

FUELCELL ENERGY INC  
Form 10-K  
January 12, 2017

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549  
FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934  
For the fiscal year ended October 31, 2016  
OR

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

For the transition period from \_\_\_\_\_ to \_\_\_\_\_  
Commission file number: 1-14204  
FUELCELL ENERGY, INC.  
(Exact name of registrant as specified in its charter)

Delaware 06-0853042  
(State or other jurisdiction of (I.R.S. Employer  
incorporation or organization) Identification No.)

3 Great Pasture Road  
Danbury, Connecticut 06810  
(Address of principal executive offices) (Zip Code)  
Registrant's telephone number, including area code: (203) 825-6000  
Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock, \$.0001 par value per share	The Nasdaq Stock Market LLC (Nasdaq Global Market)

Securities registered pursuant to Section 12(g) of the Act: None  
Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.  
Yes  No   
Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act. Yes  No

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Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes  No   
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes  No

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

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

Large accelerated filer  Accelerated filer  Non-accelerated filer  Smaller reporting company   
(Do not check if a smaller reporting company)

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

At April 29, 2016, the aggregate market value of the registrant's common stock held by non-affiliates of the registrant was \$156,420,510 based on the closing sale price of \$5.96 as reported on the NASDAQ Global Market.

Indicate the number of shares outstanding of each of the registrant's classes of common stock, as of the latest practicable date.

Class	Outstanding at January 3, 2017
Common Stock, \$.0001 par value per share	40,266,946

DOCUMENT INCORPORATED BY REFERENCE

Document	Parts Into Which Incorporated
Proxy Statement for the Annual Meeting of Shareholders to be held April 6, 2017(Proxy Statement)	Part III

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FUELCELL ENERGY, INC.

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PART I

Item 1. BUSINESS

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### Forward-Looking Statement Disclaimer

When used in this report, the words “expects”, “anticipates”, “estimates”, “should”, “will”, “could”, “would”, “may”, “forecast” similar expressions 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 technology 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 of this report 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,
- POSCO’s ability to develop the market in Asia, deploy Direct FuelCel<sup>®</sup> (“DFC”) power plants and successfully operate its Asian manufacturing facility,
- our ability to implement our strategy,
- our ability to reduce our levelized cost of energy,
- 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 partners.

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 DFC power plants will remain commercially successful, or
- 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,
- 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.

#### Background

Information contained in this report concerning the utility industry and the distributed generation market, our general expectations concerning this industry and this market, and our position within this industry are based on market research, industry publications, other publicly available information and on assumptions made by us based on this information and our knowledge of this industry and this market, which we believe to be reasonable. Although we believe that the market research, industry publications and other publicly available information are reliable, including the sources that we cite in this report, they have not been independently verified by us and, accordingly, we cannot assure you that such information is accurate in all material respects. Our estimates, particularly as they relate to our general expectations concerning the electric power supply industry and the distributed generation market, involve risks and uncertainties and are subject to change based on various factors, including those discussed under Item 1A - Risk Factors of this report.

As used in this report, all degrees refer to Fahrenheit (“F”); kilowatt (“kW”) and megawatt (“MW”) numbers designate nominal or rated capacity of the referenced power plant; “efficiency” or “electrical efficiency” means the ratio of the electrical energy generated in the conversion of a fuel to the total energy contained in the fuel (lower heating value, the standard for power plant generation, assumes the water in the product is in vapor form; as opposed to higher heating value, which assumes the water in the product is in liquid form, net of parasitic load); kW means 1,000 watts; MW means 1,000,000 watts; “kilowatt hour” (“kWh”) is equal to 1kW of power supplied to or taken from an electric circuit steadily for one hour; and one British Thermal Unit (“Btu”) is equal to the amount of heat necessary to raise one pound of pure water from 59°F to 60°F at a specified constant pressure.

All dollar amounts are in U.S. dollars unless otherwise noted.

#### Additional Technical Terms and Definitions

**Availability** - A measure of the amount of time a system is available to operate, as a fraction of total calendar time. For power generation equipment, an industry standard (IEEE (The Institute of Electrical and Electronics Engineers) 762, “Definitions for Use in Reporting Electric Generating Unit Reliability, Availability and Productivity”) is used to compute availability. “Availability percentage” is calculated as total period hours since Commercial Operations Date less hours not producing electricity due to planned and unplanned maintenance divided by total period hours. Grid disturbances, force majeure events and site specific issues such as a lack of available fuel supply or customer infrastructure repair do not penalize the calculation of availability according to this standard.

**Baseload** - Consistent power generation that is available to meet electricity demands around-the-clock. This differs from peak or peaking power generation that is designed to be turned on or off quickly to meet sudden changes in electricity demand, or intermittent power generation such as solar or wind.

**Carbonate Fuel Cell ( or “CFC”)** - Carbonate fuel cells, such as the fuel cell power plants produced and sold by FuelCell Energy, are high-temperature fuel cells that use an electrolyte composed of a molten carbonate salt mixture suspended in a porous, chemically inert ceramic-based matrix. CFC's operate at high temperatures, enabling the use of a nickel-based catalyst, a lower cost alternative to precious metal catalysts used in some other fuel cell technologies.

**Combined Heat & Power (“CHP”)** - A power plant configuration or mode of operation featuring simultaneous on-site generation from the same unit of fuel of both electricity and heat with the byproduct heat used to produce steam, hot water or heated air for both heating and cooling applications.

**Commercial Operations Date(COD)**- The date that testing and commissioning of the fuel cell project is completed with power being generated and sold to the end-user.

**Direct FuelCell® (“DFC®”)** - Trademarked product name of FuelCell Energy commercial carbonate fuel cell plants that references the internal reforming process within the fuel cell of a hydrogen-rich fuel source such as natural gas.

**Distributed Generation** - Electric power that is generated where it is needed (distributed throughout the power grid) rather than from a central location. Centrally generated power requires extensive transmission networks that require

maintenance and experience efficiency losses during transmission while distributed generation does not. Distributed generation is small to mid-

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size power plants, typically 75 megawatts or less. Central generation is large power plants generating hundreds or even thousands of megawatts.

Levelized Cost of Energy (LCOE) - The net present value of the unit-cost of electricity over the lifetime of a generating asset repaired for a project developer to recover all costs, including capital costs, operations and maintenance costs, financing costs and a reasonable return.

Micro-grid - Micro-grids are localized electric grids that can disconnect from the traditional electric grid to operate autonomously and strengthen grid resiliency. Micro-grids can be composed only of DFC plants due to their continual power output or combine a variety of different types of power generation such as fuel cells and solar arrays.

Nitrogen Oxides (“NOx”) - Generic term for a group of highly reactive gases, all of which contain nitrogen and oxygen in varying amounts. Many of the NOx are colorless and odorless; however they are a major precursor to smog production and acid rain. However, one common pollutant, Nitrogen Dioxide, along with particles in the air, can often be seen as a reddish-brown layer over many urban areas. NOx form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NOx are motor vehicles, electric utilities, and other industrial, commercial and residential sources that burn fuels.

Particulate Matter (PM) - Solid or liquid particles emitted into the air that are generally caused by the combustion of materials or dust generating activities. Particulate matter caused by combustion can be harmful to humans as the fine particles of chemicals, acids and metals may get lodged in lung tissue.

Power Purchase Agreement (PPA) - A Power Purchase Agreement is a contract that enables a power user to purchase energy under a long-term contract where user agrees to pay a predetermined rate for the kilowatt-hours delivered from a power generating asset while avoiding the need to own the equipment and pay the upfront capital cost. The length of the contract varies, typically ranging from 10 to 20 years. The PPA rate is typically fixed (with an escalation clause tied to consumer price index or similar index), or pegged to a floating index that is on par with or below the current electricity rate being charged by the local utility company.

Renewable Biogas - Renewable biogas is fuel produced by biological breakdown of organic material. Biogas is commonly produced in biomass digesters employing bacteria in a heated and controlled oxygen environment. These digesters are typically used at wastewater treatment facilities or food processors to break down solid waste and the biogas is produced as a byproduct of the waste digestion. Biomass may be generated in digesters from agricultural waste, or it can be produced in less controlled fashion by breakdown of waste in landfills. These biogas fuels can be used as a renewable fuel source for DFCs located on site where the biogas is produced with minimal gas cleanup, or they can be processed further to meet pipeline fuel standards and injected into a gas pipeline network, which is termed Directed Biogas.

Reversible Solid Oxide Fuel Cell (RSOFC) - Reversible Solid Oxide Fuel Cells are based on solid oxide fuel cell technology and can be operated in electrolysis mode, power generation mode, and alternate between the two.

Solid Oxide Electrolysis Cells (“SOEC”) - Solid oxide electrolysis cells are based on solid oxide fuel cell technology and operate in reverse, converting electricity into hydrogen.

Solid Oxide Fuel Cell (“SOFC”) - Solid oxide fuel cells use a hard, non-porous ceramic compound as the electrolyte. Solid oxide fuel cells operate at very high temperatures eliminating the need for costly precious-metal catalysts, thereby reducing cost. The high temperature enables internal reforming of the hydrogen rich fuel source.

Sulfur Oxide (“Sox”) - Sulfur oxide refers to any one of the following: sulfur monoxide, sulfur dioxide (SO<sub>2</sub>) and sulfur trioxide. SO<sub>2</sub> is a byproduct of various industrial processes. Coal and petroleum contain sulfur compounds, and generate SO<sub>2</sub> when burned. Sox compounds are particulate and acid rain precursors.

Overview

We deliver proprietary fuel cell power solutions that enable economic value with the clean and affordable supply, recovery and storage of energy. We serve utilities, 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 5.6 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

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comprehensive turn-key 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 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, Germany and through a technology license, South Korea. We are pursuing expanding opportunities in Asia, Europe, and Canada.

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 very 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 nitrogen oxide ( $\text{NO}_x$ ) that causes smog, sulfur dioxide ( $\text{SO}_x$ ) 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 ratepayers 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.

Utilizing our core DFC plants, we are commercializing a tri-generation distributed hydrogen configuration that generates electricity, heat and hydrogen for industrial and/or transportation uses, as well as a fuel cell carbon capture solution for coal or gas-fired power plants. We also are developing and commercializing SOFC plants for adjacent sub-megawatt applications to the markets for our megawatt-class DFC power plants as well as energy storage (RSOFC) applications utilizing hydrogen as an energy carrier. The market potential for these products is sizeable and these applications are complementary to our core products, as they leverage our existing customer base, project development, manufacturing, sales and service expertise.

FuelCell Energy was founded in Connecticut in 1969 as an applied research organization, providing contract research and development. The Company went public in 1992, raising capital to develop and commercialize fuel cells, 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, operate and provide comprehensive service for the life of the asset.

#### Markets

##### Vertical Markets

Access to clean, affordable, continuous 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 or coal-fired power plants, 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 DFC power plants address these challenges by providing virtually 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
- (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); and NRG Energy (NYSE: NRG), the largest Independent Power Producer (“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 DFC 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 exclusive 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 DFC power plants are producing power for a variety of industrial, commercial, municipal and government customers including manufacturing, pharmaceutical processing, 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 or consistent power supply for on-site applications. Our installed base includes a number of locations where our customers use DFC plants for meeting power needs that complements their 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 and under construction as micro-grids at universities and municipalities. Under normal operation, the fuel cell will supply power to the grid. If the grid is disrupted, the fuel cell 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 DFC power plants convert this biogas into electricity and heat efficiently and economically. By doing so, DFC plants transform waste disposal challenges into clean energy solutions. The wastewater vertical market is the largest biogas market for DFC power plants. Since our fuel cells operate on the renewable biogas produced by the wastewater treatment process and their heat is used to support daily operations at the wastewater treatment facility, the overall thermal efficiency of these installations is very attractive, 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 percent 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. The addressable energy storage market is still developing as different technologies are beginning to come to market with different approaches to storage and different durations for how long the energy can be stored. We estimate that the addressable market for long duration storage may be in the range of tens of billions of dollars.

#### Geographic Markets

We target geographic markets with high urban density that value clean distributed generation. We are pursuing a density strategy, targeting markets with the potential for recurring order flow that justifies investment in local service infrastructure. Our target markets currently have regulatory and legislative policy support such as clean air requirements and economic incentives to support the adoption of clean and renewable distributed power generation. Renewable Portfolio Standards (“RPS”) is a mechanism designed to promote the adoption of renewable power generation and is one market enabler of demand for our power generation solutions. Fuel cells can help states meet RPS clean power mandates by generating highly efficient, clean electricity continuously and near the point of use.

North America: We have active business development activities primarily in the Northeast and on the West Coast where high population density, higher energy costs, the need for distributed generation solutions with a small footprint, and public policy support our product offerings. We can rapidly respond to market demands and construct utility scale plants in less than a year. Most of our installed base in the USA is located in California and Connecticut, both of which have enacted RPS programs. As states look to meet their RPS requirements and utilities further deploy distributed generation to meet consumer demand and improve



the resiliency of their service network, we see significant opportunities to grow our U.S. footprint. Trends away from central generation to a distributed generation model are supportive of demand and our initiatives to continue to improve affordability are expected to lead to increased adoption. We continue to explore opportunities in Canada as two separate carbon capture engineering studies were announced in 2016 exploring the potential application of fuel cell carbon capture systems for oil sand applications in Alberta, Canada.

Europe: The European power generation market values distributed generation, efficiency and low emissions and represents opportunity for stationary fuel cell power plants. As we promote awareness and grow the adoption of our solutions, we are focusing on three specific geographies, including Germany, as it transitions away from nuclear power generation and works to integrate a significant amount of intermittent power generation capacity; the United Kingdom, as it evaluates how to achieve aggressive carbon reduction goals; and Italy with growing adoption of distributed generation. We are active in other West European countries as well.

We serve the European market from offices in Dresden, Germany and a manufacturing facility in Taufkirchen, Germany.

South Korea and the Broader Asia Market: Fuel cells are well-suited for South Korea due to the need to import fuel for power generation, ease of siting in populated areas, and high urban density that makes siting transmission more difficult. Intermittent renewable technologies such as solar and wind are not as well suited due to the geography (high urban densities limit available land for power generation) and climate/topography. The South Korean government has made clean distributed generation power sources a priority to support its growing power needs while minimizing additional investment and congestion of the transmission grid. Fuel cells address these needs and have been designated a key economic driver for the country due to their ultra-clean emissions, high efficiency and reliable distributed generation capabilities that are helping South Korea achieve its RPS and electricity generation goals.

The RPS in South Korea requires an increase of new and renewable power generation to 10% by 2024 from 2% in 2012. The program mandates the addition of 0.5% of renewable power generation per year through 2016, which equates to approximately 350 megawatts, increasing to 1% per year through 2022, or approximately 700 megawatts per year. Fuel cells operating on natural gas and biogas qualify under the mandates of the program.

Select Asian markets with high urban densities, lack of domestic fuel sources, movement away from nuclear power, and a need for cleaner power to reduce smog represent market opportunities. Highly efficient fuel cells maximize power output from high cost imported fuel, and do so without the need to add costly transmission. The Asian market is addressed by our South Korean technology licensee, POSCO Energy, as explained in the following section.

#### Strategic Alliances

We leverage our core capabilities by forging strategic alliances with carefully selected business partners 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 allies' understanding of broad range of markets and customers, products and services, enhances the sales and development of our products, as well as providing endorsement of our power generation solutions. Our global business allies include:

NRG Energy: In 2013, we entered into a teaming and co-marketing agreement with NRG Energy ("NRG"), encompassing both direct sales to NRG customers in North America as well as sales to NRG, to own the fuel cell power plants and sell the power and heat to the end user under power purchase agreements. NRG owns approximately 1.4 million shares of our common stock or approximately 4% of our outstanding shares, 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 the largest IPP in the U.S. with approximately 50,000 megawatts of generation capacity and almost three million retail and commercial customers. We are actively marketing with NRG to its existing customer base.

POSCO Energy: We are allied with POSCO Energy, an IPP with 2015 annual revenues of approximately \$1.7 billion and a subsidiary of South Korean-based POSCO, one of the world's largest steel manufacturers (NYSE: PKX), with 2015 annual revenue of approximately \$51 billion. POSCO Energy owns 2.6 million of our common shares or approximately 7% of our outstanding shares. POSCO Energy has extensive experience in power plant project development, owning and operating power plants in multiple countries and is the largest independent power producer in South Korea.

Our relationship with POSCO Energy has evolved to support Korean market demand for clean distributed generation. The relationship began in 2003 with the sale of a single sub-megawatt demonstration plant and now South Korea has the largest installed

fleet, including a 59 megawatt facility, the world's largest fuel cell park consisting of 21 DFC3000 power plants. POSCO Energy manufactures in South Korea and sells to the Asian market under a licensing and royalty agreement for DFC power plants and collaborates with the Company on many market and product development initiatives.

Fraunhofer IKTS: The Fraunhofer Institute for Ceramic Technologies and Systems IKTS, with its staff of approximately 400 engineers, scientists and technicians, is a world leading institute in the field of advanced ceramics for high tech applications, including fuel cells. The parent organization, Fraunhofer, was founded in 1949 and is Europe's largest application-oriented research organization with an annual research budget of €2 billion (approximately \$2.1 billion) and approximately 23,000 staff, primarily scientists and engineers. Fraunhofer maintains more than 60 research centers and representative offices in Europe, USA, Asia and the Middle East.

Our relationship with Fraunhofer IKTS began in 2012 and involves cooperating on research and development of our core fuel cell technology under research contracts. Fraunhofer IKTS contributes its expertise and extensive research and development capabilities with fuel cells and materials science as well as shares its industry and government relationships to support further adoption of fuel cells.

E.ON Connecting Energies GmbH ("E.ON"): E.ON Connecting Energies is a business unit of E.ON that offers integrated energy solutions for commercial and industrial customers as well as public-sector institutions internationally. During fiscal year 2015, we executed a Project Development Agreement with E.ON Connecting Energies to offer decentralized CHP solutions with megawatt and multi-megawatt fuel cell power plants to E.ON's existing and prospective European customer base, via power purchase agreement financing or leasing structures. The first sale announced under this agreement was a CHP-configured megawatt-class fuel cell plant installation at a German manufacturing company that was commissioned in September 2016. E.ON Connecting Energies owns the power plant and FuelCell Energy Solutions installs, operates and maintains the plant under a long-term service agreement. With more than 45,000 megawatts of power generation assets, a presence in more than a dozen countries, and more than 56,000 employees, the E.ON Group is one of the world's largest utilities.

## Business Strategy

Our business model consists of growing and expanding diverse revenue streams, selectively utilizing strategic partnerships for market development, financing and cost reductions, protecting and leveraging intellectual property to generate value, and identifying and developing new markets for our core technology. Revenue streams include power plant and component sales; engineering, procurement and construction ("EPC") revenue; royalty and license revenue; service revenue including long term service agreements and the sale of power under PPAs; and revenue from public and private industry research contracts under Advanced Technologies.

Our Company vision is to provide ultra-clean, highly efficient, reliable distributed power generation at a cost per kilowatt hour that is less than the cost of grid-delivered electricity in our target markets. We believe we have a clear path to attaining this vision through increased market adoption and continued reduction in the Levelized Cost of Energy (LCOE) for our fuel cell projects.

## Market adoption

We target vertical markets and geographic regions that value clean distributed generation, are located where there is a premium to the cost of grid-delivered electricity, 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 offers local job creation potential and 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 USA and California. We have also installed and are operating

plants in the United Kingdom, Germany, and Switzerland and are pursuing further opportunities in Western Europe and certain other states in the United States. We selectively partner with some of the leading 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. An example is a 40 MW fuel cell-only request for proposal (RFP) issued by PSEG Long Island in late 2016 that seeks competitive fuel cell projects to address power generation shortfalls in specifically targeted regions

of Long Island. We work with utilities and IPPs to demonstrate how our solutions complement central generation by incrementally adding clean power generation when and where needed. One example of this is our two fuel cell plant sales to European utility E.ON as they seek to operate on both sides of the electric meter and avoid losing customers to growing adoption of distributed generation. We believe that we have a strong business model and strategy, demonstrated project development execution and plant operating performance and strategic relationships with committed businesses which will enable the Company to overcome these challenges and grow into a sustainable business.

#### Fuel cell power plant ownership structures

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 a 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 PPA and thus keep 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 PPA's, which is higher than if the projects were sold. Our operating portfolio of retained projects is currently 11.2 MW with an additional 2.8 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 are delivering power at a rate comparable to pricing from the grid in our targeted markets. Federal and state-level 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. In order to broaden the appeal of our products, we need to further reduce our LCOE to be below the grid without incentives.

The Company is integrated across substantially the entire value chain for our projects. 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. Given this level of integration, there are multiple areas and opportunities for cost reductions. There are four 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 to provide 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 reducing the per-unit cost of materials purchasing from higher volumes, supported by continued actions with engineering and manufacturing cost reductions. We manage an integrated global supply chain with our Asian technology licensee, POSCO Energy so as Asian production leads to increased levels of purchasing from the integrated global supply chain, both FuelCell Energy and POSCO Energy will benefit with reductions in LCOE by obtaining lower pricing tiers from suppliers from the greater combined purchasing volume. 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. 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 provide services to remotely monitor, operate, and maintain customer power plants to meet specified performance levels. Operations and maintenance (O&M) is a key driver for power plants to deliver on projected electrical output and revenues for our customers. Many of our service agreements include guarantees for system performance levels including electrical output. While the electrical and mechanical balance of plant (BOP) in our DFC power plants is designed to last over 25 years, the fuel cell modules are currently scheduled for replacement every five years, the price of

which is included in our service agreements. Customers benefit from predictable savings and financial returns over the life of the contract and minimal risk. Our goal is to optimize our customers' power plants to meet expected operating parameters throughout the plant's operational life. 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 are actively developing 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<sub>2</sub>") and only trace levels of pollutants compared to combustion-type power generation. Our power plants operate on a variety of existing and readily available fuels including natural gas, renewable biogas, directed biogas and propane. Our core DFC power plants deliver electrical efficiencies of 47% and hybrid applications and advanced configurations are capable of delivering electrical efficiencies of 60% or greater. In a CHP configuration, our plants can deliver up to 90% total 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 are witnessing greater interest in the pay-as-you-go PPA approach by end users that prefer to avoid the up-front investment in power generation assets. Our ability to provide the end-user with financing options or to retain projects that we develop helps to accelerate order flow. 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 our ability to attract bank credit and financial and project performance credibility to continue to improve, which we expect will lead to further decreases in financing costs.

Our core fuel cell platform is versatile and part of our strategy is finding new applications for our power generation solution. Advanced Technology Programs, discussed in a following section, identifies and obtains private and government funding sources to commercialize new applications of the power plants, such as distributed hydrogen and carbon capture. Energy storage applications are also being pursued utilizing both carbonate and solid oxide fuel cell technology.

