reflect expected future tax consequences of uncertain tax positions that the Company has taken or expects to take on a tax return (including a decision whether to file or not file a return in a particular jurisdiction) presuming the taxing authorities' full knowledge of the position and all relevant facts.

The liability for unrecognized tax benefits as of October 31, 2017 and 2016 was $15.7 million. This amount is directly associated with a tax position taken in a year in which federal and state NOL carryforwards were generated. Accordingly, the amount of unrecognized tax benefit has been presented as a reduction in the reported amounts of our federal and state NOL carryforwards. It is our policy to record interest and penalties on unrecognized tax benefits as income taxes; however, because of our significant NOLs, no provision for interest or penalties has been recorded.

We file income tax returns in the U.S. and certain states, primarily Connecticut and California, as well as income tax returns required internationally for South Korea and Germany. We are open to examination by the Internal Revenue Service and various states in which we file for fiscal year 2000 to the present. Our 2016 U.S. federal tax return is currently under examination by the Internal Revenue Service.

Note 17. Earnings Per Share

Basic earnings (loss) per common share ("EPS") are generally calculated as income (loss) available to common stockholders divided by the weighted average number of common shares outstanding. Diluted EPS is generally calculated as income (loss) available to common stockholders divided by the weighted average number of common shares outstanding plus the dilutive effect of common share equivalents.

The calculation of basic and diluted EPS for the years ended October 31, 2017, 2016 and 2015 was as follows (amounts in thousands, except share and per share amounts):

	2017	2016	2015
Numerator			
Net loss	**$(53,903)**	$(51,208)	$(29,684)
Net loss attributable to noncontrolling interest	**—**	251	325
Preferred stock dividend	**(3,200)**	(3,200)	(3,200)
Net loss attributable to common stockholders	**$(57,103)**	$(54,157)	$(32,559)
Denominator			
Weighted average basic common shares	**49,914,904**	29,773,700	24,513,731
Effect of dilutive securities [1]	**—**	—	—
Weighted average diluted common shares	**49,914,904**	29,773,700	24,513,731
Basic loss per share	**$(1.14)**	$(1.82)	$(1.33)
Diluted loss per share [1]	**$(1.14)**	$(1.82)	$(1.33)

(1) Due to the net loss to common stockholders in each of the years presented above, diluted earnings per share was computed without consideration to potentially dilutive instruments as their inclusion would have been antidilutive. As of October 31, 2017, 2016 and 2015, potentially dilutive securities excluded from the diluted loss per share calculation are as follows:

	October 31, 2017	October 31, 2016	October 31, 2015
May 2017 Offering - Series C Warrants	**11,580,900**	—	—
May 2017 Offering - Series D Warrants	**2,584,174**	—	—
July 2016 Offering - Series A Warrants	**7,680,000**	7,680,000	—
July 2016 Offering - Series B Warrants	**—**	3,826,000	—
July 2014 Offering - NRG Warrants	**—**	166,666	166,666
Outstanding options to purchase common stock	**309,950**	246,923	257,769
Unvested RSAs	**1,898,692**	915,831	450,783
Series C Preferred Shares to satisfy conversion requirements [1]	**18,097,826**	—	—
5% Series B Cumulative Convertible Preferred Stock [2]	**454,043**	454,043	454,043
Series 1 Preferred Shares to satisfy conversion requirements [2]	**15,167**	15,167	15,167
Total potentially dilutive securities	**42,620,752**	13,304,630	1,344,428

(1) The number of shares of common stock issuable upon conversion of the Series C Preferred Stock was calculated using the stated value outstanding on October 31, 2017 of $33,300,000 (original total stated value of $33,500,000 less conversion through October 31, 2017 totaling $200,000) divided by the conversion price of $1.84.
(2) Refer to Note 13, Redeemable Preferred Stock, for information on the calculation of the common shares upon conversion.

Note 18. Commitments and Contingencies

Lease agreements

As of October 31, 2017 and 2016, we had capital lease obligations of $0.6 million and $0.7 million, respectively. Lease payment terms are thirty-six months from the date of lease.

We also lease certain computer and office equipment and manufacturing facilities in Torrington and Danbury, Connecticut under operating leases expiring on various dates through 2030. Rent expense was $1.6 million, $1.8 million and $1.7 million for the years ended October 2017, 2016 and 2015, respectively.