## Products

Our core fuel cell products offer ultra-clean, highly efficient power generation for customers including the 2.8 MW DFC3000<sup>®</sup>, the 1.4 MW DFC1500<sup>®</sup> and the recently introduced 3.7 MW DFC4000, plus derivations of this core DFC product for specific applications. The plants are scalable for multi-megawatt utility scale applications or on-site CHP generation for a broad range of applications. We can provide a comprehensive and complete turn-key fuel cell project that includes project development, EPC services, O&M and project finance.

Our proprietary DFC 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 DFC operates at approximately 1,100° Fahrenheit. 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 PEM and phosphoric acid. As a result, we

are able to use less expensive and readily available industrial metals as catalysts for our fuel cell components. In addition, our DFC fuel cell produces high quality byproduct heat (approximately 700°F) that can be utilized for CHP applications using hot water, steam or chiller water for facility heating and cooling.

The DFC product line is a global platform based on carbonate fuel cell technology. Utilizing 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 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, suitable for making steam or hot water for facility use as well as absorption cooling. System efficiencies can reach up to 90%, depending on the application, when configured for CHP.



We market different configurations of the DFC plants to meet specific market needs, 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 support economics and sustainability goals by lessening or even avoiding the need for combustion-based boilers for heat and their associated cost, pollutants and carbon emissions. On-site CHP power projects generally range in size from a single 1.4 MW DFC1500 to combining multiple 2.8 MW DFC3000 power plants for larger on-site projects. For example, an installation at a pharmaceutical company uses two power plants for 5.6 MW of power and heat production.

**Utility Grid Support:** The DFC 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 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 megawatts 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 the 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 DFC 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 DFC4000™ (High Efficiency Fuel Cell) system is configured with a series of three fuel cell modules that operate in sequence, yielding a higher electrical efficiency than the standard DFC3000 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, along with some natural gas to generate additional electricity. This high efficiency configuration is designed to extract more electrical power from each unit of fuel with electrical efficiency of approximately 60% and is targeted at applications with large load requirements and limited waste heat utilization such as utility/grid support or data centers.

**Distributed Hydrogen:** The DFC fuel cells internally reform the fuel source (i.e. natural gas or biogas) to obtain hydrogen. DFC plants can be configured for tri-generation, supplying power, heat and high purity hydrogen. Power output is modestly reduced to support hydrogen generation that can then be used for industrial applications such as metal or glass processing, material handling applications or petrochemicals, or transportation applications. Siting the tri-generation fuel cell plant at a source of biogas such as wastewater treatment facilities, results in renewable hydrogen for transportation, an attractive proposition to regulatory and legislative officials and car companies. After operating two sub-megawatt systems - one for renewable vehicle fueling and one producing industrial hydrogen for our Torrington manufacturing facility - we are now evaluating a variety of possible sites for the first commercial MW-scale application of the technology.

**Micro-grid:** The DFC 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 DFC plants operating within micro-grids, some individually and some with other forms of power generation.

#### Energy Recovery

Gas Pipeline Applications: DFC-ERG® (Direct FuelCell Energy Recovery Generation™) power plants are used in natural gas pipeline applications, harnessing energy that is otherwise lost during the station's 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 station's carbon footprint and enhancing the project's economics. Depending on the specific gas flows and application, the DFC-ERG configuration is capable of achieving electrical efficiencies up to 70%. A 3.4 megawatt DFC-ERG system was sold to Avangrid (formerly UIL Holdings) and began operating in Connecticut during 2016.

Carbon Capture: The DFC carbon capture system separates CO<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> from the anode exhaust stream is liquefied using common chilling equipment. The purified CO<sub>2</sub> 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 2016, we announced the site selection for the first installation of a carbon capture configured DFC3000 power plant, which will be located at a mixed coal/gas fired power plant owned by a subsidiary of Southern Co. (NYSE: SO). The project is partially funded by the US Department of Energy and ExxonMobil is also participating in the project.

#### Energy Storage

**Hydrogen production:** Our DFC plants can be configured to produce both power and hydrogen from renewable fuels or natural gas. The hydrogen and power production can be traded off, producing less power and more hydrogen during periods of lower power demand. Hydrogen is an energy carrier that can be compressed and stored for long durations and either used on-site or transported for use elsewhere.

**Electrolysis:** Our solid oxide fuel cell technology has electrolysis capabilities, which is the ability to operate 'in reverse' compared to fuel cell mode. Instead of producing power from fuel and air, a solid oxide stack in electrolysis mode splits water into hydrogen and oxygen using supplied electricity.. Many utilities are considering electrolysis as an approach to store or utilize excess power from intermittent renewable sources when grid demand is low, producing hydrogen that can be used for thermal purposes, vehicle fueling, or to then make power during peak demand periods.

**Reversible Solid Oxide Energy Storage:** Our solid oxide stacks are capable of alternating between electrolysis and power generation mode. 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. Long durations of storage capacity can be achieved just by providing sufficient hydrogen storage capability, making this solution uniquely qualified 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 increases. 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 DFC power plants 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 reach up to 90%, depending on the application.

**Reliability / continuous operation:** Our DFC 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 DFC power plants operate on a variety of existing and readily available fuels including natural gas, renewable biogas, directed biogas and propane.

- Scalability: Our DFC power plants 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 DFC power plants operate quietly and without vibrations.
- Easy to site: Our DFC 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 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.
- Dispatchability: We are offering a dispatchability option for utility-scale applications where some degree of power production cycling is valued on a pre-determined schedule to accommodate periods of lower power demand. Our power plants can also provide reactive power avoiding the need for separate static or dynamic VAR (volt-ampere reactive) compensation systems.

## DFC 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<sub>2</sub> and only trace levels of pollutants compared to combustion-type power generation. The following table illustrates the favorable emission profile of our DFC and high efficiency power plants:

	Emissions (Lbs. Per MWh)				
	NO <sub>x</sub>	SO <sub>2</sub>	PM	CO <sub>2</sub>	CO <sub>2</sub> with CHP
Average U.S. Fossil Fuel Plant	5.06	11.6	0.27	2,031	NA
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
DFC® - natural gas	0.01	0.0001	0.00002	940	520 - 680
DFC 4000 High Efficiency Plant	0.01	0.0001	0.00002	740	520 - 680
DFC - utility scale carbon capture	0.01	0.0001	0.00002	80	n/a
DFC - renewable biogas	0.01	0.0001	0.00002	< 0	< 0

For power plants operating on natural gas, higher fuel efficiency results in lower CO<sub>2</sub>, 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<sub>2</sub> 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 up to 90% total efficiency in a CHP configuration, depending on the application. The electric grid in the United States is only approximately 36% electrically efficient and typically does not support CHP configurations.

## Manufacturing

We design and manufacture the core DFC 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 balance of plant (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 and expertise. BOP components are shipped directly to a customer's site and are then assembled with the fuel cell module into a complete power plant.

## Cell Manufacturing and Capacity

Our strategy is to produce power for prices that are below typical grid prices. Higher purchasing volume reduces the per unit cost of raw materials and componentry. As explained below, the North American production facility has an annual capacity of 100 MW with an expansion underway, and the Asian manufacturing facility, owned and operated by our technology licensee, POSCO Energy, has 100 MW of annual capacity in a building that is sized for 200 MW annually. Our global cell manufacturing capabilities are described below:

North America: We operate a 65,000 square-foot manufacturing facility in Torrington, Connecticut where we produce the DFC 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. Our overall DFC manufacturing process in North America (module manufacturing, final assembly, testing and conditioning) has a production capacity of 100 MW per year, with full utilization under its current configuration.

We are undertaking a multi-year project to reduce costs and position ourselves for future growth in two phases. The first phase is underway to add a 102,000 square foot addition to our North American manufacturing facility in Torrington, Connecticut. The building expansion will allow for consolidation of warehousing and service facilities enabling manufacturing efficiencies by providing the needed space to re-configure production. As demand supports, the second phase will be undertaken to add manufacturing equipment to increase annual capacity to at least 200 megawatts. The State of Connecticut is extending two low interest long term loans to us 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 have received the proceeds of the first \$10 million loan to support the first phase of the expansion.

The Torrington production facility, the Danbury corporate headquarters and research and development, and Field Service are ISO 9001:2008 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 and the facility 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.

Europe: We have a 20,000 square-foot 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.

#### 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 owned Asian production facilities. In addition to manufacturing the fuel cell module in our Torrington facility, the electrical and mechanical BOP 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 balance of plant componentry from third party vendors, based on our own proprietary designs.

#### Product Cost Reduction

Our overall cost reduction strategy is based on the assumption that continued increases in production will result in further economies of scale, reducing the per-unit cost of the raw materials and componentry we purchase. In addition, our cost reduction strategy relies on implementation of further advancements in our manufacturing process, global competitive sourcing integrated with POSCO sourcing volumes, engineering design and technology improvements (including modules with longer life and increased module power output). We have a broad range of initiatives to reduce costs and improve our overall project affordability.

Improvements in affordability, driven by product cost reductions, are critical for us to accelerate market adoption of our fuel cell products and attain company profitability. Cost reductions will also reduce or eliminate the need for incentive funding programs which currently allow us to price our products to compete with grid-delivered power and other distributed generation technologies.

We have reduced the product cost of our megawatt-class power plants by more than 60% from the first commercial installation in 2003 through engineering redesign, sourcing, and improved power output and module life. Higher purchasing volume reduces costs and strengthens the supply chain by enabling direct purchasing rather than through distributors and the ability to access stronger national and international suppliers rather than small local or regional

fabricators. We manage a global integrated supply chain to ensure consistent pricing and leverage volume purchases whether by POSCO Energy or the Company, to ensure both parties benefit by obtaining lower pricing tiers from suppliers from the greater combined purchasing volume.

#### 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, FCE has an extensive history of safe and timely delivery of turnkey 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 multiple times in many different U.S. states and some European countries 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. Virtually all of our customers purchase service agreements ranging 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 DFC 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 the 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 2037. 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, except for fuel cell kits. We warranty fuel cell kits and components for 21 months from the date of shipment due to the additional shipping and customer manufacture time required. We accrue for estimated future warranty costs based on historical experience.

### License Agreements and Royalty Income

We 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 to manufacture DFC power plants in South Korea and the market access to sell power plants throughout Asia. In October 2012, 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, each for a period of five (5) years, by mutual agreement of the Company and POSCO Energy. In conjunction with the CTTA, the Company receives 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 terms of the Master Service Agreement between the Company and POSCO Energy.

As we expand into other vertical or geographic markets, we may pursue additional licensing and royalty opportunities.

### Advanced Technology Programs (Third Party Funded Research and Development)

We undertake both public and privately-funded research and development to expand the markets for our DFC 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. Our power plants provide various value streams including clean electricity, high quality usable heat, hydrogen suitable for vehicle fueling or industrial purposes as well as use of DFC power plants to concentrate CO<sub>2</sub> from coal and natural gas fired power plants. Our Advanced Technology Programs are focused on

three strategic areas for commercialization within a reasonable timeframe: (1) distributed hydrogen production, compression, and recovery, (2) carbon capture for emissions reduction and power generation and (3) SOFC, SOEC, and RSOFC 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 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), Office of Naval Research (ONR), and the National Aeronautics and Space Administration (NASA). Government funding, principally from the DOE, provided 8%, 6% and 6% of our revenue for each of the fiscal years ended 2016, 2015, and 2014, 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<sub>2</sub>. 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<sub>2</sub> as a side reaction during the power generation process. DFC carbon capture research conducted by us has demonstrated that this is a viable technology for the efficient separation of CO<sub>2</sub> from coal or natural gas power plant exhaust streams. Capturing CO<sub>2</sub> 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 plant in Alabama that is owned by Alabama Power, a subsidiary of Southern Company, a large southeastern US utility. This project is being supported by an award from the US 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 2016 we announced 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 various oil & 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 represents an attractive market for the DFC technology. Our high temperature DFC power plant generates 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 DFC-H<sub>2</sub>. This value-added proposition may be compelling for industrial users of hydrogen and transportation applications, further summarized as follows:

Industrial Applications: We operate a tri-generation DFC300-H<sub>2</sub> power plant at our Torrington manufacturing facility, utilizing natural gas to supply (1) electricity for the facility, (2) heat for the building, and (3) hydrogen for the manufacturing process, replacing hydrogen that was delivered by diesel truck. The installation is a showcase for industrial users of hydrogen to visit. The project is supported by the DOE and the State of Connecticut.

Vehicle Fueling Applications: A tri-generation DFC300-H<sub>2</sub> power plant completed a three year demonstration at the Orange County Wastewater Treatment Facility in Irvine, California, utilizing renewable biogas to supply hydrogen for use in fuel cell vehicle fueling and clean renewable electricity. The demonstration was performed under sub-contract to Air Products (NYSE: APD) with funding provided by the DOE, California Air Resources Board, South Coast Air Quality Management District, the Orange County Sanitation District, and Southern California Gas Company.

SOFC/SOEC/RSOFC development and commercialization: We are working towards commercialization of solid oxide fuel cell technology to target sub-megawatt commercial applications including smaller wastewater treatment facilities that do not have enough gas production to support a multi-megawatt solution as well as storage applications utilizing hydrogen as an energy carrier and storage medium. The potential market opportunity for sub-megawatt applications is for customers that need on-site power generation in either combined heat and power or electric-only configurations.

SOFC technology is complementary to our carbonate technology-based MW scale DFC 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.

We perform SOFC/SOEC/RSOFC research and development at our Danbury facility as well as at our dedicated SOFC facility in Calgary, Canada. We are working under a variety of awards from DOE for development and commercialization of both SOFC and SOEC.

We see 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 prudently leverage third-party resources and funding to accelerate the commercialization and realize the market potential for each of these solutions.

### Research and Development (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. Initiatives include increasing the net power output of the fuel cell stacks to 375 kW from 350 kW currently, and extending the stack life to seven years from five years currently. Greater power output and improved longevity will 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 DFC4000 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 and affordability.

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, are as follows:

	Years Ended October 31,		
	2016	2015	2014
Cost of advanced technologies contract revenues	\$11,879	\$13,470	\$16,664
Research and development expenses	20,846	17,442	18,240
Total research and development	\$32,725	\$30,912	\$34,904

### Backlog

The Company has a contract backlog totaling approximately \$432.3 million at October 31, 2016 compared to \$381.4 million at October 31, 2015. At October 31, 2016 and 2015, the backlog includes approximately \$347.3 million and \$254.1 million, respectively, of service and power purchase agreements. Service backlog at October 31, 2016 has an average term of approximately 15 years weighted based on dollar backlog and utility service contracts up to twenty years in duration. At October 31, 2016, product sales backlog totaled approximately \$24.9 million compared to \$90.7 million at October 31, 2015. At October 31, 2016, Advanced technologies contracts backlog totaled \$60.1 million, of which \$39.6 million is funded compared to \$36.5 million at October 31, 2015, of which \$33.4 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 although we are currently estimating revenues of at least \$75 million both from backlog and new contracts for our fiscal year 2017. In all events, we expect the majority of our backlog will remain unfilled in fiscal year 2017 given the nature of our business.

### Competition

The electric generation market is competitive with continually evolving participants. Our DFC 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.

Fuel cell technologies are classified according to the electrolyte used by each fuel cell type. Our DFC technology utilizes a carbonate electrolyte. Carbonate-based fuel cells offer a number of advantages over other types of fuel cells designed for megawatt-class commercial applications. 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 Technology section. Other fuel cell types that may be used for commercial applications include phosphoric acid and PEM.

The following table illustrates industry estimates of the electrical efficiency, expected capacity range and byproduct heat use of the four principal types of fuel cells as well as highlights of typical market applications:

	MW- Class	Sub-MW- Class		Micro CHP	Mobile
Technology	Carbonate (CFC)	Phosphoric Acid (PAFC)	Solid Oxide (SOFC)	PEM / SOFC	Polymer Electrolyte Membrane (PEM)
Plant size	1.4 MW - 3.7 MW	400 kW	up to 200 kW	< 10 kW	5 - 100 kW
Typical Application	Utilities, universities, industrial, municipal	Commercial buildings, grocery stores	Commercial buildings	Residential and small commercial	Transportation
Fuel	Natural gas, On-site biogas, Directed biogas, others	Natural gas, Directed biogas	Natural gas, Directed biogas	Natural gas	Hydrogen
Advantages	Efficiency, lowest cost, fuel flexible & CHP configuration; ~60% for specialized configurations	CHP	Efficiency	Load following & CHP	Load following
Electrical efficiency	43%-47% std. Steam, hot water, chilling & hybrid electrical applications	40% - 42%	50% - 60%	25% - 35%	25% - 35%
Combined Heat & Power (CHP)		Hot water	Depends on technology used	Suitable for facility heating	n/a

Several companies in the U.S. are engaged in fuel cell development, although we believe we are the only domestic company engaged in significant manufacturing and commercialization of stationary CFCs. Emerging fuel cell technologies (and the companies developing them) include stationary PEM fuel cells for pure hydrogen applications (Ballard Power Systems), small or portable PEM fuel cells (Ballard Power Systems, Plug Power, Intelligent Energy Holdings, 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, General Electric, Bloom Energy and Ceres Power Holdings), and small residential solid oxide fuel cells (Parker Hannifin, Toyota/Kyocera 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.

There are other potential fuel cell competitors internationally. In Japan, Fuji Electric has been involved with both PEM and phosphoric acid fuel cells and Panasonic is involved with PEM fuel cells for micro-CHP applications. In the United Kingdom, AFC Energy is engaged in alkaline fuel cell development for commercial applications.

Other than fuel cell developers, we also compete with companies such as Caterpillar, Cummins, Wartsilla, MTU Friedrichshafen GmbH (MTU), Mitsubishi Heavy Industries 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 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 them difficult to site 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 DFC 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 Proton Onsite, H2 Logic 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, ITM Power PLC, and McPhy Energy.

#### Regulatory and Legislative Support

Regulatory and legislative support encompasses policy, incentive programs, and defined sustainability initiatives such as Renewable Portfolio Standards (RPS).

Distributed generation solves different problems than central generation and regulatory policy can impact deployment of distributed generation. States and municipalities in the U.S. have adopted programs for which our products qualify. For example, there are strong programs in California supporting self-generation, clean air power generation and carbon reduction. Additional states have programs supporting on-site power production, combined heat and power applications, carbon reduction, grid resiliency / micro-grids and utility ownership of fuel cell projects.

Sometimes policy may be dated and inadvertently slows adoption of distributed generation. When this occurs, industry may work with regulatory and legislative bodies to revise and update policy. An example of this from 2016 was the State of California approval of a five megawatt departing load charge exemption cap for fuel cells, which improves project economics due to the operating characteristics of the continual power generation profile of fuel cells. This represented an increase from what was previously a one megawatt cap for utility departing load charges.

The U.S. Federal Government extends an investment tax credit (ITC) that allows a taxpayer to claim a credit of 30% of qualified expenditures (up to a tax credit limit of \$3,000/kW) for eligible power generation technologies. In December, 2015, the United States Congress extended the ITC for 5 years, beginning January 1, 2017. The intention, as publicly stated by Congressional leaders, was to extend the ITC to all eligible technologies; however, the actual approved language only extended the ITC for solar energy technologies. As of January 1, 2017, fuel cells and a number of other power generation technologies are no longer eligible for the ITC.

Based on numerous public comments by leaders and members of Congress in the media and in the Congressional Record that the omission was an oversight that should be corrected, the fuel cell industry is continuing outreach to ensure parity of domestically designed and manufactured fuel cells with solar technologies. American designed and manufactured fuel cells provide value to the U.S. economy and stakeholders in numerous ways that justify their inclusion in the ITC, including:

- Fuel cells utilize domestic sources of natural gas to create electricity cleaner and more efficiently than traditional resources and improve power reliability by siting continual power where it is used.
- The ITC is currently only supporting solar panels that are generally designed and manufactured overseas while U.S. designed and manufactured fuel cells with their strong domestic supply chain and export opportunities are excluded. Fuel cell carbon capture can help stabilize the U.S. coal industry and drive demand for U.S. natural gas by affordably reducing CO<sub>2</sub> emissions from coal and gas fired power plants and industrial facilities. Additionally, there is a global export market potential for this American manufactured innovation.

While the ITC is a driver of fuel cell projects in the US, the ITC is not relevant for our European presence or for sales in Asia. Additionally, as discussed elsewhere in this 10-K, we anticipate retaining ownership over more fuel cell projects, which we believe will make us less dependent on support from the ITC. Further, we believe that our products will achieve efficiencies that will permit them to compete without ITC support. For example, we are launching the DFC4000, which enhances fuel cell project economics for utility and data center applications by increasing the electrical efficiency. This product was designed to address decreasing incentives over time at both the

federal and state level.

The majority of states in the U.S. have enacted legislation adopting Clean Energy Standards (“CES”) or Renewable Portfolio Standards (“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, by a specified date. 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 (including 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 near-zero pollutants of fuel cells.

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 ten percent of total power generation by 2023 from two percent in 2012 by requiring an additional one half of one percent of new and renewable power added annually from 2012 to 2017, increasing to one percent per annum through 2023. This equates to an estimated 370 MW market annually from 2016 to 2023. Electric utilities and independent power producers that have in excess of 500 MW of power generation capacity are required to comply with the RPS.

In Europe, there are a number of renewable energy programs and several environmental initiatives that contribute to growth in our markets. In addition, there are a variety of research and development funding programs for fuel cells and hydrogen at the European Union level as well as state level within specific countries. Hydrogen Europe, an industrial association with more than 100 members, is supporting the expansion of the hydrogen and fuel cell industry by focusing on market deployment and financing models. In Italy, there are financial incentives for CHP configurations with high efficiency, including our products whether operating on natural gas or renewable biogas. Germany uses the National Innovation Program for Fuel Cells and Hydrogen led by National Organization for Hydrogen and Fuel Cell Technology as the tool to differentiate and support fuel cells versus combustion-based technology. There is also a technology deployment program in Germany for stationary fuel cells operating on either natural gas or renewable biogas.

#### 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 SO<sub>x</sub> and NO<sub>x</sub> 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<sub>2</sub> 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. Due to the high temperature of the flue gas emissions, we are required to site or configure our power plants in a manner that allows the flue gas to be vented at acceptable and safe distances. 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 USA 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.

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 feel 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 DFC power plant sold in 2003. Over this period of 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.

At October 31, 2016, the Company, excluding its subsidiaries, has 90 patents in the U.S. and 88 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 Direct FuelCell technology, SOFC technology, PEM fuel cell technology, and applications thereof. We also have 40 patent applications pending in the U.S. and 62 pending in other jurisdictions. Our U.S. patents will expire between 2016 and 2034, and the current average remaining life of our U.S. patents is approximately 9.9 years.

Our subsidiary, Versa Power Systems, Inc., has 33 current U.S. patents and 70 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

7.3 years. Versa Power Systems, Inc. also has 3 pending U.S. patent applications and 16 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 as well as 2 U.S. and 27 patents outside the U.S. for carbonate fuel cell technology licensed from Fraunhofer IKTS.

No patents have expired 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, 2016, 2015 and 2014, our top customers, POSCO Energy (which is a related party and owns approximately 7% of the outstanding common shares of the Company), the Department of Energy, the United Illuminating Company, Dominion Bridgeport Fuel Cell, LLC, and BioFuels Energy, LLC accounted for an aggregate of 78%, 89% and 85%, 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,		
	2016	2015	2014
POSCO Energy	48%	67%	69%
The United Illuminating Company	10%	14%	9%
Department of Energy	8%	5%	4%
Dominion Bridgeport Fuel Cell, LLC	6%	3%	3%
BioFuels Energy, LLC	6%	—%	—%
Total	78%	89%	85%

See Item 7 - Management's Discussion and Analysis of Financial Condition and Results of Operations and Item 8 - 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 balance of plant components from a diverse global supply chain. In 2016, the foreign country with the greatest concentration risk was South Korea, accounting for 48% of our consolidated net sales. A multi-year fuel cell component order from our South Korean partner, POSCO Energy, concluded at the end of 2016. The Company receives royalties from POSCO Energy on the sale and module replacements related to service of fuel cell power plants in Asia, so accordingly, the concentration of sales to POSCO Energy may be lower in future years compared to 2016. As part of our Strategic Plan, we are in the process of diversifying our sales mix from both a customer specific and geographic perspective. See Item 1A: "Risk Factors - We are substantially dependent on a concentrated number of customers and the loss of any one of these customers could adversely affect our business, financial condition and results of operations" and "Risk Factors - We depend on relationships with strategic partners, and the terms and enforceability of many of these relationships are not certain" and "Risk Factors - We have licensed certain technology and market access to POSCO Energy which limits our ability to independently access the Asian market."

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. See Item 1A: “Risk Factors - We are subject to risks inherent in international operations.” See also Note 13 “Segment and Geographical Information,” to the consolidated financial statements in Part II, Item 8, “Consolidated Financial Statements And Supplementary Data” of the Form 10-K Report for information about our net sales by geographic region for the years ended October 31, 2016, 2015, and 2014. See also Item 7: “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” for other information about our operations and activities in various geographic regions.

## Sustainability

### CODE

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 percent to 60 percent depending on the configuration. This compares favorably to the average U.S. electrical grid of about 33 percent. Our solutions deliver this high electrical efficiency where the power is used, avoiding transmission. Transmission line losses average about six percent to nine percent for the U.S. grid, which is a hidden cost to ratepayers. In a combined heat and power configuration, total thermal efficiency of our fuel cell solutions can be up to 90 percent 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. We have installed a tri-generation fuel cell at our manufacturing facility that meets a portion of the power and heating needs, as well as generating high purity hydrogen used in the fuel cell manufacturing process. Generating multiple value streams on-site from the same unit of fuel avoids electrical transmission line losses, avoids the fuel cost and emissions of a combustion-based boiler typically used for heating, and cleanly generating hydrogen on-site avoids the carbon emissions and criteria pollutants emitted by standard hydrogen production at a distant location and transported via diesel truck.

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 recognize that there is more to be done and utilize cross-functional teams to identify and evaluate additional areas for improvement.

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. Our manufacturing process has a very low carbon footprint, utilizing an assembly oriented production strategy.

### Product end-of-life management

We value sustainability just as seriously as our customers. 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, supporting the sustainability concept of 'cradle-to-grave'. 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 balance of plant 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 can either be re-used or recycled.

We have a designated Sustainability Officer who promotes sustainable business practices in our manufacturing and administrative functions. For example, on the production floor, we reuse scrap from the manufacturing process, minimizing production waste. We are working to measure our carbon footprint in relation to production levels and actively working to reduce this 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 3 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 human trafficking, child labor, 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 suppliers in our supply chain comply with the Fair Labor Standards Act (FLSA) of 1938, as amended. Our employees with supply chain responsibilities are trained on sustainability, social risks and human rights, and utilize this knowledge to evaluate existing suppliers and new potential suppliers on social and sustainability metrics to ensure compliance with our requirements and congruence with our company values.



#### 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 (tin, tungsten, tantalum and gold) that are classified as conflict minerals. We do utilize componentry in the balance of plant such as computer circuit boards that utilize trace amounts of 3TG minerals. For perspective, total shipments in fiscal year 2015 weighed approximately 7.1 million pounds of which less than 2 pounds, or 0.000024%, represented 3TG minerals, so the presence of these minerals is minimal. Our conflict mineral disclosure filed with the Securities and Exchange Commission on Form SD contains specifics on the actions we are taking to avoid the use of conflict minerals.

#### Associates

At October 31, 2016, we had 580 full-time associates, of whom 246 were located at the Torrington, Connecticut manufacturing plant, 292 were located at the Danbury, Connecticut facility or various field offices, and 42 were located at our foreign locations. In addition, at October 31, 2016, the Company had 19 temporary workers. None of our associates is represented by a labor union or covered by a collective bargaining agreement. We believe our relations with our associates are good.

On December 1, 2016, we announced a decrease in the production level and a reduction in force that impacted 96 associates or approximately 17 percent of the global workforce.

#### Available Information

Our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and all amendments to those reports will be 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 Securities and Exchange Commission ("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>.

Executive Officers of the Registrant

NAME	AGE	PRINCIPAL OCCUPATION
Arthur A. Bottone President and Chief Executive Officer	56	<p>Mr. Bottone joined FuelCell Energy in February 2010 as Senior Vice President and Chief Commercial Officer and was promoted to President and Chief Executive Officer in February 2011. Mr. Bottone's focus is to accelerate and diversify global revenue growth to achieve profitability by capitalizing on heightened global demand for clean and renewable energy. Mr. Bottone has broad experience in the power generation field including traditional central generation and alternative energy. Prior to joining FuelCell Energy, Mr. Bottone spent 25 years at Ingersoll Rand, a diversified global industrial company, including as President of the Energy Systems business. Mr. Bottone's qualifications include extensive global business development, technology commercialization, power generation project development as well as acquisition and integration experience.</p> <p>Mr. Bottone received an undergraduate degree in Mechanical Engineering from Georgia Institute of Technology in 1983, and received a Certificate of Professional Development from The Wharton School, University of Pennsylvania in 2004.</p>
Michael Bishop Senior Vice President, Chief Financial Officer, Treasurer and Corporate Secretary	48	<p>Mr. Bishop was appointed Vice President, Chief Financial Officer, Corporate Secretary, and Treasurer in June 2011. He has more than 20 years of experience in financial operations and management with public high growth technology companies with a focus on capital raising, project finance, debt/treasury management, acquisition integration, strategic planning, internal controls, and organizational development. Since joining the Company in 2003, Mr. Bishop has held a succession of financial leadership roles including Assistant Controller, Corporate Controller and Vice President and Controller. Prior to joining FuelCell Energy, Mr. Bishop held finance and accounting positions at TranSwitch Corporation, Cyberian Outpost, Inc. and United Technologies, Inc. He is a certified public accountant and began his professional career at McGladrey and Pullen, LLP. Mr. Bishop also served four years in the United States Marine Corps.</p> <p>Mr. Bishop received a Bachelor of Science in Accounting from Boston University in 1993 and a MBA from the University of Connecticut in 1999.</p>

Anthony F. Rauseo  
Senior  
Vice President, Chief  
Operating Officer

Mr. Rauseo was appointed Chief Operating Officer in July 2010. In this position, Mr. Rauseo has responsibility for closely integrating the manufacturing operations with the supply chain, product development and quality initiatives. Mr. Rauseo is an organizational leader with a strong record of achievement in product development, business development, manufacturing, operations, and customer support. Mr. Rauseo joined the Company in 2005 as Vice President of Engineering and Chief Engineer. Prior to joining Fuel Cell Energy, Mr. Rauseo held a variety of key management positions in manufacturing, quality and engineering including five years with CiDRA Corporation. Prior to joining CiDRA, Mr. Rauseo was with Pratt and Whitney for 17 years where he held various leadership positions in product development, production and customer support of aircraft turbines.

57 Mr. Rauseo received a Bachelor of Science in Mechanical Engineering from Rutgers University in 1983 and received a Masters of Science in Mechanical Engineering from Rensselaer Polytechnic Institute in 1987.

#### Item 1A. RISK FACTORS

You should carefully consider the following risk factors before making an investment decision. If any of the following risks actually occur, our business, financial condition, or results of operations could be materially and adversely affected. In such cases, the trading price of our common stock could decline, and you may lose all or part of your investment.

We have incurred losses and anticipate continued losses and negative cash flow.

We have transitioned from a research and development company to a commercial products manufacturer, services provider and developer. We have not been profitable since our year ended October 31, 1997. We expect to continue to incur net losses and generate negative cash flows until we can produce sufficient revenues and margins to cover our costs. We may never become profitable. Even if we do achieve profitability, we may be unable to sustain or increase our profitability in the future. For the reasons discussed in more detail below, there are substantial uncertainties associated with our achieving and sustaining profitability. We have, from time to time, sought financing in the public markets in order to fund operations. Our future ability to obtain such financing, if required, could be impaired by a variety of factors, including, but not limited to, the price of our common stock and general market conditions.

Our cost reduction strategy may not succeed or may be significantly delayed, which may result in our inability to deliver improved margins.

Our cost reduction strategy is based on the assumption that increases in production will result in economies of scale. In addition, our cost reduction strategy relies on advancements in our manufacturing process, global competitive sourcing, engineering design, reducing the cost of capital and technology improvements (including stack life and projected power output). Failure to achieve our cost reduction targets could have a material adverse effect on our results of operations and financial condition.

Our announced workforce reduction may cause undesirable consequences and our results of operations may be harmed.

On December 1, 2016, we announced a workforce reduction of 17%, or 96 employees. This workforce reduction may yield unintended consequences, such as attrition beyond our intended reduction in workforce and reduced employee morale, which may cause our employees who were not affected by the reduction in workforce to seek alternate employment. Additional attrition could impede our ability to meet our operational goals, which could have a material adverse effect on our financial performance. In addition, as a result of the reductions in our workforce, we may face an increased risk of employment litigation. Furthermore, employees whose positions will be eliminated in connection with these trends may seek future employment with our competitors. Although all our employees are required to sign a confidentiality agreement with us at the time of hire, we cannot assure you that the confidential nature of our proprietary information will be maintained in the course of such future employment. We cannot assure you that we will not undertake additional reduction activities, that any of our efforts will be successful, or that we will be able to realize the cost savings and other anticipated benefits from our previous or any future reduction plans. In addition, if we continue to reduce our workforce, it may adversely impact our ability to respond rapidly to any new product, growth or revenue opportunities.

We have debt outstanding and may incur additional debt in the future, which may adversely affect our financial condition and future financial results.

Our total consolidated indebtedness was \$83.2 million as of October 31, 2016. This includes approximately \$43.4 million of debt at our project finance subsidiaries and \$39.8 million at the corporate level. The majority of our debt is long-term with \$5.3 million due within twelve months. We also have approximately \$38.2 million of borrowing capacity under a revolving construction and term project financing facility. Our ability to make scheduled payments of the principal and interest or to refinance our indebtedness depends on our future performance, which is subject to economic, financial, competitive and other factors beyond our control. Our business may not generate cash flow from operations in the future sufficient to service our debt and make necessary capital expenditures. If we are unable to generate such cash flow, we may be required to adopt one or more alternatives, such as selling assets, restructuring debt or obtaining additional equity capital on terms that may be onerous or dilutive.

It is also possible that we may incur additional indebtedness in the future in the ordinary course of business. If new debt is added to current debt levels, the risks described above could intensify.

Our debt agreements contain customary representations and warranties, affirmative and negative covenants, and events of default that entitle the lenders to cause our indebtedness under the loan and security agreement to become immediately due and payable. In addition, our Loan and Security Agreement with Hercules Capital, Inc. contains a financial covenant whereby the Company is required to maintain an unrestricted cash balance of at least (a) 75% of the outstanding Loan balance plus (b) the amount of accounts payable (as defined under accounting principles generally accepted in the United States ("GAAP")) not paid within 90

days of the date payment was issued. As of October 31, 2016 the outstanding loan balance with Hercules Capital, Inc. was \$20.0 million.

Our products compete with products using other energy sources, and if the prices of the alternative sources are lower than energy sources used by our products, sales of our products will be adversely affected. Volatility of electricity and fuel prices may impact sales of our products and services in the markets in which we compete.

Our products can operate using a variety of fuels, including primarily natural gas and biogas and also methanol, diesel, coal gas, coal mine methane, and propane. If these fuels are not readily available or if their prices increase such that electricity produced by our products costs more than electricity provided by other generation sources, our products would be less economically attractive to potential customers. In addition, we have no control over the prices of several types of competitive energy sources such as oil, gas or coal as well as local utility electricity costs. Significant decreases (or short term increases) in the price of these fuels or grid delivered prices for electricity could also have a material adverse effect on our business because other generation sources could be more economically attractive to consumers than our products.

The reduction or elimination of government subsidies and economic incentives for alternative energy technologies, including our fuel cell power plants, could reduce demand for our products and services, lead to a reduction in our revenues and adversely impact our operating results.

We believe that the near-term growth of alternative energy technologies, including our fuel cells, relies on the availability and size of government and economic incentives (including, but not limited to, the U.S. Federal investment tax credit (ITC), the incentive programs in South Korea and state renewable portfolio standard programs). The U.S. Federal Government extends an investment tax credit (ITC) that allows a taxpayer to claim a credit of 30% of qualified expenditures (up to a tax credit limit of \$3,000/kW) for eligible power generation technologies. In December 2015, the United States Congress extended the ITC for 5 years, beginning January 1, 2017. The intention, as publicly stated by Congressional leaders, was to extend the ITC to all eligible technologies; however, the actual approved language only extended the ITC for solar energy technologies. As of January 1, 2017, fuel cells and a number of other power generation technologies are no longer eligible for the ITC. Based on numerous public comments by leaders and members of Congress in the media and in the Congressional Record that the omission was an oversight that will be corrected, the fuel cell industry is continuing outreach to ensure parity of domestically designed and manufactured fuel cells with solar technologies. There can be no assurance regarding the timing of and ultimate passage of a bill to extend the ITC.

Other government incentives expire, phase out over time, exhaust the allocated funding, or require renewal by the applicable authority. In addition, these incentive programs could be challenged by utility companies, or be found to be unconstitutional, and/or could be reduced or discontinued for other reasons.

Further, the recent presidential and congressional elections in the United States could result in significant changes in, and uncertainty with respect to, legislation, regulation and government policy. While it is not possible to predict whether and when any such changes will occur, changes at the local, state or federal level could impact fuel cell market adoption in the USA and the alternative energy technologies sector in the USA, generally. Specific legislative and regulatory proposals discussed during and after the election that could have a material impact on us include, but are not limited to, reform of the federal tax code; infrastructure renewal programs; and modifications to international trade policy, public company reporting requirements, environmental regulation and antitrust enforcement.

We are currently unable to predict whether reform discussions will meaningfully change existing legislative and regulatory environments relevant for our business, or if any such changes would have a net positive or negative impact on our business. To the extent that such changes have a negative impact on us or the industries we serve, including as a result of related uncertainty, these changes may materially and adversely impact our business, financial condition, results of operations and cash flows.

Financial markets worldwide have experienced heightened volatility and instability which may have a material adverse impact on our Company, our customers and our suppliers.

Financial market volatility can affect both the debt, equity and project finance markets. This may impact the amount of financing available to all companies, including companies with substantially greater resources, better credit ratings and more successful operating histories than ours. It is impossible to predict future financial market volatility and instability and the impact on our Company and it may have a materially adverse effect on us for a number of reasons, such as:

The long term nature of our sales cycle can require long lead times between application design, order booking and product fulfillment. For this, we often require substantial cash down payments in advance of delivery. Our growth strategy assumes that financing will be available for the Company to finance working capital or for our customers to provide

down payments and to pay for our products. Financial market issues may delay, cancel or restrict the construction budgets and funds available to the Company or our customers for the deployment of our products and services. Projects using our products are, in part, financed by equity investors interested in tax benefits as well as by the commercial and governmental debt markets. The significant volatility in the U.S. and international stock markets cause significant uncertainty and may result in an increase in the return required by investors in relation to the risk of such projects.

If we, our customers and suppliers cannot obtain financing under favorable terms, our business may be negatively impacted.

Our contracted projects may not convert to revenue, and our project pipeline may not convert to contracts, which may have a material adverse effect on our revenue and cash flow.

Some of the orders we accept from customers require certain conditions or contingencies (such as permitting, interconnection or financing) to be satisfied, some of which are outside of our control. The time periods from receipt of a contract to installation may vary widely and are determined by a number of factors, including the terms of the customer contract and the customer's site requirements. This could have an adverse impact on our revenue and cash flow.

We have signed product sales contracts, engineering, procurement and construction contracts (EPC), power purchase agreements and long-term service agreements with customers subject to contractual, technology and operating risks as well as market conditions that may affect our operating results.

The Company applies the percentage of completion revenue recognition method to certain product sales contracts which are subject to estimates. On a quarterly basis, the Company performs a review process to help ensure that total estimated contract costs include estimates of costs to complete that are based on the most recent available information. The percentage of completion for the customer contracts based on this cost analysis is then applied to the total customer contract values to determine the total revenue to be recognized to date.

In certain instances, we have executed power purchase agreements (PPA) with the end-user of the power and site host of the fuel cell power plant. We may then sell the PPA to project investor or retain the project and collect revenue from the sale of power over the term of the PPA, recognizing electricity revenue as power is generated and sold.

We have contracted under long-term service agreements with certain customers to provide service on our products over terms up to 20 years. Under the provisions of these contracts, we provide services to maintain, monitor, and repair customer power plants to meet minimum operating levels. Pricing for service contracts is based upon estimates of future costs including future stack replacements. While we have conducted tests to determine the overall life of our products, we have not run our products over their projected useful life prior to large-scale commercialization. As a result, we cannot be sure that our products will last to their expected useful life, which could result in warranty claims, performance penalties, maintenance and stack replacement costs in excess of our estimates and losses on service contracts.

We extend product warranties, which could affect our operating results.

We provide for a warranty of our products for a specific period of time against manufacturing or performance defects. We accrue for warranty costs based on historical warranty claim experience, however actual future warranty expenses may be greater than we have assumed in our estimates. As a result, operating results could be negatively impacted should there be product manufacturing or performance defects in excess of our estimates.

Our products are complex and could contain defects and may not operate at expected performance levels which could impact sales and market adoption of our products or result in claims against us.

We develop complex and evolving products and we continue to advance the capabilities of the fuel cell stacks and are now producing stacks with a net rated power output of 350 kW and an expected five year life.

We are still gaining field operating experience on our products, and despite experience gained from our growing installed base and testing performed by us, our customers and our suppliers, issues may be found in existing or new products. This could result in a delay in recognition or loss of revenues, loss of market share or failure to achieve broad market acceptance. The occurrence of defects could also cause us to incur significant warranty, support and repair costs, could divert the attention of our engineering personnel from our product development efforts, and could



harm our relationships with our customers. The occurrence of these problems could result in the delay or loss of market acceptance of our products and would likely harm our business. Defects or performance problems with our products could result in financial or other damages to our customers. From time to time, we have been involved in disputes regarding product warranty issues. Although we seek to limit our liability, a product liability claim brought against us, even if unsuccessful, would likely be time consuming and could be costly to defend. Our customers could also

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seek and obtain damages from us for their losses. We have accrued liabilities for potential damages related to performance problems, however actual results may be different than the assumptions used in our accrual calculations. We currently face and will continue to face significant competition.

We compete on the basis of our products' reliability, efficiency, environmental considerations and cost. Technological advances in alternative energy products or improvements in the electric grid or other sources of power generation, or other fuel cell technologies may negatively affect the development or sale of some or all of our products or make our products non-competitive or obsolete prior to commercialization or afterwards. Other companies, some of which have substantially greater resources than ours, are currently engaged in the development of products and technologies that are similar to, or may be competitive with, our products and technologies.

Several companies are involved in fuel cell development, although we believe we are the only domestic company engaged in significant manufacturing and commercialization of carbonate fuel cells. Emerging fuel cell technologies (and companies developing them) include PEM stationary fuel cells (Ballard Power Systems, Inc. and Plug Power), phosphoric acid fuel cells (Doosan Fuel Cells America) and solid oxide fuel cells (LG/Rolls Royce partnership, GE and Bloom Energy). Each of these competitors has the potential to capture market share in our target markets. There are also other potential fuel cell competitors internationally that could capture market share.

Other than fuel cell developers, we must also compete with companies that manufacture more mature combustion-based equipment, including various engines and turbines, and have well-established manufacturing, distribution, and operating and cost features. Electrical efficiency of these products can be competitive with our DFC power plants in certain applications. Significant competition may also come from gas turbine companies.

We derive significant revenue from contracts awarded through a competitive bidding process involving substantial costs and risks. Due to this competitive pressure, we may be unable to grow revenue and achieve profitability. We expect a significant portion of the business that we will seek in the foreseeable future will be awarded through competitive bidding versus other fuel cell technologies and other forms of power generation. The competitive bidding process involves substantial costs and a number of risks, including the significant cost and managerial time to prepare bids and proposals for contracts that may not be awarded to us and our failure to accurately estimate the resources and costs that will be required to fulfill any contract we win. In addition, following a contract award, we may encounter significant expense, delay or contract modifications as a result of our competitors protesting or challenging contracts awarded to us in competitive bidding. In addition, multi-award contracts require that we make sustained post-award efforts to obtain task orders under the contract. We may not be able to obtain task orders or recognize revenue under these multi-award contracts. Our failure to compete effectively in this procurement environment would adversely affect our revenue and/or profitability.

We have two large and influential stockholders, which may make it difficult for a third party to acquire our common stock.

POSCO Energy currently owns approximately 7% of our outstanding common stock and NRG Energy owns approximately 4% of our outstanding common stock, which could make it difficult for a third party to acquire our common stock. POSCO Energy is also a licensee of our technology and purchaser of our products and NRG is a purchaser of our products. Therefore, it may be in their interest to exert their substantial influence over matters concerning our overall strategy and technological and commercial development.