Non-cancelable minimum payments applicable to operating and capital leases at October 31, 2017 were as follows (in thousands):

	Operating Leases	Capital Leases
2018	$1,181	$ 353
2019	910	211
2020	403	54
2021	381	10
2022	377	4
Thereafter	3,289	—
Total	$6,541	$ 632

Service Agreements

Under the provisions of our service agreements, we provide services to maintain, monitor, and repair customer power plants to meet minimum operating levels. Under the terms of our service agreements, the power plant must meet a minimum operating output during the term. If minimum output falls below the contract requirement, we may be subject to performance penalties and/or may be required to repair or replace the customer's fuel cell module(s). An estimate is not recorded for a potential performance guarantee liability until a performance issue has occurred at a particular power plant. At that point, the actual power plant's output is compared against the minimum output guarantee and an accrual is recorded. The review of power plant performance is updated for each reporting period to incorporate the most recent performance of the power plant and minimum output guarantee payments made to customers, if any. The Company has provided for an accrual for performance guarantees, based on actual fleet performance, which totaled $2.2 million and $3.3 million as of October 31, 2017 and 2016, respectively, and is recorded in "Accrued liabilities."

Our loss accrual on service agreements, excluding the accrual for performance guarantees, totaled $1.1 million and $2.7 million as of October 31, 2017 and 2016, respectively, and is recorded in "Accrued liabilities." Our accrual estimates are performed on a contract by contract basis and include cost assumptions based on what we anticipate the service requirements will be to fulfill obligations under each contract. The decrease primarily relates to module exchanges performed during the year ended October 31, 2017.

Power Purchase Agreements

Under the terms of our PPAs, customers agree to purchase power from our fuel cell power plants at negotiated rates. Electricity rates are generally a function of the customers' current and future electricity pricing available from the grid. As lessee of the power plants, we are responsible for all operating costs necessary to maintain, monitor and repair the power plants. Under certain agreements, we are also responsible for procuring fuel, generally natural gas, to run the power plants.

Expansion of Torrington Facility and Related Low-Cost Financing

In December 2015, the Company commenced the first phase of its project to expand the existing 65,000 square foot manufacturing facility in Torrington, Connecticut by approximately 102,000 square feet for a total size of 167,000 square feet. Initially, this additional space will be used to enhance and streamline logistics functions through consolidation of satellite warehouse locations and will provide the space needed to reconfigure the existing production process to improve manufacturing efficiencies. The Company has substantially completed the first phase of the expansion during the fourth quarter of fiscal year 2017.

On November 9, 2015, the Company closed on a definitive Assistance Agreement with the State of Connecticut and received a disbursement of $10.0 million that was used for the first phase of the expansion project. In conjunction with this financing, the Company entered into a $10.0 million Promissory Note and related security agreements. The second phase of our manufacturing expansion, for which we will be eligible, subject to certain conditions to receive an additional $10.0 million in low-cost financing from the State of Connecticut, will commence as demand supports.

Other

At October 31, 2017, the Company has unconditional purchase commitments aggregating $29.1 million, for materials, supplies and services in the normal course of business.

Under certain sales and financing agreements the Company is contractually committed to provide compensation for any losses that our customers and finance partners may suffer in certain limited circumstances resulting from reductions in the U.S. Investment Tax Credit. Such obligations would arise as a result of reductions to the value of the underlying fuel cell projects as assessed by the U.S. Internal Revenue Service (the "IRS"). The Company does not believe that any payments under these contracts are probable based on the facts known at the reporting date. The maximum potential future payments that the Company could have to make under this obligation would depend on the difference between the fair values of the fuel cell projects sold or financed and the values the IRS would determine as the fair value for the systems for purposes of claiming the Investment Tax Credit. The value of the Investment Tax Credit in the Company's agreements is based on guidelines provided by the statutory regulations from the IRS. The Company and its customers use fair values determined with the assistance of independent third-party appraisals.

We are involved in legal proceedings, claims and litigation arising out of the ordinary conduct of our business. Although we cannot assure the outcome, management presently believes that the result of such legal proceedings, either individually, or in the aggregate, will not have a material adverse effect on our consolidated financial statements, and no material amounts have been accrued in our consolidated financial statements with respect to these matters.

Note 19. Supplemental Cash Flow Information

The following represents supplemental cash flow information (in thousands):

	Year Ended October 31,		
	2017	2016	2015
Cash interest paid	**$2,715**	$1,941	$677
Income taxes paid	**2**	80	8
Noncash financing and investing activity:			
Common stock issued for Employee Stock Purchase Plan in settlement of prior year accrued employee contributions	**50**	105	169
Noncash reclass from inventory to project assets	**7,282**	—	—
Assumption of debt in conjunction with asset acquisition	**2,289**	—	—
Acquisition of project assets	**2,386**	—	—
Accrued sale of common stock, cash received in a subsequent period	**—**	357	494
Accrued purchase of fixed assets, cash paid in subsequent period	**2,490**	3,952	—
Accrued purchase of project assets, cash paid in subsequent period	**2,380**	1,797	—

Note 20. Quarterly Information (Unaudited)

Selected unaudited financial data for each quarter of fiscal year 2017 and 2016 is presented below. We believe that the information reflects all normal recurring adjustments necessary for a fair presentation of the information for the periods presented (in thousands).

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Full Year
Year ended October 31, 2017					
Revenues	**$ 17,002**	**$ 20,417**	**$ 10,358**	**$ 47,889**	**$ 95,666**
Gross profit (loss)	**1,813**	**383**	**(2,626)**	**3,164**	**2,734**
Loss on operations	**(10,928)**	**(11,496)**	**(14,330)**	**(8,181)**	**(44,935)**
Net loss	**(13,685)**	**(13,238)**	**(17,001)**	**(9,979)**	**(53,903)**
Preferred stock dividends	**(800)**	**(800)**	**(800)**	**(800)**	**(3,200)**
Net loss to common stockholders	**(14,485)**	**(14,038)**	**(17,801)**	**(10,779)**	**(57,103)**
Net loss to common stockholders per basic and diluted common share [1]	**$ (0.39)**	**$ (0.33)**	**$ (0.31)**	**$ (0.17)**	**$ (1.14)**
Year ended October 31, 2016					
Revenues	$ 33,482	$ 28,581	$ 21,716	$ 24,473	$ 108,252
Gross (loss) profit	(166)	(157)	434	(468)	(357)
Loss on operations	(11,517)	(12,708)	(10,323)	(11,805)	(46,353)
Net loss	(11,779)	(15,414)	(11,067)	(12,948)	(51,208)
Preferred stock dividends	(800)	(800)	(800)	(800)	(3,200)
Net loss to common stockholders	(12,512)	(16,173)	(11,810)	(13,662)	(54,157)
Net loss to common stockholders per basic and diluted common share [1]	$ (0.48)	$ (0.56)	$ (0.38)	$ (0.41)	$ (1.82)

[1] The full year net loss to common stockholders basic and diluted share may not equal the sum of the quarters due to weighting of outstanding shares.

Note 21. Subsequent Events

Authorized Common Stock

On December 14, 2017, the number of authorized shares of the Company's common stock was increased from 125,000,000 to 225,000,000, by a vote of the holders of a majority of the outstanding shares of the Company's common stock.

NASDAQ Marketplace Rule 5635(d)

On December 14, 2017, in accordance with NASDAQ Marketplace Rule 5635(d), the Company's common stockholders approved the issuance of shares of the Company's common stock exceeding 19.9% of the number of shares outstanding on September 5, 2017, upon the conversion and/or redemption of the Series C Convertible Preferred Stock issued in an underwritten offering in September 2017.

Tax Cuts and Jobs Act

On December 22, 2017 the Tax Cuts and Jobs Act (the "Act") was signed into law. While enacted subsequent to this balance sheet date, the Act changes existing United States tax law and includes numerous provisions that will affect the Company. Specifically, the reduction of the U.S. federal tax rate from 34% to 21% effective January 1, 2018 will reduce the Company's deferred tax liability IPR&D by approximately $1.0 million with the benefit to be reflected in the first quarter of fiscal year 2018. The reduction in the federal tax rate will also reduce the value of the Company's existing deferred tax assets, though an offsetting decrease to valuation allowance would be recorded.

QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Interest Rate Exposure

Cash is invested overnight with high credit quality financial institutions and therefore we are not exposed to market risk on our cash holdings from changing interest rates. Based on our overall interest rate exposure as of October 31, 2017, including all interest rate sensitive instruments, a change in interest rates of 1% would not have a material impact on our results of operations.