Unanticipated increases or decreases in business growth may result in adverse financial consequences for us. If our business grows more quickly than we anticipate, our existing and planned manufacturing facilities may become inadequate and we may need to seek out new or additional space, at considerable cost to us. If our business does not grow as quickly as we expect, our existing and planned manufacturing facilities would, in part, represent excess capacity for which we may not recover the cost; in that circumstance, our revenues may be inadequate to support our committed costs and our planned growth, and our gross margins, and business strategy would be adversely affected.

Our plans are dependent on market acceptance of our products.

Our plans are dependent upon market acceptance of, as well as enhancements to, our products. Fuel cell systems represent an emerging market, and we cannot be sure that potential customers will accept fuel cells as a replacement

for traditional power sources. As is typical in a rapidly evolving industry, demand and market acceptance for recently introduced products and services are subject to a high level of uncertainty and risk. Since the distributed generation market is still evolving, it is difficult to predict with certainty the size of the market and its growth rate. The development of a market for our products may be affected by many factors that are out of our control, including:

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the cost competitiveness of our fuel cell products including availability and output expectations and total cost of ownership;

the future costs of natural gas and other fuels used by our fuel cell products;

customer reluctance to try a new product;

the market for distributed generation;

local permitting and environmental requirements; and

the emergence of newer, more competitive technologies and products.

If a sufficient market fails to develop or develops more slowly than we anticipate, we may be unable to recover the losses we will have incurred in the development of our products and may never achieve profitability.

As we continue to expand markets for our products, we intend to continue offering power production guarantees and other terms and conditions relating to our products that will be acceptable to the marketplace, and continue to develop a service organization that will aid in servicing our products and obtain self-regulatory certifications, if available, with respect to our products. Failure to achieve any of these objectives may also slow the development of a sufficient market for our products and, therefore, have a material adverse effect on our results of operations and financial condition.

We are substantially dependent on a concentrated number of customers and the loss of any one of these customers could adversely affect our business, financial condition and results of operations.

We contract with a concentrated number of customers for the sale of products and for research and development contracts. This includes POSCO Energy, which is a related party and owns approximately 7% of the outstanding common shares of the Company. POSCO Energy accounted for 48% of the Company's total revenues in fiscal year 2016.

There can be no assurance that we will continue to achieve the current level of sales of our products to our largest customers. Even though our customer base is expected to increase and our revenue streams to diversify, a substantial portion of net revenues could continue to depend on sales to a limited number of customers. Our agreements with these customers may be canceled if we fail to meet certain product specifications or materially breach the agreements, and our customers may seek to renegotiate the terms of current agreements or renewals. The loss of, or a reduction in sales to, one or more of our larger customers could have a material adverse effect on our business, financial condition and results of operations.

We have licensed certain technology and market access to POSCO Energy which limits our ability to independently access the Asian market.

We entered into manufacturing and technology transfer agreements 2007, 2009 and 2012 with POSCO Energy. The Cell Technology Transfer Agreement ("CTTA"), executed in October 2012, provides POSCO Energy with the technology to manufacture DFC power plants in South Korea and the market access 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, each for a period of five (5) years, by mutual agreement of the Company and POSCO Energy. In conjunction with the CTTA, the Company receives 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 terms of the Master Service Agreement between the Company and POSCO Energy. As a result, we are reliant on POSCO Energy to develop and grow the Asian market. POSCO Energy's future growth and strategic plans may not always align with ours.

If our goodwill and other intangible assets, long-lived assets, inventory or project assets become impaired, we may be required to record a significant charge to earnings.

We may be required to record a significant charge to earnings in our financial statements should we determine that our goodwill, other intangible assets (i.e., in process research and development ("IPR&D")), long-lived assets (i.e. property,

plant and equipment), inventory, or project assets are impaired. Such a charge might have a significant impact on our financial position and results of operations.

As required by accounting rules, we review our goodwill for impairment at least annually as of July 31 or more frequently if facts and circumstances indicate that it is more likely than not that the fair value of a reporting unit that has goodwill is less than its carrying value. Factors that may be considered a change in circumstances indicating that the carrying value of our goodwill might not be recoverable include a significant decline in projections of future cash flows and lower future growth rates in our industry.

We review IPR&D for impairment on an annual basis. If the technology has been determined to be abandoned or not recoverable, we would be required to impair the asset. We review inventory and project assets for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. We consider a project commercially viable and recoverable if it is anticipated to be sellable for a profit once it is either fully developed or fully constructed. If our projects are not considered commercially viable, we would be required to impair the respective project assets.

Our Advanced Technologies contracts are subject to the risk of termination by the contracting party and we may not realize the full amounts allocated under the contracts due to the lack of Congressional appropriations.

A portion of our fuel cell revenues have been derived from long-term cooperative agreements and other contracts with the U.S. Department of Energy and other U.S. Government agencies. These agreements are important to the continued development of our technology and our products. We also contract and partner with private sector companies under certain Advanced Technology contracts to develop strategically important and complementary offerings.

Generally, our government research and development contracts are subject to the risk of termination at the convenience of the contracting agency. Furthermore, these contracts, irrespective of the amounts allocated by the contracting agency, are subject to annual Congressional appropriations and the results of government or agency sponsored reviews and audits of our cost reduction projections and efforts. We can only receive funds under these contracts ultimately made available to us annually by Congress as a result of the appropriations process. Accordingly, we cannot be sure whether we will receive the full amounts awarded under our government research and development or other contracts. Failure to receive the full amounts under any of our government research and development contracts could materially and adversely affect our business prospects, results of operations and financial condition.

A negative government audit could result in an adverse adjustment of our revenue and costs and could result in civil and criminal penalties.

Government agencies, such as the Defense Contract Audit Agency, routinely audit and investigate government contractors. These agencies review a contractor's performance under its contracts, cost structure, and compliance with applicable laws, regulations, and standards. If the agencies determine through these audits or reviews that we improperly allocated costs to specific contracts, they will not reimburse us for these costs. Therefore, an audit could result in adjustments to our revenue and costs.

Further, although we have internal controls in place to oversee our government contracts, no assurance can be given that these controls are sufficient to prevent isolated violations of applicable laws, regulations and standards. If the agencies determine that we or one of our subcontractors engaged in improper conduct, we may be subject to civil or criminal penalties and administrative sanctions, payments, fines, and suspension or prohibition from doing business with the government, any of which could materially affect our results of operations and financial condition.

The U.S. government has certain rights relating to our intellectual property, including restricting or taking title to certain patents.

Multiple U.S. patents that we own have resulted from government-funded research and are subject to the risk of exercise of "march-in" rights by the government. March-in rights refer to the right of the U.S. government or a government agency to exercise its non-exclusive, royalty-free, irrevocable worldwide license to any technology developed under contracts funded by the government if the contractor fails to continue to develop the technology. These "march-in" rights permit the U.S. government to take title to these patents and license the patented technology to third parties if the contractor fails to utilize the patents.

We are classified for Government contracting as a "Large Business", which could adversely affect our rights to own future patents under DOE-funded contracts.

We are classified as a "large business" under DOE contracts. This allows us to own the patents that we develop under new DOE contracts if we obtain a waiver from DOE. A "large business" under applicable government regulations generally consists of more than 500 employees averaged over a one year period. We will not own future patents we develop under new contracts, grants or cooperative agreements funded by the DOE, unless we obtain a patent waiver from the DOE. Should we not obtain a patent waiver and outright ownership, we would nevertheless retain exclusive rights to any such patents, so long as we continue to commercialize the technology covered by the patents.

Our future success and growth is dependent on our market strategy.

We cannot assure you that we will enter into partnerships that are consistent with, or sufficient to support, our commercialization plans, and our growth strategy or that these relationships will be on terms favorable to us. Even if we enter into these types of relationships, we cannot assure you that the partners with which we form relationships will focus adequate resources on selling our products or will be successful in selling them. Some of these arrangements have or will require that we grant exclusive rights

to companies in defined territories. These exclusive arrangements could result in our being unable to enter into other arrangements at a time when the partner with which we form a relationship is not successful in selling our products or has reduced its commitment to marketing our products. In addition, future arrangements may also include the issuance of equity and warrants to purchase our equity, which may have an adverse effect on our stock price. To the extent we enter into partnerships or relationships, the failure of these partners to assist us with the deployment of our products may adversely affect our results of operations and financial condition.

We depend on third party suppliers for the development and supply of key raw materials and components for our products.

We use various raw materials and components to construct a fuel cell module, including nickel and stainless steel which are critical to our manufacturing process. We also rely on third-party suppliers for the balance-of-plant components in our products. Suppliers must undergo a qualification process, which takes four to twelve months. We continually evaluate new suppliers and we are currently qualifying several new suppliers. There are a limited number of suppliers for some of the key components of products. A supplier's failure to develop and supply components in a timely manner, supply components that meet our quality, quantity or cost requirements, technical specifications, or our inability to obtain alternative sources of these components on a timely basis or on terms acceptable to us could harm our ability to manufacture our Direct FuelCell products. In addition, to the extent the processes that our suppliers use to manufacture components are proprietary; we may be unable to obtain comparable components from alternative suppliers.

We do not know whether we will be able to maintain long-term supply relationships with our critical suppliers, or secure new long-term supply relationships, or whether such relationships will be on terms that will allow us to achieve our objectives. Our business prospects, results of operations and financial condition could be harmed if we fail to secure long-term relationships with entities that will supply the required components for our Direct FuelCell products. We depend on our intellectual property, and our failure to protect that intellectual property could adversely affect our future growth and success.

Failure to protect our existing intellectual property rights may result in the loss of our exclusivity or the right to use our technologies. If we do not adequately ensure our freedom to use certain technology, we may have to pay others for rights to use their intellectual property, pay damages for infringement or misappropriation, or be enjoined from using such intellectual property. We rely on patent, trade secret, trademark and copyright law to protect our intellectual property. In addition, we have licensed our carbonate fuel cell manufacturing intellectual property to POSCO Energy, and we depend on POSCO Energy to also protect our intellectual property rights as licensed. At October 31, 2016, the Company, excluding its subsidiaries, had 90 current U.S. patents and 88 international patents covering our fuel cell technology. The U.S. patents have an average remaining life of approximately 9.9 years. Our subsidiary, Versa, has 33 current U.S. patents and 70 international patents covering their SOFC technology, with an average remaining U.S. patent life of approximately 7.3 years. In addition, our subsidiary, FuelCell Energy Solutions, GmbH, has a license to use 2 current U.S. patents and 27 international patents for carbonate fuel cell technology licensed from Fraunhofer IKTS.

Some of our intellectual property is not covered by any patent or patent application and includes trade secrets and other know-how that is not able to be patented, particularly as it relates to our manufacturing processes and engineering design. In addition, some of our intellectual property includes technologies and processes that may be similar to the patented technologies and processes of third parties. If we are found to be infringing third-party patents, we do not know whether we will be able to obtain licenses to use such patents on acceptable terms, if at all. Our patent position is subject to complex factual and legal issues that may give rise to uncertainty as to the validity, scope, and enforceability of a particular patent.

We cannot assure you that any of the U.S. or international patents owned by us or other patents that third parties license to us will not be invalidated, circumvented, challenged, rendered unenforceable or licensed to others, or any of our pending or future patent applications will be issued with the breadth of claim coverage sought by us, if issued at all. In addition, effective patent, trademark, copyright and trade secret protection may be unavailable, limited or not applied for in certain foreign countries.



We also seek to protect our proprietary intellectual property, including intellectual property that may not be patented or able to be patented, in part by confidentiality agreements and, if applicable, inventors' rights agreements with our subcontractors, vendors, suppliers, consultants, strategic partners and employees. We cannot assure you that these agreements will not be breached, that we will have adequate remedies for any breach or that such persons or institutions will not assert rights to intellectual property arising out of these relationships. Certain of our intellectual property have been licensed to us on a non-exclusive basis from third parties that may also license such intellectual property to others, including our competitors. If our licensors are found to be infringing third-party patents, we do not know whether we will be able to obtain licenses to use the intellectual property licensed to us on acceptable terms, if at all.

If necessary or desirable, we may seek extensions of existing licenses or further licenses under the patents or other intellectual property rights of others. However, we can give no assurances that we will obtain such extensions or further licenses or that the

terms of any offered licenses will be acceptable to us. The failure to obtain a license from a third party for intellectual property that we use at present could cause us to incur substantial liabilities, and to suspend the manufacture or shipment of products or our use of processes requiring the use of that intellectual property.

While we are not currently engaged in any intellectual property litigation, we could become subject to lawsuits in which it is alleged that we have infringed the intellectual property rights of others or commence lawsuits against others who we believe are infringing upon our rights. Our involvement in intellectual property litigation could result in significant expense to us, adversely affecting the development of sales of the challenged product or intellectual property and diverting the efforts of our technical and management personnel, whether or not that litigation is resolved in our favor.

Our future success will depend on our ability to attract and retain qualified management and technical personnel. Our future success is substantially dependent on the continued services and on the performance of our executive officers and other key management, engineering, scientific, manufacturing and operating personnel, particularly Arthur Bottone, our Chief Executive Officer. The loss of the services of any executive officer, including Mr. Bottone, or other key management, engineering, scientific, manufacturing and operating personnel, could materially adversely affect our business. Our ability to achieve our commercialization plans will also depend on our ability to attract and retain additional qualified management and technical personnel. Recruiting personnel for the fuel cell industry is competitive. We do not know whether we will be able to attract or retain additional qualified management and technical personnel. Our inability to attract and retain additional qualified management and technical personnel, or the departure of key employees, could materially and adversely affect our development and commercialization plans and, therefore, our business prospects, results of operations and financial condition.

Our management may be unable to manage rapid growth effectively.

We may rapidly expand our facilities and manufacturing capabilities, accelerate the commercialization of our products and enter a period of rapid growth, which will place a significant strain on our senior management team and our financial and other resources. Any expansion may expose us to increased competition, greater overhead, marketing and support costs and other risks associated with the commercialization of a new product. We would need to obtain sufficient backlog in order to maintain the use of the expanded capacity. Our ability to manage rapid growth effectively will require us to continue to secure adequate sources of capital and financing, improve our operations, to improve our financial and management information systems and to train, motivate and manage our employees. Difficulties in effectively managing issues presented by such a rapid expansion could harm our business prospects, results of operations and financial condition.

We may be affected by environmental and other governmental regulation.

We are subject to various federal, 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. In addition, it is possible that industry-specific laws and regulations will be adopted covering matters such as transmission scheduling, distribution, and the characteristics and quality of our products, including installation and servicing. These regulations could limit the growth in the use of carbonate fuel cell products, decrease the acceptance of fuel cells as a commercial product and increase our costs and, therefore, the price of our products. Accordingly, compliance with existing or future laws and regulations could have a material adverse effect on our business prospects, results of operations and financial condition.

Utility companies may resist the adoption of distributed generation and could impose customer fees or interconnection requirements on our customers that could make our products less desirable.

Investor-owned utilities may resist adoption of distributed generation fuel cell plants as the power plants are disruptive to the utility business model that primarily utilizes large central generation power plants and associated transmission and distribution. On-site distributed generation that is on the customer-side of the electric meter competes with the utility. Distributed generation on the utility-side of the meter generally has power output that is significantly less than central generation power plants and may be perceived by the utility as too small to materially impact its business, limiting its interest. Additionally, perceived technology risk may limit utility interest in stationary fuel cell power plants.

Utility companies commonly charge fees to larger, industrial customers for disconnecting from the electric grid or for having the capacity to use power from the electric grid for back up purposes. These fees could increase the cost to our customers of using our Direct FuelCell products and could make our products less desirable, thereby harming our business prospects, results of operations and financial condition.

Several U.S. states have created and adopted, or are in the process of creating, their own interconnection regulations covering both technical and financial requirements for interconnection to utility grids. Depending on the complexities of the requirements,

installation of our systems may become burdened with additional costs that might have a negative impact on our ability to sell systems. The Institute of Electrical and Electronics Engineers has been working to create an interconnection standard addressing the technical requirements for distributed generation to interconnect to utility grids. Many parties are hopeful that this standard will be adopted nationally to help reduce the barriers to deployment of distributed generation such as fuel cells; however this standard may not be adopted nationally thereby limiting the commercial prospects and profitability of our fuel cell systems.

We could be liable for environmental damages resulting from our research, development or manufacturing operations. Our business exposes us to the risk of harmful substances escaping into the environment, resulting in personal injury or loss of life, damage to or destruction of property, and natural resource damage. Depending on the nature of the claim, our current insurance policies may not adequately reimburse us for costs incurred in settling environmental damage claims, and in some instances, we may not be reimbursed at all. Our business is subject to numerous federal, state, and local laws and regulations that govern environmental protection and human health and safety. We believe that our businesses are operating in compliance in all material respects with applicable environmental laws, however these laws and regulations have changed frequently in the past and it is reasonable to expect additional and more stringent changes in the future.

Our operations may not comply with future laws and regulations and we may be required to make significant unanticipated capital and operating expenditures. If we fail to comply with applicable environmental laws and regulations, governmental authorities may seek to impose fines and penalties on us or to revoke or deny the issuance or renewal of operating permits and private parties may seek damages from us. Under those circumstances, we might be required to curtail or cease operations, conduct site remediation or other corrective action, or pay substantial damage claims.

Our products use inherently dangerous, flammable fuels, operate at high temperatures and use corrosive carbonate material, each of which could subject our business to product liability claims.

Our business exposes us to potential product liability claims that are inherent in products that use hydrogen. Our products utilize fuels such as natural gas and convert these fuels internally to hydrogen that is used by our products to generate electricity. The fuels we use are combustible and may be toxic. In addition, our Direct FuelCell products operate at high temperatures and use corrosive carbonate material, which could expose us to potential liability claims. Although we have incorporated a robust design and redundant safety features in our power plants and have established comprehensive safety, maintenance, and training programs in place, follow third-party certification protocols, codes and standards, and do not store natural gas or hydrogen at our power plants, we cannot guarantee that there will not be accidents. Any accidents involving our products or other hydrogen-using products could materially impede widespread market acceptance and demand for our products. In addition, we might be held responsible for damages beyond the scope of our insurance coverage. We also cannot predict whether we will be able to maintain adequate insurance coverage on acceptable terms.

We are subject to risks inherent in international operations.

Since we market our products both inside and outside the U.S., our success depends in part on our ability to secure international customers and our ability to manufacture products that meet foreign regulatory and commercial requirements in target markets. Sales to customers located outside the U.S. accounts for a significant portion of our consolidated revenue. Sales to customers in South Korea represent the majority of our international sales. We have limited experience developing and manufacturing our products to comply with the commercial and legal requirements of international markets. In addition, we are subject to tariff regulations and requirements for export licenses, particularly with respect to the export of some of our technologies. We face numerous challenges in our international expansion, including unexpected changes in regulatory requirements, potential conflicts or disputes that countries may have to deal with, fluctuations in currency exchange rates, longer accounts receivable requirements and collections, difficulties in managing international operations, potentially adverse tax consequences, restrictions on repatriation of earnings and the burdens of complying with a wide variety of international laws. Any of these factors could adversely affect our results of operations and financial condition.

Although our reporting currency is the U.S. dollar, we conduct our business and incur costs in the local currency of most countries in which we operate. As a result, we are subject to currency translation and transaction risk. Joint ventures or other business arrangements with strategic partners outside of the United States have and are expected in the future to involve investments denominated in the local currency. Changes in exchange rates between foreign currencies and the U.S. dollar could affect our net sales and cost of sales and could result in exchange gains or losses. We cannot accurately predict the impact of future exchange rate fluctuations on our results of operations. We could also expand our business into new and emerging markets, many of which have an uncertain regulatory environment relating to currency policy. Conducting business in such markets could cause our exposure to changes in exchange rates to increase, due to the relatively high volatility associated with emerging market currencies and potentially longer payment terms for our proceeds. Our ability to hedge foreign currency exposure is dependent on our credit profile with financial institutions that are

willing and able to do business with us. Deterioration in our credit position or a significant tightening of the credit market conditions could limit our ability to hedge our foreign currency exposure; and therefore, result in exchange gains or losses.

We depend on relationships with strategic partners, and the terms and enforceability of many of these relationships are not certain.

We have entered into relationships with strategic partners for design, product development, sale and service of our existing products, and products under development, some of which may not have been documented by a definitive agreement. The terms and conditions of many of these agreements allow for termination by the partners. Termination of any of these agreements could adversely affect our ability to design, develop and distribute these products to the marketplace. We cannot assure you that we will be able to successfully negotiate and execute definitive agreements with any of these partners, and failure to do so may effectively terminate the relevant relationship.

If we fail to maintain an effective system of internal controls, we may not be able to accurately report our financial results or prevent fraud, which could harm our brand and operating results.

Effective internal controls are necessary for us to provide reliable and accurate financial reports and effectively prevent fraud. We have devoted significant resources and time to comply with the internal control over financial reporting requirements of the Sarbanes-Oxley Act of 2002. In addition, Section 404 under the Sarbanes-Oxley Act of 2002 requires that we assess, and that our auditors attest to, the design and operating effectiveness of our controls over financial reporting. Our compliance with the annual internal control report requirement for each fiscal year will depend on the effectiveness of our financial reporting and data systems and controls. Inferior internal controls could cause investors to lose confidence in our reported financial information, which could have a negative effect on the trading price of our stock and our access to capital.

Our results of operations could vary as a result of methods, estimates and judgments we use in applying our accounting policies.

The methods, estimates and judgments we use in applying our accounting policies have a significant impact on our results of operations (see “Critical Accounting Policies and Estimates” in Item 7). Such methods, estimates and judgments are, by their nature, subject to substantial risks, uncertainties and assumptions, and factors may arise over time that could lead us to reevaluate our methods, estimates and judgments.

In future periods, management will continue to reevaluate its estimates for contract margins, service agreements, loss accruals, warranty, performance guarantees, liquidated damages and inventory valuation allowances. Changes in those estimates and judgments could significantly affect our results of operations and financial condition. We may also adopt changes required by the Financial Accounting Standards Board and the Securities and Exchange Commission.

Our stock price has been and could remain volatile.

The market price for our common stock has been and may continue to be volatile and subject to extreme price and volume fluctuations in response to market and other factors, including the following, some of which are beyond our control:

- failure to meet commercialization milestones;
- failure to win contracts through competitive bidding processes;
- variations in our quarterly operating results from the expectations of securities analysts or investors;
- downward revisions in securities analysts’ estimates or changes in general market conditions;
- changes in the securities analysts that cover us or failure to regularly publish reports;
- announcements of technological innovations or new products or services by us or our competitors;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures or capital commitments;
- additions or departures of key personnel;
- investor perception of our industry or our prospects;
- insider selling or buying;
- demand for our common stock;



general technological or economic trends; and, changes in United States or foreign political environment and the passage of laws, including, tax, environmental or other laws, affecting the product development business.

In the past, following periods of volatility in the market price of their stock, many companies have been the subject of securities class action litigation. If we became involved in securities class action litigation in the future, it could result in substantial costs and diversion of management's attention and resources and could harm our stock price, business prospects, results of operations and financial condition.