Foreign Currency Exchange Risk

As of October 31, 2017, approximately 4% of our total cash, cash equivalents and investments were in currencies other than U.S. dollars (primarily the Euro, Canadian dollars and South Korean Won) and we have no plans of repatriation. We make purchases from certain vendors in currencies other than U.S. dollars. Although we have not experienced significant foreign exchange rate losses to date, we may in the future, especially to the extent that we do not engage in currency hedging activities. The economic impact of currency exchange rate movements on our operating results is complex because such changes are often linked to variability in real growth, inflation, interest rates, governmental actions and other factors. These changes, if material, may cause us to adjust our financing and operating strategies.

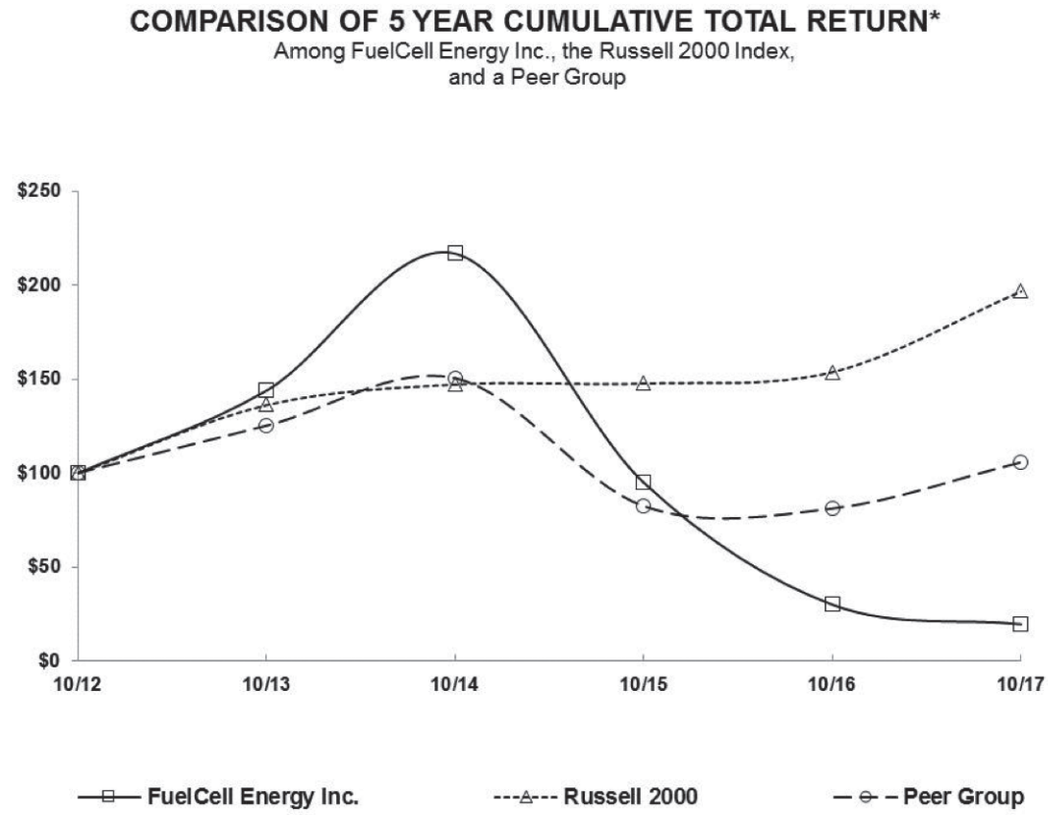
Derivative Fair Value Exposure

Series 1 Preferred Stock

The conversion feature and the variable dividend obligation of our Series 1 Preferred Shares are embedded derivatives that require bifurcation from the host contract. The aggregate fair value of these derivatives included within long-term debt and other liabilities as of October 31, 2017 and 2016 was $0.8 million and $0.7 million, respectively. The fair value was based on valuation models using various assumptions, including historical stock price volatility, risk-free interest rate and a credit spread based on the yield indexes of technology high yield bonds, foreign exchange volatility as the Series 1 Preferred Shares are denominated in Canadian dollars, and the closing price of our common stock. Changes in any of these assumptions would change the underlying fair value with a corresponding charge or credit to operations.

PERFORMANCE GRAPH

The following graph compares the annual change in the Company's cumulative total stockholder return on its common stock for the five fiscal years ended October 31, 2017 with the cumulative stockholder total return on the Russell 2000 Index, a peer group consisting of Standard Industry Classification ("SIC) Group Code 3690 companies listed on the Nasdaq Global Market and New York Stock Exchange and a customized 12 company peer group. It assumes $100.00 invested on October 31, 2012 with dividends reinvested.



*$100 invested on 10/31/12 in stock or index, including reinvestment of dividends.
Fiscal year ending October 31.

FORWARD-LOOKING STATEMENT DISCLAIMER

This Annual Report contains statements that the Company believes to be "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. All statements other than statements of historical fact included in this Annual Report, including statements regarding the Company's future financial condition, results of operations, business operations and business prospects, are forward-looking statements. Words such as "expects," "anticipates," "estimates," "projects," "intends," "plans," "believes," "predicts," "should," "will," "could," "would," "may," "forecast," and similar expressions and variations of such words are intended to identify forward-looking statements. Such statements relate to, among other things, the following:

- the development and commercialization by FuelCell Energy, Inc. and its subsidiaries ("FuelCell Energy," "Company," "we," "us" and "our") of fuel cell technology and products and the market for such products,
- expected operating results such as revenue growth and earnings,
- our belief that we have sufficient liquidity to fund our business operations for the next 12 months,
- future funding under Advanced Technologies contracts,
- future financing for projects including publicly issued bonds, equity and debt investments by investors and commercial bank financing,
- the expected cost competitiveness of our technology, and
- our ability to achieve our sales plans and cost reduction targets.

The forward-looking statements contained in this report are subject to risks and uncertainties, known and unknown, that could cause actual results to differ materially from those forward-looking statements, including, without limitation, the risks contained under Item 1A - Risk Factors included in our Form 10-K for the fiscal year ended October 31, 2017, filed with the Securities and Exchange Commission on January 11, 2018 and the following:

- general risks associated with product development and manufacturing,
- general economic conditions,
- changes in the utility regulatory environment,
- changes in the utility industry and the markets for distributed generation, distributed hydrogen, and carbon capture configured fuel cell power plants for coal and gas-fired central generation,
- potential volatility of energy prices,
- availability of government subsidies and economic incentives for alternative energy technologies,
- rapid technological change,
- competition,
- market acceptance of our products,
- changes in accounting policies or practices adopted voluntarily or as required by accounting principles generally accepted in the United States,
- factors affecting our liquidity position and financial condition,
- government appropriations,
- the ability of the government to terminate its development contracts at any time,
- the ability of the government to exercise "march-in" rights with respect to certain of our patents,
- our changing relationship with POSCO Energy, which may affect our ability to develop the market in Asia and deploy SureSource power plants,
- our ability to implement our strategy,
- our ability to reduce our levelized cost of energy and cost reduction strategy generally,
- our ability to protect our intellectual property,
- the risk that commercialization of our products will not occur when anticipated,
- our ability to generate positive cash flow from operations,
- our ability to service our long-term debt,
- our ability to increase the output and longevity of our power plants, and
- our ability to expand our customer base and maintain relationships with our largest customers and strategic business allies.

We cannot assure you that:

- we will be able to meet any of our development or commercialization schedules,
- any of our new products or technology, once developed, will be commercially successful,
- our existing SureSource power plants will remain commercially successful,
- the government will appropriate the funds anticipated by us under our government contracts,
- the government will not exercise its right to terminate any or all of our government contracts, or
- we will be able to achieve any other result anticipated in any other forward-looking statement contained herein.

The forward-looking statements contained herein speak only as of the date of this report. Except for ongoing obligations to disclose material information under the federal securities laws, we expressly disclaim any obligation or undertaking to release publicly any updates or revisions to any such statement to reflect any change in our expectations or any change in events, conditions or circumstances on which any such statement is based.

STOCKHOLDER INFORMATION

Corporate Offices
FuelCell Energy, Inc.
3 Great Pasture Road
Danbury, CT 06810

Form 10-K
A copy of the Annual Report on Form 10-K for the year ended October 31, 2017, which is filed with the U.S. Securities and Exchange Commission, can be accessed from our website at www.fuelcellenergy.com. We will provide, without charge, a copy of the Annual Report on Form 10-K for the year ended October 31, 2017. You may request a copy by writing to Investor Relations at the address below.