Provisions of Delaware and Connecticut law and of our charter and by-laws and our outstanding securities may make a takeover more difficult.

Provisions in our certificate of incorporation and by-laws and in Delaware and Connecticut corporate law may make it difficult and expensive for a third-party to pursue a tender offer, change in control or takeover attempt that is opposed by our management and board of directors. In addition, certain provisions of our Series 1 Preferred Shares and our Series B preferred stock could make it more difficult or more expensive for a third party to acquire us. Public stockholders who might desire to participate in such a transaction may not have an opportunity to do so. These anti-takeover provisions could substantially impede the ability of public stockholders to benefit from a change in control or change in our management and board of directors.

Our amended and restated bylaws provide that the Court of Chancery of the State of Delaware is the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a judicial forum deemed favorable by the stockholder for disputes with us or our directors, officers or employees.

Our amended and restated bylaws provide that the Court of Chancery of the State of Delaware is the exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a breach of fiduciary duty, any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our certificate of incorporation or our amended and restated bylaws, any action to interpret, apply, enforce, or determine the validity of our amended and restated certificate of incorporation or restated bylaws, or any action asserting a claim against us that is governed by the internal affairs doctrine. The choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that the stockholder finds favorable for disputes against us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and other employees.

Alternatively, if a court were to find the choice of forum provision contained in our restated bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could adversely affect our business and financial condition.

Future sales of substantial amounts of our common stock could affect the market price of our common stock.

Future sales of substantial amounts of our common stock, or securities convertible or exchangeable into shares of our common stock, into the public market, including shares of our common stock issued upon exercise of options, or perceptions that those sales could occur, could adversely affect the prevailing market price of our common stock and our ability to raise capital in the future.

We may need to raise additional funds in future private or public offerings, and such funds may not be available on acceptable terms, if at all. If we do raise additional funds utilizing equity, existing stockholders will suffer dilution.

We may need to raise additional funds in private or public offerings, and these funds may not be available to us when we need them or on acceptable terms, if at all. If we raise additional funds through further issuances of our common stock, or securities convertible or exchangeable into shares of our common stock, into the public market, including shares of our common stock issued upon exercise of options, you could suffer significant dilution, and any new equity securities we issue could have rights, preferences and privileges superior to those of our then-existing capital stock. Any debt financing secured by us in the future could involve restrictive covenants relating to our capital raising activities and other financial and operational matters, which may make it more difficult for us to obtain additional capital and to pursue business opportunities. If we cannot raise additional funds when we need them, our business and



prospects could fail or be materially and adversely affected.

The rights of the Series 1 preferred shares and Series B preferred stock could negatively impact our cash flows and could dilute the ownership interest of our stockholders.

The terms of the Series 1 preferred shares issued by FCE FuelCell Energy, Ltd. (“FCE Ltd.”), our wholly-owned, indirect subsidiary, provide rights to the holder, Enbridge Inc. (“Enbridge”), which could negatively impact us.

The provisions of the Series 1 Preferred Shares require that FCE Ltd. make annual payments totaling Cdn. \$1,250,000, including (i) annual dividend payments of Cdn. \$500,000 and (ii) annual return of capital payments of Cdn. \$750,000. These payments will end on December 31, 2020. Additional dividends accrue on cumulative unpaid dividends at a 1.25% quarterly rate, compounded quarterly, until payment thereof. 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 Series 1 Preferred Shares provisions.

We are also required to issue common stock to the holder of the Series 1 preferred shares if and when the holder exercises its conversion rights. The number of shares of common stock that we may issue upon conversion could be significant and dilutive to our existing stockholders. For example, assuming the holder of the Series 1 preferred shares exercises its conversion rights after July 31, 2020 and assuming our common stock price is \$3.35 (our common stock closing price on October 31, 2016), and an exchange rate of U.S. \$1.00 to Cdn. \$1.34 at the time of conversion, we would be required to issue approximately 1,042,000 shares of our common stock.

The terms of the Series B preferred stock also provide rights to their holders that could negatively impact us. Holders of the Series B preferred stock are entitled to receive cumulative dividends at the rate of \$50 per share per year, payable either in cash or in shares of our common stock. To the extent the dividend is paid in shares, additional issuances could be dilutive to our existing stockholders and the sale of those shares could have a negative impact on the price of our common stock. A share of our Series B preferred stock, after giving effect to the December 3, 2015 reverse stock split 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 per share), plus cash in lieu of fractional shares. Furthermore, the conversion rate applicable to the Series B preferred stock is subject to additional adjustment upon the occurrence of certain events.

Exports of certain of our products are subject to various export control regulations and may require a license or permission from the U.S. Department of State, the U.S. Department of Energy or other agencies.

As an exporter, we must comply with various laws and regulations relating to the export of products, services and technology from the U.S. and other countries having jurisdiction over our operations. We are subject to export control laws and regulations, including the International Traffic in Arms Regulation "ITAR", the Export Administration Regulation "EAR", and the Specially Designated Nationals and Blocked Persons List, which generally prohibit U.S. companies and their intermediaries from exporting certain products, importing materials or supplies, or otherwise doing business with restricted countries, businesses or individuals, and require companies to maintain certain policies and procedures to ensure compliance. We are also subject to the Foreign Corrupt Practices Act which prohibits improper payments to foreign governments and their officials by U.S. and other business entities. Under these laws and regulations, U.S. companies may be held liable for their actions and actions taken by their strategic or local partners or representatives. If we, or our intermediaries, fail to comply with the requirements of these laws and regulations, or similar laws of other countries, governmental authorities in the United States or elsewhere, as applicable, could seek to impose civil and/or criminal penalties, which could damage our reputation and have a material adverse effect on our business, financial condition and results of operations.

We are also subject to registration under the U.S. State Department's Directorate of Defense Trade Controls ("DDTC"). Due to the nature of certain of our products and technology, we must obtain licenses or authorizations from various U.S. Government agencies such as DDTC or DOE, before we are permitted to sell such products or license such technology outside of the U.S. We can give no assurance that we will continue to be successful in obtaining the necessary licenses or authorizations or that certain sales will not be prevented or delayed. Any significant impairment of our ability to sell products or license technology outside of the U.S. could negatively impact our results of operations, financial condition or liquidity.



## Item 1B. UNRESOLVED STAFF COMMENTS

None.

## Item 2. PROPERTIES

The following is a summary of our offices and locations:

Location	Business Use	Square Footage	Lease Expiration Dates
Danbury, Connecticut	Corporate Headquarters, Research and Development, Sales, Marketing, Service, Purchasing and Administration	72,000	Company owned
Torrington, Connecticut	Manufacturing and Administrative	65,000 <sup>(1)</sup>	December-2030 <sup>(2)</sup>
Danbury, Connecticut	Manufacturing and Operations	38,000	October-2019
Taufkirchen, Germany	Manufacturing and Administrative	20,000	June-2018
Dresden, Germany	Central European Office, Sales, Marketing, Purchasing and Administrative	1,700	November-2018 <sup>(3)</sup>
Calgary, Canada	Research and Development	32,220	January-2020

<sup>(1)</sup> The Company is expanding the Torrington facility by adding an additional 102,000 square feet. See Note 10 of the Notes to Consolidated Financial Statements for additional information.

<sup>(2)</sup> In November 2015, this lease was extended until December of 2030, with the option to extend for three additional five-year periods thereafter.

<sup>(3)</sup> This lease includes unlimited six-month extension options.

## Item 3. LEGAL PROCEEDINGS

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.

## PART II

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

## FuelCell Common Stock

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.

On December 3, 2015, we effected a 1-for-12 reverse stock split, reducing the number of our common shares outstanding from 314.5 million shares to approximately 26.2 million shares. Concurrently with the reverse stock split, the number of authorized shares of our common stock was reduced proportionately, from 475 million shares to 39.6 million shares. In April 2016, the number of authorized shares of the Company's common stock was increased from approximately 39.6 million to 75.0 million by vote of a majority of the Company's security holders.

Additionally, the conversion price of our Series B Preferred Stock, and the exchange price of our Series 1 Preferred Shares, the exercise price of all outstanding options and warrants, and the number of shares reserved for future issuance pursuant to our equity compensation plans were all adjusted proportionately to the reverse stock split.

The following table has been retroactively adjusted to give effect to the reverse stock split.

	Common Stock Price	
	High	Low
First quarter 2017 (through December 30, 2016)	\$3.40	\$1.60
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
Year Ended October 31, 2015		
First Quarter	\$27.60	\$12.60
Second Quarter	\$17.40	\$13.68
Third Quarter	\$15.36	\$9.72
Fourth Quarter	\$12.00	\$7.68

In April 2016, the number of authorized shares of the Company's common stock was increased from approximately 39.6 million to 75.0 million by vote of a majority of the Company's security holders.

On December 30, 2016, the closing price of our common stock on the Nasdaq Global Market was \$1.75 per share. At December 30, 2016, there were 169 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 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.

## Performance Graph

The following graph compares the annual change in the Company's cumulative total stockholder return on its Common Stock for the five years ended October 31, 2016 with the cumulative stockholder total return on the Russell 2000 Index and a peer group consisting of Standard Industry Classification ("SIC") Group Code 3690 companies listed on the Nasdaq Global Market and New York Stock Exchange for that period ("Peer Index"). It assumes \$100 invested on October 31, 2011 with dividends reinvested.



\* 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, 2016 with the cumulative stockholder total return on the Russell 2000 Index, a peer group consisting of Standard Industry Classification ("SIC) Group Code 369 companies listed on the Nasdaq Global Market and New York Stock Exchange and a customized 17 company peer group.

#### Series 1 Preferred Shares

We have 1,000,000 Series 1 Preferred Shares issued and outstanding. The Series 1 Preferred Shares were issued by FCE Ltd., one of our wholly-owned subsidiaries. We have guaranteed the obligations of FCE Ltd. under the Series 1 Preferred Shares.

On March 31, 2011, the Company entered into an agreement with Enbridge to modify the provisions of the Series 1 Preferred Shares of FCE Ltd. Enbridge is the sole holder of the Series 1 Preferred Shares. Consistent with the previous Series 1 preferred share agreement, FuelCell Energy continues to guarantee the return of principal and dividend obligations of FCE Ltd. to the Series 1 preferred shareholders under the modified agreement.

The terms of the Series 1 Preferred Shares require (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. Dividends accrue at a 1.25% quarterly rate on the unpaid principal balance, and additional dividends will accrue on the cumulative unpaid dividends (inclusive of the Cdn. \$12.5 million unpaid dividend balance as of the modification date) 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 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 Series 1 Preferred Shares provisions.

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 average price in US 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 per share less any amounts paid as a return of capital in respect of such share plus all unpaid dividends and accrued interest. Holders of the Series 1 Preferred Shares do not have any mandatory or conditional redemption rights.

**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 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 (after giving effect to the December 3, 2015 reverse stock split):

Cdn. \$1,664.52 per share of our 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 shares of our common stock at the time of conversion.

For example, assuming the holder of the Series 1 preferred shares exercises its conversion rights after July 31, 2020 and assuming our common stock price is \$3.35 (our common stock closing price on October 31, 2016) and an exchange rate of U.S. \$1.00 to Cdn.\$1.34 (exchange rate on October 31, 2016) at the time of conversion, we would be required to issue approximately 1,042,000 shares of our common stock.

#### Series B Preferred Stock

We have 250,000 shares of our 5% Series B Cumulative Convertible Perpetual Preferred Stock (Liquidation Preference \$1,000) ("Series B Preferred Stock") authorized for issuance. At October 31, 2016 and 2015, there were 64,020 shares of Series B Preferred Stock issued and outstanding. The shares of our Series B Preferred Stock and the shares of our common stock issuable upon conversion of the shares of our Series B Preferred Stock are covered by a registration rights agreement. 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 per share which are payable quarterly in arrears on February 15, May 15, August 15 and November 15. Unpaid accumulated dividends do not bear interest. 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.

No dividends or other distributions may be paid or set apart for payment on our common shares (other than a dividend payable solely in shares of a like or junior ranking) unless all accumulated and unpaid Series B Preferred Stock dividends have been paid or funds or shares of common stock have been set aside for payment of accumulated and unpaid Series B Preferred Stock dividends.



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 each of the years ended October 31, 2016, 2015 and 2014. There were no cumulative unpaid dividends at October 31, 2016 and 2015.

Liquidation

The Series B Preferred Stock stockholders are entitled to receive, in the event that we are liquidated, dissolved or wound up, whether voluntarily or involuntarily, \$1,000 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. At October 31, 2016 and 2015, 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 in the Certificate of Designation. The conversion rate is not 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 at October 31, 2016) for 20 trading days during any consecutive 30 trading day period, as described in the Certificate of Designation.

#### 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 described in the Certificate of Designation).

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; however, holders may receive certain voting rights, as described in the Certificate of Designation, if (1) dividends on any shares of Series B Preferred Stock, or any other class or series of stock ranking on a parity with the Series B Preferred Stock with respect to the payment of dividends, shall be in arrears for dividend periods, whether or not consecutive, for six calendar quarters or (2) we fail to pay the redemption price, plus accrued and unpaid dividends, if any, on the redemption date for shares of Series B Preferred Stock following a fundamental change.

So long as any shares of Series B Preferred Stock remain outstanding, we will not, without the consent of the holders of at least two-thirds of the shares of Series B Preferred Stock outstanding at the time (voting separately as a class with all other series of preferred stock, if any, on parity with our Series B Preferred Stock upon which like voting rights have been conferred and are exercisable) issue or increase the authorized amount of any class or series of shares ranking senior to the outstanding shares of the Series B Preferred Stock as to dividends or upon liquidation. In addition, we will not, subject to certain conditions, amend, alter or repeal provisions of our certificate of incorporation, including the Certificate of Designation relating to the Series B Preferred Stock, whether by merger, consolidation or otherwise, so as to adversely amend, alter or affect any power, preference or special right of the outstanding shares of Series B Preferred Stock or the holders thereof without the affirmative vote of not less than two-thirds of the issued and outstanding Series B Preferred Stock shares.

#### Equity Compensation Plan Information

See Part III, Item 12 for information regarding securities authorized for issuance under our equity compensation plans.

## Item 6. 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, 2016 have been derived from our audited consolidated financial statements together with the notes thereto included elsewhere in this annual report on Form 10-K. 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 on Form 10-K.

## Consolidated Statement of Operations Data:

(Amounts presented in thousands, except for per share amounts)

	2016	2015	2014	2013	2012
<b>Revenues:</b>					
Product sales	\$62,563	\$128,595	\$136,842	\$145,071	\$94,950
Service agreements and license revenues	32,758	21,012	25,956	28,141	18,183
Advanced technology contracts	12,931	13,470	17,495	14,446	7,470
Total revenues	108,252	163,077	180,293	187,658	120,603
<b>Costs and expenses:</b>					
Cost of product sales	63,474	118,530	126,866	136,989	93,876
Cost of service agreement and license revenues	33,256	18,301	23,037	29,683	19,045
Cost of advanced technology contracts	11,879	13,470	16,664	13,864	7,237
Total cost of revenues	108,609	150,301	166,567	180,536	120,158
Gross (loss) profit	(357 )	12,776	13,726	7,122	445
<b>Operating expenses:</b>					
Administrative and selling expenses	25,150	24,226	22,797	21,218	18,220
Research and development costs	20,846	17,442	18,240	15,717	14,354
Total costs and expenses	45,996	41,668	41,037	36,935	32,574
Loss from operations	(46,353 )	(28,892 )	(27,311 )	(29,813 )	(32,129 )
Interest expense	(4,958 )	(2,960 )	(3,561 )	(3,973 )	(2,304 )
Income (loss) from equity investments	—	—	—	46	(645 )
Impairment of equity investment	—	—	—	—	(3,602 )
License fee and royalty income	—	—	—	—	1,599
Other income (expense), net	622	2,442	(7,523 )	(1,208 )	1,244
Provision for income tax	(519 )	(274 )	(488 )	(371 )	(69 )
Net loss	(51,208 )	(29,684 )	(38,883 )	(35,319 )	(35,906 )
Net loss attributable to noncontrolling interest	251	325	758	961	411
Net loss attributable to FuelCell Energy, Inc.	(50,957 )	(29,359 )	(38,125 )	(34,358 )	(35,495 )
Preferred stock dividends	(3,200 )	(3,200 )	(3,200 )	(3,200 )	(3,201 )
Net loss to common shareholders	\$(54,157)	\$(32,559)	\$(41,325)	\$(37,558)	\$(38,696)
Net loss to common shareholders					
Basic	\$(1.82 )	\$(1.33 )	\$(2.02 )	\$(2.42 )	\$(2.81 )
Diluted	\$(1.82 )	\$(1.33 )	\$(2.02 )	\$(2.42 )	\$(2.81 )
<b>Weighted average shares outstanding</b>					
Basic	29,774	24,514	20,474	15,544	13,789
Diluted	29,774	24,514	20,474	15,544	13,789



## Consolidated Balance Sheet Data:

(Amounts presented in thousands, except for per share amounts)

	2016	2015	2014	2013	2012
Cash and cash equivalents (1)	\$118,316	\$85,740	\$108,833	\$77,699	\$57,514
Working capital	150,206	129,010	141,970	83,066	55,729
Total current assets	202,469	203,898	217,031	189,329	140,626
Total assets	342,137	277,231	280,636	237,636	191,485
Total current liabilities	52,263	74,888	75,061	106,263	84,897
Total non-current liabilities	115,621	47,732	47,269	84,708	32,603
Redeemable preferred stock	59,857	59,857	59,857	59,857	59,857
Total equity (deficit)	114,396	94,754	98,449	(13,192 )	14,128
Book value per share (2)	\$3.25	\$3.65	\$4.11	\$(0.81 )	\$0.91

(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.

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

The following discussion should be read in conjunction with information included in Item 8 of this report. Unless otherwise indicated, the terms "Company", "FuelCell Energy", "we", "us", and "our" refer to FuelCell Energy, Inc. and its subsidiaries. All tabular dollar amounts are in thousands.

In addition to historical information, this discussion and analysis contains forward-looking statements. All forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially from those projected. Factors that could cause such a difference include, without limitation, the risk that commercial field trials of our products will not occur when anticipated, general risks associated with product development and manufacturing, changes in the utility regulatory environment, potential volatility of energy prices, rapid technological change, competition, market acceptance of our products and our ability to achieve our sales plans and cost reduction targets, as well as other risks set forth in our filings with the Securities and Exchange Commission including those set forth under Item 1A — Risk Factors in this report.

On December 3, 2015, we effected a 1-for-12 reverse stock split, reducing the number of our common shares outstanding on that date from 314.5 million shares to approximately 26.2 million shares. Concurrently with the reverse stock split, the number of authorized shares of our common stock was reduced proportionately, from 475 million shares to 39.6 million shares. Additionally, the conversion price of our Series B Preferred Stock, and the exchange price of our Series 1 Preferred Shares, the exercise price of all outstanding options and warrants, and the number of shares reserved for future issuance pursuant to our equity compensation plans were all adjusted proportionately to the reverse stock split. All such amounts presented herein have been adjusted retroactively to reflect these changes.

Overview

We are an integrated fuel cell company with an expanding global presence on three continents. We design, manufacture, sell, install, operate and service ultra-clean, highly efficient stationary fuel cell power plants for distributed power generation. Our power plants provide megawatt-class scalable on-site power and utility grid support, helping customers solve their energy, environmental and business challenges. Our plants are operating in more than 50 locations on three continents and have generated more than 5.6 million megawatt hours (MWh) of electricity, which is equivalent to powering more than 509,000 average size U.S. homes for one year.

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 reference, one megawatt is adequate to power approximately 1,000 average sized US 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 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 Direct FuelCell® (DFC®) power plants utilize carbonate fuel cell technology, which is a very versatile type of fuel cell technology. Utilizing our core DFC 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 (SOFC) for adjacent sub-megawatt applications to the markets for our megawatt-class DFC 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

### Restructuring

The Company completed a business restructuring on November 30, 2016 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 is reducing materials spend as well as implementing 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 and remote locations. A total of 96 positions, or approximately 17 percent of the global workforce, was impacted. The Company expects that Operating expenses (Administrative and selling, Research and development expenses) will be approximately \$6.0 million lower on an annualized basis as a result of personnel reductions and related benefits, as well as lower overhead spending. The production rate has been reduced to 25 megawatts annually, from the prior rate of 50 megawatts annually, in order to position for delays in anticipated order flow. A personnel-related restructuring charge of approximately \$3.0 million will be incurred in fiscal year 2017, with approximately one half of the charge composed of cash severance costs and the remainder representing non-cash charges. This production level is anticipated to be temporary and will be reevaluated as order flow dictates, with any future increases being undertaken from what is now a lower cost basis.



## 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, 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:

(dollars in thousands)	Years Ended October 31,		Change	
	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 same period last year, 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 during the same period last year. 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:

(dollars in thousands)	Years Ended October 31,		Change	
	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 engineering, procurement and construction services (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 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. POSCO Energy has completed



building its manufacturing facility and is manufacturing cell components and modules in South Korea. The Company's multi-year kit order with POSCO Energy concluded in the fourth fiscal quarter in 2016 and as a result, the Company does not expect to recognize product sales revenue at the levels previously recognized from POSCO Energy. The Company will receive (under Service agreements) license revenues from a 3.0% royalty on POSCO Energy net product sales manufactured in South Korea. We believe that this revenue stream will grow over time as POSCO Energy increases production.

Also contributing to the decline in revenue over the comparable period is certain power plants that are being recognized as Project assets on the balance sheet and accordingly, product and engineering, procurement and construction revenue is not recognized when sales are made. As the Company's development business expands, it is installing power plants for customers that have executed power purchase agreements (PPAs). These assets generally are the subject of sale-leaseback transactions with 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 power purchase agreement or when a definitive sales agreement is executed.

With the transition of manufacturing to South Korea in POSCO Energy's manufacturing facility for POSCO Energy's demand, we expect that production in the Company's Torrington, CT manufacturing facility will be largely dictated by the demand of the U.S. market. As a result, quarterly revenue will vary depending on the timing and level of demand in the U.S. and the project revenue recognition method.

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 2016 was driven by lower overall product volume during the fiscal year and retention of project assets on balance sheet versus a sale to end customer or investor. 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.

At October 31, 2016, product sales backlog totaled approximately \$24.9 million compared to \$90.7 million at October 31, 2015.

#### Service Agreements and License Revenues and Cost of Revenues

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

(dollars in thousands)	Years Ended October 31,		Change	
	2016	2015	\$	%
Service agreements and license revenues	\$32,758	\$21,012	\$11,746	56
Cost of service agreements and license revenues	33,256	18,301	14,955	82
Gross (loss) profit from service agreements and license revenues	\$(498 )	\$2,711	\$(3,209 )	118
Service agreement and license revenues gross margin	(1.5 )%	12.9 %		

Revenues for the year ended October 31, 2016 from service agreements and license fee and royalty agreements totaled \$32.8 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 \$33.3 million for fiscal year 2016 from \$18.3 million for the prior year, resulting in a decrease in gross margin to a loss of 1.5% from a profit of 12.9% during the year-ago

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 \$347.3 million compared to \$254.1 million at October 31, 2015. 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.

#### Advanced technologies contracts

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

(dollars in thousands)	Years Ended October 31,		Change	
	2016	2015	\$	%
Advanced technologies contracts	\$12,931	\$13,470	\$(539 )	(4 )
Cost of advanced technologies contracts	11,879	13,470	(1,591 )	(12)
Gross profit	\$1,052	\$—	\$1,052	
Advanced technologies contracts gross margin	8.1 %	— %		

Advanced technologies contracts revenue 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 timing and mix of contracts currently being performed, particularly the transition to a larger mix of private industry contracts.

At October 31, 2016, advanced technology contract backlog totaled approximately \$60.1 million compared to \$36.5 million at 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 HEFC. This configuration has an overall electrical efficiency of approximately sixty percent 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 2017.

#### 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 in 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 new Hercules Loan and Security Agreement, 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 (expense), net

Other income (expense), net, was other income, net of \$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 net operating losses (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 net operating losses or other deferred tax assets as significant uncertainty exists surrounding the recoverability of these deferred tax assets.

At October 31, 2016, we had \$748.6 million of federal NOL carryforwards that expire in the years 2020 through 2035 and \$405.8 million in state NOL carryforwards that expire in the years 2015 through 2035. Additionally, we had \$11.1 million of state tax credits available, of which \$0.7 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 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 shareholders and loss per common share

Net loss attributable to common shareholders 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 shareholders was \$54.2 million and \$32.6 million, respectively, and basic and diluted loss per common share was \$1.82 and \$1.33, respectively.

Comparison of the Years Ended October 31, 2015 and 2014

Revenues and Costs of revenues

Our revenues and cost of revenues for the years ended October 31, 2015 and 2014 were as follows:

(dollars in thousands)	Years Ended October 31,		Change	
	2015	2014	\$	%
Total revenues	\$163,077	\$180,293	\$(17,216)	(10)
Total costs of revenues	\$150,301	\$166,567	\$(16,266)	(10)
Gross profit	\$12,776	\$13,726	\$(950)	(7)
Gross margin	7.8	% 7.6	%	

Total revenues for the year ended October 31, 2015 decreased \$17.2 million, or 10%, to \$163.1 million from \$180.3 million during the same period last year. Total cost of revenues for the year ended October 31, 2015 decreased by \$16.3 million, or 10%, to \$150.3 million from \$166.6 million during the same period last year. The Company generated a 7.8% gross margin percentage in fiscal year 2015, which is improved from the prior year margin of 7.6% despite lower revenue. 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, 2015 and 2014 were as follows:

(dollars in thousands)	Years Ended October 31,		Change	
	2015	2014	\$	%
Product sales	\$128,595	\$136,842	\$(8,247)	(6)
Cost of product sales	118,530	126,866	(8,336)	(7)
Gross profit from product sales	\$10,065	\$9,976	\$89	1
Product sales gross margin	7.8	% 7.3		%

Product sales for the year ended October 31, 2015 included \$19.6 million of power plant revenue, \$84.5 million from sales of fuel cell kits and modules and \$24.5 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, 2014 which included \$22.2 million of power plant revenue, \$95.7 million fuel cell kits and module revenue and \$18.9 million of revenue primarily from power plant component sales and EPC services. Product sales decreased \$8.2 million, or 6%, for the year ended October 31, 2015 to \$128.6 million from \$136.8 million for the prior year period. The decline in revenue during the period is due to decreased sales of fuel cell kits to POSCO and power plant revenue partly offset by an increase engineering and construction services.

Cost of product sales decreased \$8.3 million for the year ended October 31, 2015, to \$118.5 million compared to \$126.9 million in the same prior year period. Gross profit increased slightly despite the lower sales volume primarily due to lower warranty and quality expenses. 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.

At October 31, 2015, product sales backlog totaled approximately \$90.7 million compared to \$113.1 million at October 31, 2014.

#### Service Agreements and License Revenues and Cost of Revenues

Our service agreements and license revenues and associated cost of revenues for the years ended October 31, 2015 and 2014 were as follows:

(dollars in thousands)	Years Ended October 31,		Change	
	2015	2014	\$	%
Service agreements and license revenues	\$21,012	\$25,956	\$(4,944)	(19)
Cost of service agreements and license revenues	18,301	23,037	(4,736)	(21)
Gross profit from service agreements and license revenues	\$2,711	\$2,919	\$(208)	(7)
Service agreement and license revenues gross margin	12.9	% 11.2		%

Revenues for the year ended October 31, 2015 from service agreements and license fee and royalty agreements totaled \$21.0 million, compared to \$26.0 million for the prior year. The decrease was due to the timing of module exchanges

during the year

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ended October 31, 2015 compared to the prior year period. Revenue for license fee and royalty agreements totaled \$4.7 million and \$4.3 million for the years ended October 31, 2015 and 2014, respectively.

Service agreements and license cost of revenues decreased to \$18.3 million for fiscal year 2015 from \$23.0 million for the prior year, resulting in an increase in gross margin to 12.9% from 11.2% during the year-ago period. The increase in gross margin reflects higher margins recognized on new service agreements related to the growing fleet. As profitable megawatt-class service agreements are executed and as early generation sub-megawatt products are retired or become a smaller overall percentage of the installed fleet, we expect the margins on service agreements to continue to increase.

At October 31, 2015, service backlog totaled approximately \$254.1 million compared to \$196.8 million at October 31, 2014. Service backlog does not include future royalties, license or electricity revenues.

#### Advanced technologies contracts

Advanced technologies contracts revenue and related costs for the years ended October 31, 2015 and 2014 were as follows:

	Years Ended October 31,		Change	
	2015	2014	\$	%
(dollars in thousands)				
Advanced technologies contracts	\$13,470	\$17,495	\$(4,025)	(23 )
Cost of advanced technologies contracts	13,470	16,664	(3,194 )	(19 )
Gross profit	\$—	\$831	\$(831 )	(100)
Advanced technologies contracts gross margin	—	% 4.7	%	

Advanced technologies contracts revenue for the year ended October 31, 2015 was \$13.5 million, representing a decrease of \$4.0 million when compared to \$17.5 million of revenue for the year ended October 31, 2014. The decrease is primarily attributable to the completion of a data center fuel cell power plant research project. Cost of advanced technologies contracts decreased \$3.2 million to \$13.5 million for the year ended October 31, 2015, compared to \$16.7 million for the prior year. Gross profit from advanced technologies contracts for the year ended October 31, 2015 was breakeven compared to \$0.8 million for the year ended October 31, 2014, and gross margin was breakeven compared to 4.7% during the prior year period. The decrease in gross margin is related to the mix of contracts currently being performed which include cost share obligations.

At October 31, 2015, advanced technology contract backlog totaled approximately \$36.5 million compared to \$24.0 million at October 31, 2014.

#### Administrative and selling expenses

Administrative and selling expenses were \$24.2 million for the year ended October 31, 2015 compared to \$22.8 million for the year ended October 31, 2014. The increase results primarily from increased marketing activity and project proposal expenses for multiple power plant installations and advanced technology contracts.

#### Research and development expenses

Research and development expenses decreased \$0.8 million to \$17.4 million for the year ended October 31, 2015, compared to \$18.2 million during the year ended October 31, 2014. The decrease in research and development expenses resulted from completion of prior year initiatives in enhancing the cost profile of multi-megawatt installations. Decreases were partially offset by increased investment in product development of the high efficiency fuel cell. The Company's internal research and development is focused on initiatives that have near term product introduction potential and product cost reduction opportunities, all of which are expected to expand market opportunities.

#### Loss from operations

Loss from operations for the year ended October 31, 2015 was \$28.9 million compared to a loss of \$27.3 million in for the year ended October 31, 2014.



#### Interest expense

Interest expense for the years ended October 31, 2015 and 2014 was \$3.0 million and \$3.6 million, respectively. Interest expense for fiscal year 2014 includes interest of \$0.4 million associated with 8.0% Unsecured Convertible Notes which were converted to common stock during fiscal year 2014. 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 and \$2.0 million, respectively.

#### Other income (expense), net

Other income (expense), net, was net income of \$2.4 million for the year ended October 31, 2015 compared to net expense of \$7.5 million for the year ended October 31, 2014. The fiscal year 2015 income includes unrealized foreign exchange gains of \$1.7 million which primarily related to the preferred stock obligation of our Canadian subsidiary, FCE Ltd for which the functional currency is U.S. dollars, which is payable in Canadian dollars and refundable research and development tax credits of \$0.6 million. The fiscal year 2014 expense includes a charge of \$8.4 million related to the make-whole payment upon conversion of \$38.0 million of principal of then-existing 8.0% Convertible Notes. The Company primarily used common stock to settle this make-whole obligation.

#### 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, 2015, our provision for income taxes was \$0.3 million. We cannot estimate when production volumes will be sufficient to generate taxable domestic income. Accordingly, no tax benefit has been recognized for these net operating losses or other deferred tax assets as significant uncertainty exists surrounding the recoverability of these deferred tax assets.

At October 31, 2015, we had \$721.0 million of federal NOL carryforwards that expire in the years 2020 through 2036 and \$406 million in state NOL carryforwards that expire in the years 2015 through 2035. Additionally, we had \$11.0 million of state tax credits available, of which \$1.0 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 years ended October 31, 2015 and 2014 was \$0.3 million and \$0.8 million, respectively.

#### 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, 2015 and 2014.

#### Net loss attributable to common shareholders and loss per common share

Net loss attributable to common shareholders 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, 2015 and 2014, net loss attributable to common shareholders was \$32.6 million and \$41.3 million, respectively, and basic and diluted loss per common share was \$1.33 and \$2.02, respectively.

#### Customer Concentrations

We contract with a concentrated number of customers for the sale of our products and for research and development contracts. Refer to Note 1 of notes to consolidated financial statements for more information on customer concentrations. There can be no assurance that we will continue to achieve historical levels of sales of our products to our largest customers. Even though our customer base is expected to expand, diversifying our revenue streams, a substantial portion of net revenues could continue to depend on sales to a concentrated number of customers. Our agreements with these customers may be canceled if we fail to meet certain product specifications or materially breach the agreements, and our customers may seek to renegotiate the terms of current agreements or renewals. The loss of or reduction in sales to one or more of our larger customers could have a material adverse effect on our business, financial condition and results of operations.

## LIQUIDITY AND CAPITAL RESOURCES

At October 31, 2016, we believe that our cash, 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.

Cash and cash equivalents including restricted cash totaled \$118.3 million at October 31, 2016 compared to \$85.7 million at October 31, 2015. At October 31, 2016, restricted cash and cash equivalents was \$34.1 million, of which \$9.4 million was classified as current and \$24.7 million was classified as non-current, compared to \$26.9 million total restricted cash and cash equivalents at October 31, 2015, of which \$6.3 million was classified as current and \$20.6 million was classified as non-current. In addition, the Company has \$38.2 million of availability under its project finance loan agreement with NRG Energy through its finance subsidiary, which can be used for project asset development. We also have an effective shelf registration statement on file with the SEC for issuance of debt and equity securities.

On November 30, 2016 the Company completed a business restructuring 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 is reducing materials spend as well as implementing 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 and remote locations. A total of ninety-six positions, or approximately seventeen percent of the global workforce, was impacted. In conjunction with the personnel reduction, the Company is implementing other measures to reduce operating costs by at least \$6 million on an annualized basis. The production rate has been reduced to twenty-five megawatts annually, from the prior rate of fifty megawatts annually, in order to position for delays in anticipated order flow. A personnel-related restructuring charge of approximately \$3.0 million will be incurred in fiscal year 2017, with approximately one half of the charge composed of cash severance costs and the remainder representing non-cash charges. This production level is anticipated to be temporary and will be reevaluated as order flow dictates, with any future increases being undertaken from what is now a lower cost basis.

Project development activities are continuing with proposals being submitted for a utility-scale fuel cell only request for proposal process in New York with decisions expected in the first half of 2017. The Company also hopes to continue to develop and complete utility-scale fuel cell projects in Connecticut under future processes to further the State's stated critical energy goals. Favorable legislative and regulatory developments in New York and California are expected to be supportive of projects in the Company's pipeline and the European market is expanding as illustrated by the second utility order for E.On Connecting Energies GMBH which was recently announced by the Company. Fuel cell carbon capture opportunities are advancing with a demonstration project at a utility-owned coal/gas-fired power plant and developing interest from Canadian oil sands operators as demonstrated by a recently announced engineering study.

The Company's future liquidity will be dependent on obtaining a combination of increasing order and contract volumes, increasing cash flows from our power purchase agreement and service portfolios and cost reductions necessary to achieve profitable operations. Management currently estimates that the Company could be net income positive in the range of 60 - 70 MW of annual production volume. This estimate assumes a sales mix of turn-key projects in the U.S. and Europe, royalties from the Asia market and growing service, power purchase agreement and advanced technologies revenues and margins.

Our business model continues to evolve. As a result of the strong, predictable and recurring cash flows of our projects, proliferation of power purchase agreements in the industry and access to capital, the Company has been retaining projects on the balance sheet versus sale to an end customer, investor, utility or YieldCo. This provides the Company with the full benefit of future cash flows under the PPA's. Our operating portfolio (currently 11.2 MW) 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. Retaining long-term cash flow positive PPAs combined

with our service fleet reduces reliance on new project sales to achieve cash flow positive operations.

The Company has a contract backlog totaling approximately \$432.3 million at October 31, 2016. This backlog includes approximately \$347.3 million of service and power purchase agreements, with an average term of approximately 15 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 2036. The Company also has a strong sales and service pipeline of potential projects in various stages of development in both North America 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. On-site projects being developed are for project sizes ranging from 1.4MW - 14.0 MW for end users such as pharmaceuticals companies, hospitals, and universities. 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. Utility scale projects in our pipeline range in size from 5.6 MW up to 63 MW. These projects help both utilities and states meet their renewable portfolio standards.

The Company produced approximately 62 MW during fiscal year 2016 at its production facility in Torrington, Connecticut. This facility is currently producing at an annual rate of 25MW and has an annual manufacturing capacity of 100 MW under its current configuration. At October 31, 2016, our backlog of future production for existing product sales, service and power purchase agreements is approximately 102.8 MW for the U.S. and European markets. We expect approximately 13 MW to be delivered over the next twelve months. The Company is targeting converting at least 70 MW of our sales pipeline into incremental backlog in 2017 in order to deploy inventory and project assets as well as utilize our available capacity. Based on the timing of new contracts, the Company will evaluate increases to the production schedule. Based on hiring and adjustments to the supply chain, we estimate that it takes approximately six to nine months to incrementally ramp to an additional 25 MW of annualized production volume.

Factors that may impact our liquidity in 2017 and beyond include:

Our expanding development of large scale turn-key projects in the United States requires liquidity and is expected to continue to have liquidity requirements in the future. Our business model includes the development of turn-key projects and we may commence construction upon the execution of a multi-year power purchase agreement with an end-user that has a strong credit profile. 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 projects, generally until such time that we can sell a 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. At October 31, 2016, we had \$40.0 million of committed construction period and term project financing, of which \$38.2 million was available, to enable this strategy though we may seek to use our cash balances or other forms of financing as necessary. We have partnered with financial institutions to secure long-term debt and leases for our PPA portfolio. In fiscal year 2016, we financed approximately \$41.5 million of projects and expect that activity to continue in 2017.

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 or other forms of security, and incurring engineering, permitting, legal, and other expenses.

The amount of accounts receivable at October 31, 2016 and 2015 was \$38.7 million (\$14.1 million classified as Other assets, net) and \$60.8 million, respectively. Included in accounts receivable at October 31, 2016 and 2015 was \$22.4 million and \$41.0 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. At this time, we bill our customers according to the contract terms. 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 at October 31, 2016 and 2015 was \$73.8 million and \$65.8 million, respectively, which includes work in process inventory totaling \$48.5 million and \$36.7 million, respectively. As we continue to execute on our business plan we must produce fuel cell modules and procure balance of plant components in required volumes

to support our planned construction schedules and potential customer contractual requirements. As a result, we may manufacture modules or acquire balance of plant 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.

Cash and cash equivalents at October 31, 2016 included \$5.3 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 including current and long-term at October 31, 2016 and October 31, 2015 was \$47.1 million and \$12.2 million, respectively. 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. There were no short-term project assets as of October 31, 2016. The long-term portion of project assets of \$29.3 million represents completed installations for which there is a PPA and which are the subject of our sale-leaseback program and \$17.8 million of project assets represent projects in development. At October 31, 2016, we had 8.4 MW of our operating project assets that we estimate will generate approximately \$6.0 million a year of revenue for the Company. We expect this portfolio to continue to grow in fiscal year 2017.

Under the terms of certain contracts, the Company will provide performance security for future contractual obligations. At October 31, 2016 we have pledged approximately \$34.1 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 2017, we forecast capital expenditures in the range of \$9.0 - \$12.0 million compared to \$7.7 million in fiscal year 2016. We have commenced the first phase of our project to expand our 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 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 million to be used for the first phase. 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 December 2015. Up to 50 percent of the principal balance is forgivable if certain job creation and retention targets are met.

In addition to cash flows from operations, we may also pursue raising capital through a combination of: (i) sales of equity to public markets or strategic investors, (ii) debt financing (with improving operating results as the business grows, the Company expects to have increased access to the debt markets to finance working capital and capital expenditures), (iii) project level debt and equity financing and (iv) potential local or state Government loans or grants in return for manufacturing job creation and retention. 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 Flows

Cash and cash equivalents and restricted cash and cash equivalents totaled \$118.3 million at October 31, 2016 compared to \$85.7 million at October 31, 2015. At October 31, 2016, restricted cash and cash equivalents was \$34.1 million, of which \$9.4 million was classified as current and \$24.7 million was classified as non-current, compared to \$26.9 million total restricted cash and cash equivalents at October 31, 2015, of which \$6.3 million was classified as current and \$20.6 million was classified as non-current.

The following table summarizes our consolidated cash flows:

	2016	2015	2014
Consolidated Cash Flow Data:			
Net cash used in operating activities	\$(46,595)	\$(44,274)	\$(57,468)
Net cash used in investing activities	(41,452)	(6,930)	(7,079)
Net cash provided by financing activities	120,658	28,219	95,941
Effects on cash from changes in foreign currency rates	(35)	(108)	(260)
Net increase (decrease) in cash and cash equivalents	\$32,576	\$(23,093)	\$31,134

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



Operating Activities - Cash used in operating activities was \$46.6 million during fiscal year 2016 compared to \$44.3 million used in operating activities during fiscal year 2015. 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. Cash used by operating activities also included a \$3.0 million reduction in accounts payable, and an \$8.1 million increase in inventories. As we continue to execute on our business plan we must produce fuel cell modules and procure balance of plant components in required volumes to support our planned

construction schedules and potential customer contractual requirements. Cash used by operating activities was partially offset by a \$30.2 million decrease in accounts receivable.

Net cash used in operating activities during fiscal year 2015 is primarily a result of increases in current project assets and inventory of \$11.4 million and \$10.1 million, respectively, due to an increase in power purchase agreements in backlog and projects under development versus direct sales in the comparable prior year period. Decreases in fiscal year 2015 accounts payable and deferred revenue of \$7.2 million and \$3.9 million, respectively, also contributed to cash used in operating activities. These changes were partially offset by a decrease in accounts receivable of \$3.2 million and an increase in accrued liabilities of \$6.4 million.

Investing Activities - Cash used in investing activities was \$41.5 million during fiscal year 2016 compared to net cash used in investing activities of \$6.9 million during fiscal year 2015. Net cash used during fiscal year 2016 consists of a \$33.7 million investment in project assets as a result of expanding our business model to retain operating PPAs with contract durations of up to twenty years. At October 31, 2016, we had 8.4 MW of operating assets expected to generate revenues of approximately \$6.0 million per year on an annualized basis. Capital expenditures totaled \$7.7 million primarily related to the expansion of our Torrington facility.

Net cash used during fiscal year 2015 pertains to capital expenditures including expenditures for upgrades to existing machinery, equipment and investments in automation equipment that improved the efficiency and cost profile of our operations and facilitated our Torrington facility expansion which commenced in early 2016.

Financing Activities - Net cash provided by financing activities was \$120.7 million during fiscal year 2016 compared to \$28.2 million in the prior year period. 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 from the State of CT for our facility expansion, Hercules Capital Inc. to support working capital and NRG Energy and PNC Energy Capital 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.

Net cash provided by financing activities during the fiscal year ended October 31, 2015 includes proceeds from open market sales of common stock of \$27.1 million and net debt proceeds of \$5.2 million, partially offset by the payment of preferred dividends and return of capital payments of \$4.2 million.

#### Commitments and Significant Contractual Obligations

A summary of our significant future commitments and contractual obligations at October 31, 2016 and the related payments by fiscal year is summarized as follows:

(dollars in thousands)	Payments Due by Period				
	Total	Less than 1 year	1 - 3 years	3 - 5 years	More Than 5 years
Contractual Obligations					
Purchase commitments <sup>(1)</sup>	\$61,677	\$52,141	\$9,455	\$81	\$—
Series 1 Preferred obligation <sup>(2)</sup>	7,221	956	1,911	4,354	—
Term loans (principal and interest)	49,315	4,553	26,208	2,571	15,983
Capital and operating lease commitments <sup>(3)</sup>	8,209	1,695	2,066	697	3,751
Sale-leaseback financing obligation <sup>(4)</sup>	24,940	2,906	6,809	6,098	9,127
Option fee <sup>(5)</sup>	1,450	500	650	300	—
Series B Preferred dividends payable <sup>(6)</sup>	—	—	—	—	—
Total	\$152,812	\$62,751	\$47,099	\$14,101	\$28,861

(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 percent quarterly rate on the unpaid principal balance, and additional dividends will accrue on the cumulative unpaid dividends at a rate of 1.25 percent per quarter, compounded quarterly. On December 31, 2020 the amount of all accrued and unpaid

dividends on the Class A 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 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.

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

The Company entered into an agreement with one of its customers on June 29, 2016 which includes a fee for the (5) 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.

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 (6) 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 percent of the then prevailing conversion price (\$141) for 20 trading days during any consecutive 30 trading day period.