Company Contacts
For additional information about FuelCell Energy, Inc. please contact:

FuelCell Energy, Inc.
Investor Relations
3 Great Pasture Road
Danbury, CT 06810
IR@fce.com

Corporate Website
www.fuelcellenergy.com

Registrar and Transfer Agent
Stockholders with questions regarding lost certificates, address changes or changes of ownership should contact:

American Stock Transfer & Trust Company, LLC
Operations Center
6201 15th Avenue
Brooklyn, NY 11219
(800) 937.5449
(718) 921.8124
info@amstock.com
www.amstock.com

Independent Registered Public Accounting Firm
KPMG LLP

Legal Counsel
Foley & Lardner LLP

Annual Meeting
The Annual Meeting of Stockholders will be held Thursday, April 5, 2018 at 10:00 a.m. at:

JW Marriott Essex House New York
160 Central Park South
New York, NY

Common Stock Price Information
Our common stock has been publicly traded since June 25, 1992. Our common stock trades under the symbol "FCEL" on the Nasdaq Global Market. The following table sets forth the high and low sale prices for our common stock for the fiscal periods indicated as reported by the Nasdaq Global Market during the indicated quarters.

Common Stock Price	High	Low
First Quarter 2018 (through January 2, 2018)	$ 2.31	$1.50
Year Ended October 31, 2017		
First Quarter	$ 3.40	$1.40
Second Quarter	1.98	1.00
Third Quarter	1.79	0.80
Fourth Quarter	2.49	1.33
Year Ended October 31, 2016		
First Quarter	$12.24	$4.51
Second Quarter	8.08	4.56
Third Quarter	8.88	5.02
Fourth Quarter	5.67	3.35

On January 2, 2018, the closing price of our common stock on the Nasdaq Global Market was $1.74 per share. As of January 2, 2018, there were 185 holders of record of our common stock. This does not include the number of persons whose stock is in nominee or "street" name accounts through brokers.

We have never paid a cash dividend on our common stock and do not anticipate paying any cash dividends on our common stock in the foreseeable future. In addition, the terms of our Series B preferred shares prohibit the payment of dividends on our common stock unless all dividends on the Series B preferred stock have been paid in full.

Non-Discrimination Statement

FuelCell Energy, Inc. is an Equal Opportunity/Affirmative Action employer. In order to provide equal employment and advancement opportunities to all individuals, our employment decisions will be based on merit, qualifications and abilities. We do not discriminate in employment opportunities or practices on the basis of race, color, religion, creed, age, sex, marital status, national origin, disability, protected veteran status, sexual orientation, gender identification, genetic information, or any other characteristic protected by federal, state or local law.

DIRECTORS AND OFFICERS

BOARD OF DIRECTORS

John A. Rolls [1, 2, 3, 5]
Former Executive Vice President and
Chief Financial Officer of
United Technologies

Arthur A. Bottone [2]
President and Chief Executive Officer of
FuelCell Energy, Inc.

James H. England [3, 4]
Corporate Director and Chief Executive Officer of
Stahlman—England Irrigation, Inc.

Matthew F. Hilzinger [3, 5]
Executive Vice President and Chief Financial Officer of
USG Corporation

Christopher S. Sotos
President, Chief Executive Officer and Director of
NRG Yield, Inc.

Natica von Althann [3, 4, 5]
Former financial executive at Bank of America
and Citigroup

Togo Dennis West, Jr. [2, 4, 5]
Former U.S. Secretary of the Army and
U.S. Secretary of Veterans Affairs

[1] Chairman of the Board of Directors
[2] Executive Committee
[3] Audit and Finance Committee
[4] Compensation Committee
[5] Nominating and Corporate Governance Committee

OFFICERS

Arthur A. Bottone
President and Chief Executive Officer

Michael S. Bishop
Senior Vice President, Chief Financial Officer and Treasurer

Anthony F. Rauseo
Senior Vice President and Chief Operating Officer

Jennifer D. Arasimowicz
Senior Vice President, General Counsel and Corporate Secretary

Statements in this Report relating to matters not historical are forward-looking statements that involve important factors that could cause actual results to differ materially from those anticipated. Cautionary statements identifying such important factors are described in reports, including the Form 10-K for the fiscal year ended October 31, 2017, filed by FuelCell Energy, Inc. with the Securities and Exchange Commission and available at www.fuelcellenergy.com.

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Danbury, CT 06813-1305
203.825.6000

www.FuelCellEnergy.com