In April 2016, the Company entered into a loan and security agreement (the "Agreement") with Hercules Capital, Inc. ("Hercules") for an aggregate principal amount of up to \$25.0 million, subject to certain terms and conditions. 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, 2016 drawdowns and accrued amortization of the end of term charge on the facility aggregated \$20.5 million. The Company may take an additional loan advance of \$5.0 million beginning on the later of January 1, 2017 or the date certain milestones are met, and June 15, 2017. The loan is a 30 month secured facility and the term loan interest is currently 9.5%. Interest is paid on a monthly basis. As of October 31, 2016, interest only payments are required through November 1, 2017. If certain additional performance milestones are achieved, the interest only period would be extended to May 1, 2018. Upon completion of interest only payments, the loan balance and all accrued and unpaid interest is due and payable in equal monthly installments by October 1, 2018. Per the terms of the Agreement, there is an end of term charge of \$1.7 million which is being accreted by the effective interest rate method which would increase to \$2.1 million if the Company receives an additional \$5.0 million advance as discussed above.

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 to be used for the first phase of the expansion of our Torrington, Connecticut manufacturing facility. In conjunction with this financing, the Company entered into a \$10.0 million Promissory Note and related security agreements 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 percent is payable beginning December 2015. The financing is payable over 15 years, and is predicated on certain terms and conditions, including the forgiveness of up to 50 percent of the loan principal if certain job retention and job creation targets are reached. In addition, the Company may receive up to \$10.0 million of non-refundable transferable tax credits if certain terms and conditions are met.

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 megawatts to at least 200 megawatts. 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 Technology 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 Technology Center and tri-generation fuel cell power plant.

On July 30, 2014, the Company's subsidiary, FuelCell Energy Finance, LLC ("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 percent per annum for construction-period financing and 8.0 percent thereafter. At October 31, 2016, drawdowns on the facility aggregated \$1.8 million.

In March 2013, we closed on a long-term loan agreement with the Connecticut Clean Energy and Finance Investment Authority (CEFIA, now known as the CT Green Bank) totaling \$5.9 million in support of the Bridgeport Fuel Cell Project. The loan agreement

carries an interest rate of 5.0 percent 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 CEFIA Note as of October 31, 2016 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. At October 31, 2016, we had an outstanding balance of \$2.6 million on this loan. The interest rate is 5 percent. 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 \$34.1 million of our cash and cash equivalents as performance security and for letters of credit for certain banking requirements and contracts. At October 31, 2016, outstanding letters of credit totaled \$7.9 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 July 31, 2016 includes \$15.0 million which was placed in a Grantor's Trust account to secure certain FCE 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, 2016 also includes \$8.5 million to support obligations of the power purchase and service agreements related to the PNC sale-leaseback transaction.

At October 31, 2016, we have uncertain tax positions aggregating \$15.7 million and have reduced our net operating loss carryforwards by this amount. Because of the level of net operating losses 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 the power plants. Under certain agreements, we are also responsible for procuring fuel, generally natural gas, to run the power plants. We are typically not required to produce minimum amounts of power under our PPA agreements and we typically have the right to terminate PPA agreements by giving written notice to the customer, subject to certain exit costs. As of October 31, 2016, 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. We have agreed to warranty kits and components for twenty-one months from the date of shipment due to the additional shipping and customer manufacture time required. 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 ranging from 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. At October 31, 2016, Advanced technologies contracts backlog totaled \$60.1 million, of which

\$39.6 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.

## 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 costs, 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, 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.

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.

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 at July 31 of goodwill and intangible assets with indefinite lives during the third quarter of fiscal year 2016. The analysis was performed at the reporting unit level. The goodwill and intangible assets all relate to the Company's Versa power Systems, Inc. (Versa) reporting unit, since Versa has a segment manager that regularly reviews the results of that operation. Goodwill and other indefinite lived intangible assets are also reviewed for possible impairment whenever changes in conditions indicate that the fair value of a reporting unit is more likely than not below its carrying value.

The Company's quantitative assessment during the third quarter of fiscal year 2016 included future cash flow estimates associated with the Versa reporting unit including the SOFC technology. Estimates included, among other things, cash requirements to fully commercialize the SOFC technology, the current and future size of the SOFC market, our ability to penetrate that market with our technology, product pricing and costs. In consideration of these estimates, the Company's quantitative cash flow assessment utilized a 30% discount rate. No impairment charges were recorded during any of the years presented.

### Impairment of Long Lived 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 (ii) the sale of component part kits, modules and spare parts to customers, (iii) site engineering and construction services, (iv) performance under long-term service agreements, (v) the sale of electricity under PPAs, (vi) license fees and royalty income from



manufacturing and technology transfer agreements, and (vii) customer-sponsored advanced technology projects. The Company periodically enters into arrangements with customers that involve multiple elements of the above items. We assess such contracts to evaluate whether there are multiple deliverables, and whether the consideration under the arrangement is being appropriately allocated to each of the deliverables.

Our revenue is primarily generated from customers located throughout the U.S., Europe and Asia and from agencies of the U.S. Government. Revenue from the sale and installation of fuel cell power plants; the sale of component part kits, modules and spare parts; site engineering and construction services is recorded as product sales in the consolidated statements of operations. Revenue from service agreements, PPAs, license and royalty revenue and engineering services revenue is recorded as service and license

revenues. Revenue from customer-sponsored advanced technology research and development projects is recorded as advanced technologies contract revenues in the consolidated statements of operations.

For customer contracts for complete DFC power plants, with which the Company has adequate cost history and estimating experience, and that 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, anticipated increases in wages and prices for subcontractor services and materials, and the availability of subcontractor services and materials. 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 fuel cell kits, modules 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 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.

Site engineering and construction services revenue is recognized on a percentage of completion basis as costs are incurred.

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 is deferred and is recognized upon such module replacement event.

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 to manufacture Direct FuelCell power plants in South Korea and the exclusive market access to sell power plants throughout Asia. In conjunction with this agreement we amended the 2010 manufacturing and distribution agreement with POSCO Energy and the 2009 License Agreement. The 2012 agreement and the previously referenced amendments contain multiple elements, including the license of technology and market access rights, fuel cell module kit product deliverables, as well as professional service deliverables. We identified these three items as deliverables under the multiple-element arrangement guidance and evaluated the estimated selling prices to allocate the relative fair value to these deliverables, as vendor-specific objective evidence and third-party evidence was not available. The Company's determination of estimated selling prices involved the consideration of several factors based on the specific facts and circumstances of each arrangement. Specifically, the Company considered the cost to produce the tangible product and cost of professional service deliverables, the anticipated margin on those deliverables, prices charged when those deliverables are sold on a stand-alone basis in limited sales, and the Company's ongoing pricing strategy and practices used to negotiate and price overall bundled product, service and license arrangements. We are recognizing the consideration allocated to the license of technology and market access rights as revenue over the 15 year license term

on a straight-line basis, and will recognize the amounts allocated to the module kit deliverables and professional service deliverables when such items are delivered to POSCO Energy. We also determined that based on the utility to the customer of the fully developed technology that was licensed in the Cell Technology Transfer Agreement, there is stand-alone value for this deliverable.

Under PPAs, revenue from the sale of electricity is recognized as electricity is provided to the customer. These revenues are classified as a component of service and license revenues.

Revenue from funded advanced technology contracts is recognized as direct costs are incurred plus allowable overhead less cost share requirements, if any. Revenue from customer funded advanced technology programs are generally multi-year, 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. While advanced technology contracts may extend for many years, funding is often provided incrementally on a year-by-year basis if contract terms are met and funds are authorized.

#### Sale-Leaseback Accounting

From time to time, the Company, through a wholly-owned indirect 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 and Advance Payments to Vendors

Inventories consist principally of raw materials and work-in-process. 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 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, except for fuel cell kits. We have agreed to warranty fuel cell kits and components for 21 months from the date of shipment due to the additional shipping and customer manufacture time required. 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. At October 31, 2016 and October 31, 2015, the warranty accrual, which is classified in accrued liabilities on the consolidated balance sheet, totaled \$0.5 million and \$1.0 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 \$3.3 million and \$2.6 million at October 31, 2016 and October 31, 2015, respectively. The increase relates to additional accruals recorded for lower than expected output at certain fuel cell power plants.

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. At October 31, 2016 and October

31, 2015, our accruals on service agreement contracts totaled \$2.7 million and \$0.8 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. At October 31, 2016 the Company did not have an asset balance related to the residual value of replacement modules,. At October 31, 2015, the asset related to the residual value of replacement modules in power plants \$2.5 million.

## ACCOUNTING GUIDANCE UPDATE

### Recently Adopted Accounting Guidance

In October 2016, the FASB ASU 2016-18, "Statement of Cash Flows (Topic 230) Restricted Cash". The amendments require that a statement of cash flows explain the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents. Therefore, amounts generally described as restricted cash and restricted cash equivalents should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. The Company has early-adopted ASU 2016-18 using a retrospective transition method for each period presented in this ASU.

Accordingly, Restricted Cash and Cash Equivalents has been reclassified as a component of Cash, Cash Equivalents, and Restricted Cash in the Consolidated Statement of Cash Flows for all periods presented.

### Recent Accounting Guidance Not Yet Effective

In February 2016, the FASB issued Accounting Standards Update ("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. The 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 2020 for the Company). Early adoption is permitted. The Company has both operating and capital leases (Refer to Note 17. 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 this will result in the recognition of right-of-use assets and lease liabilities not currently recorded on our consolidated financial statements under existing accounting guidance, but 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.

In April 2015, the FASB issued Accounting Standards Update ("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 amendments in this ASU are effective for fiscal years beginning after December 15, 2015 and for interim periods therein. Adoption of this ASU is not expected to have a material impact on the Company's consolidated financial position.

In May 2014, the FASB issued Accounting Standards Update (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 year, and interim periods within those fiscal years beginning after December 15, 2017 (first quarter of fiscal 2019 for the Company), but allow adoption as of the original adoption date. The Company has numerous different revenue sources including from the sale and installation of fuel cell power plants, site engineering and construction services, sale of modules and spare parts, providing service under service agreements, sale of electricity under power purchase agreements, license fees and royalty income from manufacturing and technology transfer agreements and customer-sponsored advanced technology 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 expedient regarding collectability, presentation of sales tax collected from customers, non-cash consideration, contract modifications at transition, completed contracts at transition and other technical corrections.

Item 7A. 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 at October 31, 2016, 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

At October 31, 2016, approximately 6% 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 at October 31, 2016 and 2015 was \$0.7 million. 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 security is 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. However, any changes to these assumptions would not have a material impact on our results of operations.



Item 8. CONSOLIDATED FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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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, 2016 and 2015, and the related consolidated statements of operations and comprehensive loss, changes in equity (deficit), and cash flows for each of the years in the three year period ended October 31, 2016. We also have audited FuelCell Energy, Inc.'s internal control over financial reporting as of October 31, 2016, 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 report on internal controls 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, 2016 and 2015, and the results of its operations and its cash flows for each of the years in the three year period ended October 31, 2016, 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, 2016, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

/s/ KPMG LLP

Hartford, Connecticut  
January 12, 2017

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## FUELCELL ENERGY, INC.

## Consolidated Balance Sheets

October 31, 2016 and 2015

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

	2016	2015
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$84,187	\$58,852
Restricted cash and cash equivalents - short-term	9,437	6,288
Accounts receivable, net of allowance for doubtful accounts of \$193 and \$544 at October 31, 2016 and 2015, respectively	24,593	60,790
Inventories	73,806	65,754
Project assets current	—	5,260
Other current assets	10,446	6,954
Total current assets	202,469	203,898
Restricted cash and cash equivalents - long-term	24,692	20,600
Project assets noncurrent	47,111	6,922
Property, plant and equipment, net	36,640	29,002
Goodwill	4,075	4,075
Intangible assets	9,592	9,592
Other assets, net	17,558	3,142
Total assets	\$342,137	\$277,231
<b>LIABILITIES AND EQUITY</b>		
Current liabilities:		
Current portion of long-term debt	\$5,275	\$7,358
Accounts payable	18,475	15,745
Accrued liabilities	20,900	19,175
Deferred revenue	6,811	31,787
Preferred stock obligation of subsidiary	802	823
Total current liabilities	52,263	74,888
Long-term deferred revenue	20,974	22,646
Long-term preferred stock obligation of subsidiary	12,649	12,088
Long-term debt and other liabilities	81,998	12,998
Total liabilities	167,884	122,620
Redeemable preferred stock (liquidation preference of \$64,020 at October 31, 2016 and October 31, 2015)	59,857	59,857
Total equity:		
Shareholders' equity		
Common stock (\$.0001 par value; 75,000,000 and 39,583,333 shares authorized at October 31, 2016 and 2015, respectively; 35,174,424 and 25,964,710 shares issued and outstanding at October 31, 2016 and 2015, respectively)	4	3
Additional paid-in capital	1,004,566	934,488
Accumulated deficit	(889,630 )	(838,673 )
Accumulated other comprehensive loss	(544 )	(509 )
Treasury stock, Common, at cost (21,527 and 5,845 shares at October 31, 2016 and 2015, respectively)	(179 )	(78 )
Deferred compensation	179	78
Total shareholders' equity	114,396	95,309
Noncontrolling interest in subsidiaries	—	(555 )

Total equity	114,396	94,754
Total liabilities and equity	\$342,137	\$277,231

See accompanying notes to consolidated financial statements.

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## FUELCELL ENERGY, INC.

## Consolidated Statements of Operations and Comprehensive Loss

For the Years Ended October 31, 2016, 2015, and 2014

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

	2016	2015	2014
Revenues:			
Product sales (including \$43.6 million, \$100.5 million and \$115.0 million of related party revenue)	\$ 62,563	\$ 128,595	\$ 136,842
Service agreements and license revenues (including \$8.5 million, \$11.4 million and \$14.9 million of related party revenue)	32,758	21,012	25,956
Advanced technologies contract revenues (including \$0 million, \$0.6 million and \$0.4 million of related party revenue)	12,931	13,470	17,495
Total revenues	108,252	163,077	180,293
Costs of revenues:			
Cost of product sales	63,474	118,530	126,866
Cost of service agreements and license revenues	33,256	18,301	23,037
Cost of advanced technologies contract revenues	11,879	13,470	16,664
Total cost of revenues	108,609	150,301	166,567
Gross (loss) profit	(357 )	12,776	13,726
Operating expenses:			
Administrative and selling expenses	25,150	24,226	22,797
Research and development expenses	20,846	17,442	18,240
Total operating expenses	45,996	41,668	41,037
Loss from operations	(46,353 )	(28,892 )	(27,311 )
Interest expense	(4,958 )	(2,960 )	(3,561 )
Other income (expense), net	622	2,442	(7,523 )
Loss before provision for income taxes	(50,689 )	(29,410 )	(38,395 )
Provision for income taxes	(519 )	(274 )	(488 )
Net loss	(51,208 )	(29,684 )	(38,883 )
Net loss attributable to noncontrolling interest	251	325	758
Net loss attributable to FuelCell Energy, Inc.	(50,957 )	(29,359 )	(38,125 )
Preferred stock dividends	(3,200 )	(3,200 )	(3,200 )
Net loss to common shareholders	\$(54,157 )	\$(32,559 )	\$(41,325 )
Net loss to common shareholders per share			
Basic	\$(1.82 )	\$(1.33 )	\$(2.02 )
Diluted	\$(1.82 )	\$(1.33 )	\$(2.02 )
Weighted average shares outstanding			
Basic	29,773,700	24,513,731	20,473,915
Diluted	29,773,700	24,513,731	20,473,915
	2016	2015	2014
Net loss	(51,208 )	(29,684 )	\$(38,883 )
Other comprehensive loss:			
Foreign currency translation adjustments	(35 )	(350 )	(260 )
Comprehensive loss	\$(51,243 )	\$(30,034 )	\$(39,143 )

See accompanying notes to consolidated financial statements.



## FUELCELL ENERGY, INC.

## Consolidated Statements of Changes in Equity (Deficit)

For the Years Ended October 31, 2016, 2015, and 2014

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

	Common Stock			Accumulated	Other	Treasury	Deferred	Noncontrolling	Total
	Shares	Amount	Additional Paid-in Capital	Accumulated Deficit	Comprehensive Income (Loss)	Stock	Compensation	Interest in Subsidiaries	Equity (Deficit)
Balance, October 31, 2013	16,359,200	\$ 2	\$758,674	\$(771,189)	\$ 101	\$(53)	\$ 53	\$(780)	\$(13,192)
Sale of common stock	4,973,604	—	105,966	—	—	—	—	—	105,966
Common stock issued for convertible note conversions including interest	2,063,896	—	33,306	—	—	—	—	—	33,306
Common stock issued to settle make-whole obligation	459,523	—	12,883	—	—	—	—	—	12,883
Share based compensation	—	—	2,908	—	—	—	—	—	2,908
Taxes paid upon vesting of restricted stock awards, net of stock issued under benefit plans	76,136	—	(1,079)	—	—	—	—	—	(1,079)
Noncontrolling interest in subsidiaries	—	—	—	—	—	—	—	(758)	(758)
Preferred dividends — Series B	—	—	(3,200)	—	—	—	—	—	(3,200)
Adjustment for deferred compensation	(2,359)	—	—	—	—	(42)	42	—	—
Effect of foreign currency translation	—	—	—	—	(260)	—	—	—	(260)
Net loss attributable to FuelCell Energy, Inc.	—	—	—	(38,125)	—	—	—	—	(38,125)
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
	—	—	3,157	—	—	—	—	—	3,157



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Share based compensation 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
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)
Preferred dividends — Series B	—	—	(3,200)	)	—	—	—	—	—	(3,200)
	—	—	—	—	—	—	—	(251)	)	(251)

Noncontrolling interest in subsidiary									
Purchase of noncontrolling shares of subsidiary			(809 )				806	(3 )	
Effect of foreign currency translation	—	—	—	—	(35 )	—	—	—	(35 )
Adjustment for deferred compensation						(101 )	101		—
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

See accompanying notes to consolidated financial statements.

## FUELCELL ENERGY, INC.

## Consolidated Statements of Cash Flows

For the Years Ended October 31, 2016, 2015 and 2014

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

	2016	2015	2014
Cash flows from operating activities:			
Net loss	\$(51,208 )	\$(29,684 )	\$(38,883 )
Adjustments to reconcile net loss to net cash used in operating activities:			
Share-based compensation	3,425	3,157	2,908
Gain from change in fair value of embedded derivatives	(14 )	(23 )	(126 )
Make whole derivative expense	—	—	8,347
Depreciation	4,949	4,099	4,384
Amortization of convertible note discount and non-cash interest expense	3,207	1,830	2,140
Foreign currency transaction gains	(324 )	(2,075 )	(571 )
Other non-cash transactions	451	412	146
Decrease (increase) in operating assets:			
Accounts receivable	30,235	3,173	(15,378 )
Inventories	(8,052 )	(10,100 )	1,059
Project assets	—	(11,398 )	—
Other assets	(837 )	1,022	3,417
(Decrease) increase in operating liabilities:			
Accounts payable	(3,019 )	(7,224 )	(1,566 )
Accrued liabilities	1,240	6,435	(11,056 )
Deferred revenue	(26,648 )	(3,898 )	(12,289 )
Net cash used in operating activities	(46,595 )	(44,274 )	(57,468 )
Cash flows from investing activities:			
Capital expenditures	(7,726 )	(6,930 )	(6,295 )
Expenditures for long-term project assets	(33,726 )	—	(784 )
Net cash used in investing activities	(41,452 )	(6,930 )	(7,079 )
Cash flows from financing activities:			
Repayment of debt	(30,452 )	(1,535 )	(5,971 )
Proceeds from debt	85,935	6,763	250
Payments of deferred finance costs	(1,758 )	—	—
Purchase of non-controlling shares of subsidiary	(3 )	—	—
Proceeds from sale of common stock, net of registration fees	70,929	27,060	105,844
Payment of preferred dividends and return of capital	(4,170 )	(4,202 )	(4,343 )
Common stock issued for stock plans and related expenses	177	133	161
Net cash provided by financing activities	120,658	28,219	95,941
Effects on cash from changes in foreign currency rates	(35 )	(108 )	(260 )
Net increase in cash, cash equivalents, and restricted cash	32,576	(23,093 )	31,134
Cash, cash equivalents, and restricted cash—beginning of year	85,740	108,833	77,699
Cash, cash equivalents, and restricted cash—end of year	\$118,316	\$85,740	\$108,833
See accompanying notes to the consolidated financial statements.			

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

Nature of Business and Basis of Presentation

FuelCell Energy, Inc. and 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 Direct FuelCell power plants continuously produce base load electricity and usable high quality heat around the clock 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, 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.

On December 3, 2015, we effected a 1-for-12 reverse stock split, reducing the number of our common shares outstanding on that date from 314.5 million shares to approximately 26.2 million shares. Concurrently with the reverse stock split the number of authorized shares of our common stock was reduced proportionately from 475 million shares to 39.6 million shares. Additionally, the conversion price of our Series B Preferred Stock, and the exchange price of our Series 1 Preferred Shares, the exercise price of all outstanding options and warrants, and the number of shares reserved for future issuance pursuant to our equity compensation plans were all adjusted proportionately to the reverse stock split. All such amounts presented herein have been adjusted retroactively to reflect these changes.

Certain reclassifications have been made to conform to the current year presentation. Expenditures for long-term project assets for the year ended October 31, 2014 has been reclassified on the Consolidated Statement of Cash Flows from capital expenditures and foreign currency transaction gains for the year ended October 31, 2014 has been reclassified on the Consolidated Statement of Cash Flows from Other non-cash transactions to Foreign currency transaction gains. The Company also has early adopted Accounting Standards Update ("ASU") 2016-18, "Statement of Cash Flows (Topic 230) Restricted Cash" and has applied a retrospective transition method for each period presented. Accordingly, Restricted Cash and Cash Equivalents has been reclassified as a component of Cash, Cash Equivalents, and Restricted Cash in the Consolidated Statement of Cash Flows for all periods presented.

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. At October 31, 2016, \$34.1 million of cash and cash equivalents was pledged as collateral for letters of credit and for certain banking requirements and contractual commitments, compared to \$26.9 million pledged at October 31, 2015. The restricted cash balance includes \$15.0 million as of October 31, 2016 and 2015, which has been placed in a Grantor's Trust account to secure certain FCE obligations 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. At October 31, 2016 and 2015, we had outstanding letters of credit of \$7.9 million and \$8.7 million, respectively, which expire on various dates through April 2019. Cash and cash equivalents at October 31, 2016 and 2015 also included \$5.3 million and \$9.6 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, 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 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. The current portion of project assets is currently held for sale, however, should the Company elect to retain a project asset, or elect to enter into a sale-leaseback transaction with respect to it, it will be classified as long-term upon such election. There were no short-term project assets as of October 31, 2016. 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 intangible assets with indefinite lives at July 31, 2016. The goodwill and intangible assets all relate to the Company's Versa reporting unit. Goodwill and other indefinite lived intangible assets are also reviewed for possible impairment whenever changes in conditions indicate that the fair value of a reporting unit is more likely than not below its carrying value. No impairment charges were recorded during any of the years presented.

### Impairment of Long Lived 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 (ii) the sale of fuel cell modules, component part kits and spare parts to customers, (iii) site engineering and construction services, (iv) performance under long-term service agreements, (v) the sale of electricity under power purchase agreements ("PPA"), (vi) license fees and royalty income from manufacturing and technology transfer agreements, and (vii) customer-sponsored advanced technology projects.

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The Company periodically enters into arrangements with customers that involve multiple elements of the above items. We assess such contracts to evaluate whether there are multiple deliverables, and whether the consideration under the arrangement is being appropriately allocated to each of the deliverables.

Our revenue is primarily generated from customers located throughout the U.S., Asia and Europe and from agencies of the U.S. Government. Revenue from power plant construction, module and module kit sales, construction services and component part revenue is recorded as product sales in the consolidated statements of operations. Construction services includes engineering, procurement and construction (EPC) services of the overall fuel cell project. The installation of a power plant at a customer site includes significant site preparation which is included in the EPC component and is required to be completed before integration of the fuel cell power plant. Revenue from service agreements, PPAs and license and royalty revenue is recorded as service and license revenues. Revenue from customer-sponsored advanced technology research and development projects is recorded as advanced technologies contract revenues in the consolidated statements of operations.

For customer contracts for complete DFC power plants which the Company has adequate cost history and estimating experience, and that 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, anticipated increases in wages and prices for subcontractor services and materials, and the availability of subcontractor services and materials. 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 revenue. Revenues are recognized based on the proportion of costs incurred to date relative to total estimated costs at completion as compared to the contract value. 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. For all types of contracts, we recognize anticipated contract losses as soon as they become known and estimable. Actual results could vary from initial estimates and the estimates will be updated as conditions change. Revenue from the sale of fuel cell modules, component part kits and spare parts 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 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.

Site engineering and construction services revenue is recognized on a percentage of completion basis as costs are incurred.

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 are 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 is deferred and is recognized upon such module replacement event.

Revenue from funded advanced technology contracts is recognized as direct costs are incurred plus allowable overhead less cost share requirements, if any. Revenue from customer funded advanced technology programs are generally multi-year, 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. While advanced technology contracts may extend for many years, funding is often provided incrementally on a year-by-year basis if



contract terms are met and funds are authorized.

**Sale-Leaseback Accounting**

From time to time, the Company, through an indirect 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 leased property being 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, except for fuel cell kits. We have agreed to warranty fuel cell kits and components for 21 months from the date of shipment due to the additional shipping and customer manufacture time required. 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. At October 31, 2016 and 2015, the warranty accrual, which is classified in accrued liabilities on the consolidated balance sheet, totaled \$0.5 million and \$1.0 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 \$3.3 million and \$2.6 million at October 31, 2016 and 2015, 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. At October 31, 2016, our loss accruals on service agreements totaled \$2.7 million compared to \$0.8 million at October 31, 2015.

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. At 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 \$2.5 million at October 31, 2015.

#### License Agreements and Royalty Income

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 certain manufacturing and technology transfer agreements. In October 2016, these agreements were extended until October 31, 2027, after which they may be extended in five-year increments by mutual agreement of the parties.

The Cell Technology Transfer Agreement ("CTTA") provides POSCO Energy with the technology to manufacture Direct FuelCell power plants in South Korea and the exclusive market access to sell power plants throughout Asia. The CTTA contains multiple elements, including the license of technology and market access rights, fuel cell module kit product deliverables, as well as professional service deliverables. We identified these three items as deliverables under the multiple-element arrangement guidance and evaluated the estimated selling prices to allocate the relative fair value to these deliverables, as vendor-specific objective evidence and third-party evidence was not available. The Company's determination of estimated selling prices involves the consideration of several factors based on the specific facts and circumstances of each arrangement. Specifically, the Company considers the cost to produce the tangible

product and cost of professional service deliverables, the anticipated margin on those deliverables, prices charged when those deliverables are sold on a stand-alone basis in limited sales, and the Company's ongoing pricing strategy and practices used to negotiate and price overall bundled product, service and license arrangements. We are recognizing the consideration allocated to the license of technology and market access rights as revenue over the fifteen-year license term on a straight-line basis, and have recognized the amounts allocated to the module kit deliverables and professional service deliverables when such items were delivered to POSCO Energy. We have also determined that based on the utility to the

customer of the fully developed technology that was licensed in the Cell Technology Transfer Agreement, there is stand-alone value for this deliverable. In connection with the CTTA, fees totaling \$18.0 million were paid between fiscal year 2012 and 2015.

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 balance of plant ("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 compensation as recognized revenue for services rendered.

The Company recorded revenue of \$6.2 million, \$3.9 million and \$4.3 million for the years ended October 31, 2016, 2015 and 2014, respectively, relating to the above agreements. Future license and royalty income will consist of amortization of the license payments discussed above as well as a 3.0% royalty on POSCO Energy net product sales related to FCE's technology and each scheduled fuel cell module replacement under terms of our Master Service Agreement.

#### 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, 2016, 2015 and 2014, our top customers accounted for 78%, 89% and 85%, respectively, of our total annual consolidated revenue.

The percent of consolidated revenues from each customer for the years ended October 31, 2016, 2015 and 2014, respectively, are presented below.

	2016	2015	2014
POSCO Energy	48 %	67 %	69 %
The United Illuminating Company	10 %	14 %	9 %
Department of Energy	8 %	5 %	4 %
Dominion Bridgeport Fuel Cell, LLC	6 %	3 %	3 %
BioFuels Energy, LLC	6 %	— %	— %
Total	78 %	89 %	85 %



POSCO Energy is a related party and owns approximately 7% of the outstanding common shares of the Company. Additionally, NRG Energy is a related party, which owns approximately 4% of the outstanding common shares of the Company. Revenues from NRG aggregated less than 3% of consolidated revenues during each of the years presented.

#### Derivatives

We do not use derivatives for speculative purposes and through fiscal year end 2016, 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 12 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. Actual results could differ from those estimates. Estimates are used in accounting for, among other things, revenue recognition, excess, slow-moving and obsolete inventories, product warranty costs, service agreement loss accruals, allowance for uncollectable receivables, depreciation and amortization, impairment of goodwill, intangible 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.

#### Foreign Currency Translation

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

Our Canadian subsidiary, FCE Ltd., is financially and operationally integrated and the functional currency is U.S. dollars. We are subject to foreign currency transaction gains and losses as certain transactions are denominated in foreign currencies. We recognized gains of \$0.3 million, \$1.7 million and \$0.6 million for the years ended October 31, 2016, 2015 and 2014, respectively. These amounts have been classified as other income (expense), net in the consolidated statements of operations.

#### Recently Adopted Accounting Guidance

In October 2016, the FASB ASU 2016-18, "Statement of Cash Flows (Topic 230) Restricted Cash". The amendments require that a statement of cash flows explain the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents. Therefore, amounts generally described as restricted cash and restricted cash equivalents should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. The Company has early-adopted ASU 2016-18 using a retrospective transition method for each period presented in this ASU.

Accordingly, Restricted Cash and Cash Equivalents has been reclassified as a component of Cash, Cash Equivalents, and Restricted Cash in the Consolidated Statement of Cash Flows for all periods presented.

#### Recent Accounting Guidance Not Yet Effective

In February 2016, the FASB issued Accounting Standards Update ("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. The 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 2020 for the Company). Early adoption is permitted. The Company has both operating and capital leases (Refer to Note 17. 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 this will result in the recognition of right-of-use assets and lease liabilities not currently recorded on our consolidated financial statements under existing accounting guidance, but 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.

In April 2015, the FASB issued Accounting Standards Update ("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 amendments in this ASU are effective for fiscal years beginning after December 15, 2015 and

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for interim periods therein. Adoption of this ASU is not expected to have a material impact on the Company's consolidated financial position.

In May 2014, the FASB issued Accounting Standards Update (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 year, and interim periods within those fiscal years beginning after December 15, 2017 (first quarter of fiscal 2019 for the Company), but allow adoption as of the original adoption date. The Company has numerous different revenue sources including from the sale and installation of fuel cell power plants, site engineering and construction services, sale of modules and spare parts, providing service under service agreements, sale of electricity under power purchase agreements, license fees and royalty income from manufacturing and technology transfer agreements and customer-sponsored advanced technology 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 expedient regarding collectability, presentation of sales tax collected from customers, non-cash consideration, contract modifications at transition, completed contracts at transition and other technical corrections.



## Note 2. Accounts Receivable

Accounts receivable at October 31, 2016 and 2015 consisted of the following (in thousands):

	2016	2015
Advanced Technology (including U.S. Government <sup>(1)</sup> ):		
Amount billed	\$2,463	\$433
Unbilled recoverable costs	3,068	3,077
	5,531	3,510
Commercial customers:		
Amount billed	5,411	19,331
Unbilled recoverable costs	13,651	37,949
	19,062	57,280
	\$24,593	\$60,790

(1) Total U.S. Government accounts receivable outstanding at October 31, 2016 and 2015 is \$2.2 million and \$2.6 million, respectively.

We bill customers for power plant and module kit 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 technology contracts are billed based on actual recoverable costs incurred, typically in the month subsequent to incurring costs. Some advanced technology 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 \$0.2 million and \$0.5 million at October 31, 2016 and 2015, 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 \$5.0 million and \$34.4 million, and amounts due from NRG of \$0.1 million and \$0.02 million at October 31, 2016 and 2015, respectively.

## Note 3. Inventories

Inventories at October 31, 2016 and 2015 consisted of the following (in thousands):

	2016	2015
Raw materials	\$25,286	\$29,103
Work-in-process <sup>(1)</sup>	48,520	36,651
Inventories	\$73,806	\$65,754

(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 at October 31, 2016 and 2015 is \$40.6 million and \$13.3 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 \$0.8 million and \$0.2 million at October 31, 2016 and 2015, respectively.

## Note 4. Project Assets

Project assets at October 31, 2016 and 2015 consisted of the following (in thousands):

	2016	2015
Current project assets	—	5,260
Long-term project assets	47,111	6,922
Project assets	47,111	12,182

Project assets at October 31, 2016 include \$29.3 million which represents three completed, commissioned installations where we have a PPA with the end-user of power and site host. These assets are the subject of sales-leaseback arrangements with 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. This balance also includes assets aggregating \$17.8 million which are being constructed by the Company under PPAs which have been executed or are expected to be executed in 2017.

The long-term portion of project assets has been partially offset by project related grant awards. Project construction costs incurred after classification as long-term project assets are reported as investing activities in the Consolidated Statement of Cash Flows. The proceeds received for the sale and subsequent leaseback of project assets are classified as cash flows from financing activities within the Consolidated Statement of Cash Flows and are classified as a financing obligation within Long-term debt and other liabilities on the Consolidated Balance Sheets (refer to Note 10 for more information).

## Note 5. Property, Plant and Equipment

Property, plant and equipment at October 31, 2016 and 2015 consisted of the following (in thousands):

	2016	2015	Estimated Useful Life
Land	\$524	\$524	—
Building and improvements	9,218	9,263	10-26 years
Machinery, equipment and software	87,350	83,578	3-8 years
Furniture and fixtures	3,509	3,137	10 years
Construction in progress	16,388	9,948	—
	116,989	106,450	
Accumulated depreciation	(80,349 )	(77,448 )	
Property, plant and equipment, net	\$36,640	\$29,002	

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.

Depreciation expense was \$4.9 million, \$4.1 million and \$4.4 million for the years ended October 31, 2016, 2015 and 2014, respectively.

## Note 6. Goodwill and Intangible Assets

At October 31, 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. The Company completed its annual impairment analysis of goodwill and in-process research and development asset at July 31, 2016. To determine the fair value of the reporting unit that holds goodwill and to determine the fair value of the in-process research and development asset, the Company used a discounted cash flow model and a multi-period excess earnings model, respectively. The estimated fair value of the reporting unit and in-process research and development intangible asset substantially exceeds the respective carrying values and therefore no impairments have been recognized at October 31, 2016.



## Note 7. Other Current Assets

Other current assets at October 31, 2016 and 2015 consisted of the following (in thousands):

	2016	2015
Advance payments to vendors <sup>(1)</sup>	\$1,247	\$2,281
Deferred finance costs <sup>(2)</sup>	417	198
Notes receivable	1,007	585
Prepaid expenses and other <sup>(3)</sup>	7,775	3,890
	\$10,446	\$6,954

(1) Advance payments to vendors relate to inventory purchases ahead of receipt.

Primarily represents the current portion of direct deferred finance costs relating to securing a \$40.0 million loan facility with NRG which is being amortized over the five-year life of the facility, and direct deferred finance costs relating to the Hercules loan and security agreement entered into in April 2016 which is being amortized over the 2.5 years life of the loan.

(3) Primarily relates to other prepaid vendor expenses including insurance, rent and lease payments.

## Note 8. Other Assets, net

Other assets, net at October 31, 2016 and 2015 consisted of the following (in thousands):

	2016	2015
Long-term accounts receivable <sup>(1)</sup>	\$8,353	\$—
Long-term unbilled recoverable costs <sup>(2)</sup>	5,714	—
Deferred finance costs <sup>(3)</sup>	1,368	354
Long-term stack residual value <sup>(4)</sup>	—	2,509
Other <sup>(5)</sup>	2,123	279
Other assets, net	\$17,558	\$3,142

(1) Represents receivables related to project and stack replacement reserve accounts pertaining to a sale-leaseback transaction and upon receipt, the funds will be 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 October 31, 2016.

(3) Represents the long-term portion of direct deferred finance costs, including those relating to: a) the Company's loan facility with NRG which is being amortized over the five-year life of the facility; b) sale-leaseback transactions entered into with PNC Energy Capital, LLC which are being amortized over the ten-year term and c) the Hercules loan and security agreement which is being amortized over the 30 month life of the loan.

(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 decrease from October 31, 2015 represents the residual value being recognized as cost of service agreements due to contract term extensions.

(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 and the total paid at October 31, 2016 is \$0.9 million. The increase at October 31, 2016 also includes deposits for projects in development.



## Note 9. Accrued Liabilities

Accrued liabilities at October 31, 2016 and 2015 consisted of the following (in thousands):

	2016	2015
Accrued payroll and employee benefits	\$4,183	\$3,914
Accrued product warranty costs <sup>(1)</sup>	516	964
Accrued material purchases <sup>(2)</sup>	6,908	7,568
Accrued service agreement costs <sup>(3)</sup>	6,030	3,437
Accrued taxes, legal, professional and other	3,263	3,292

\$20,900 \$19,175

(1) Activity in the accrued product warranty costs during the fiscal year ended October 31, 2016 and 2015 included additions for estimates of potential future warranty obligations of \$0.3 million and \$0.6 million, respectively, on contracts in the warranty period and reductions related to actual warranty spend of \$0.7 million and \$0.8 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 under the Integrated Global Supply Chain Plan ("IGSCP") whereby the Company procures materials on POSCO's behalf for its production facility. The liability represents amounts received for the purchase of materials on behalf of POSCO. Amounts due to vendors is recorded as Accounts Payable.

(3) Activity in service agreement costs represents an increase in loss accruals on service contracts of \$1.9 million from \$0.8 million as of October 31, 2015 to \$2.7 million as of October 31, 2016. The increase primarily relates to renewals of legacy service contracts. The accruals for performance guarantees also increased from \$2.6 million as of October 31, 2015 to \$3.3 million as of October 31, 2016 based on the minimum output falling below the contract requirements for certain contracts offset by guarantee payments to customers.

## Note 10. Debt

Debt at October 31, 2016 and 2015 consisted of the following (in thousands):

	2016	2015
Hercules Loan and Security Agreement	\$20,521	\$—
State of Connecticut Loan	10,000	—
PNC obligation of Company's finance subsidiary	41,603	—
NRG loan agreement	1,755	3,763
Connecticut Clean Energy and Finance Investment Authority Note	6,050	6,052
Connecticut Development Authority Note	2,589	2,817
Revolving credit facility	—	2,945
Capitalized lease obligations	660	726
Total debt	\$83,178	\$16,303
Current portion of long-term debt	(5,275 )	(7,358 )
Long-term debt	\$77,903	\$8,945

Aggregate annual principal payments under our loan agreements and capital lease obligations for the years subsequent to October 31, 2016 are as follows (in thousands):

Year 1	\$5,275
Year 2	26,530
Year 3	3,426
Year 4	3,954
Year 5	3,743
Thereafter	40,250
	\$83,178



In April 2016, the Company entered into a loan and security agreement (the "Agreement") with Hercules Capital, Inc. ("Hercules") for an aggregate principal amount of up to \$25.0 million, subject to certain terms and conditions. The Company received an initial term loan advance on the date of closing of \$15.0 million. The Company took an additional loan advance of \$5.0 million in September 2016 due to certain milestones being met ("Tranche II"). We may also have available a loan advance of \$5.0 million beginning on the later of January 1, 2017 or the date certain milestones are met and June 15, 2017 ("Tranche III"). The loan is a 30 month secured facility and the term loan interest is currently 9.5%. Interest is paid on a monthly basis. As of October 31, 2016, interest only payments are required through November 1, 2017. If certain additional performance milestones are achieved, the interest only period would be extended to May 1, 2018. Upon completion of interest only payments, the loan balance and all accrued and unpaid interest is due and payable in equal monthly installments by October 1, 2018. Per the terms of the Agreement, there is an end of term charge of \$1.7 million, which is being accreted over the thirty-month term using the effective interest rate method, which would increase to \$2.1 million if the Company receives an additional \$5.0 million advanced as discussed above.

As collateral for obligations under the Agreement, the Company granted Hercules a security interest in its existing and hereafter-acquired assets except for intellectual property and certain other excluded assets. Collateral does not include assets held by the Company's finance subsidiary or any project subsidiary thereof. The Company may continue to collateralize and finance its project subsidiaries through other lenders and partners. The loan contains a financial covenant whereby the Company is required to maintain an unrestricted cash balance of at least (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 date payment was issued.

In November 2015, the Company closed on a definitive Assistance Agreement with the State of Connecticut and received a disbursement of \$10.0 million to be used 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 Note, payment of principal is deferred for the first four years. Interest at a fixed rate of 2.0% became payable beginning December 2015. The principal 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.

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 end-user of power and site host. 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. During 2016, three sales-leaseback transactions were completed under the PNC agreement, generating financing aggregating \$41.6 million as of October 31, 2016.

In July 2014, the Company, through its wholly-owned subsidiary, entered into a Loan Agreement with NRG (the "Loan Agreement"). Pursuant to the Loan Agreement, NRG 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% per annum for construction-period financing and 8.0% thereafter. Fees that were paid 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. Borrowings under the Loan Agreement are secured by the related project assets. The loans 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 Clean Energy and Finance Investment Authority (CEFIA, now known as the CT Green Bank) totaling \$5.9 million in support of the 2013 Bridgeport Fuel Cell Park project. The loan agreement carries an interest rate of 5.0%. 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 cash flows from the Bridgeport Fuel Cell Park service agreement.

We have 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% 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.

During 2015, the Company had a revolving credit facility with JPMorgan Chase Bank, N.A. (the "Bank") for financing export receivables and was supported by the U.S. Import Export Bank. The credit facility expired on November 28, 2015 and the outstanding balance was paid back on November 24, 2015.

We lease computer equipment under master lease agreements. Lease payment terms are generally 36 months from the date of acceptance for leased equipment.

#### Note 11. Shareholders' Equity

##### Authorized Common Stock

In April 2016, the number of authorized shares of the Company's common stock was increased from 39,583,333 to 75,000,000, by vote of a majority of the Company's security holders.

##### July 2016 Securities Offering

On July 12, 2016 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. The Company received net proceeds from the transaction of \$34.7 million, after deducting underwriter discounts and offering expenses of \$2.6 million. The transaction consisted of 1,474,000 shares of common stock, 7,680,000 Series A Warrants and 4,926,000 pre-funded Series B Warrants (the "Series B Warrants"). The Series A warrants have 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 Series B Warrants are fully pre-funded warrants and are immediately exercisable. They have an exercise price of \$0.0001 per share and will expire on the fifth anniversary of the issue date. The Series B Warrants were offered to the investor, whose purchase of shares of common stock in this offering would otherwise result in the investor, together with its affiliates and certain related parties, beneficially owning more than 4.99% of FuelCell Energy's outstanding common stock following the consummation of this offering. In lieu of purchasing shares of common stock that would result in its ownership of the Company in excess of 4.99%, the investor purchased the Series B Warrants. Such Series B Warrants grant the investor the right to acquire additional shares of FuelCell Energy common stock at a point in time of its choosing within five years of the issue date of the Series B Warrants. The following table outlines the warrant activity during the year ended October 31, 2016:

	Series A Warrants	Series B Warrants
Balance at July 12, 2016 (date of issuance)	7,680,000	4,926,000
Warrants exercised	—	(1,100,000)
Warrants expired	—	—
Balance at October 31, 2016	7,680,000	3,826,000

The warrants and pre-funded warrants continue to qualify for permanent equity accounting treatment. Subsequent to the year ended October 31, 2016, 1.8 million additional Series B Warrants were exercised.

##### Other Common Stock Sales and Outstanding Warrants

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, 2016 and 2015, respectively, the Company sold 6.0 million shares and 1.9 million shares of the Company's common stock at prevailing market prices through periodic trades on the open market and raised approximately \$36.1 million and \$26.9 million, net of fees.

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 has 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 continue to qualify for permanent equity accounting treatment and expire on July 30, 2017.

Note 12. Redeemable Preferred Stock

Redeemable Series B Preferred Stock

We have 250,000 shares of our 5% Series B Cumulative Convertible Perpetual Preferred Stock (Liquidation Preference \$1,000) (“Series B Preferred Stock”) authorized for issuance. At October 31, 2016 and 2015, 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 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, 2016, 2015 and 2014. There were no cumulative unpaid dividends at October 31, 2016 and 2015.

**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 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. At October 31, 2016 and 2015, 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 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 at October 31, 2016) 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.

#### Series 1 Preferred Shares

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

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 Series 1 Preferred Shares provisions.

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 2016, 2015 and 2014, under the terms of the agreement, including the recording of interest expense, which reflects the amortization of the fair value discount of approximately Cdn. \$2.4 million, Cdn. \$2.3 million and Cdn. \$2.1 million, respectively. At October 31, 2016 and 2015, the carrying value of the Series 1 Preferred shares was Cdn. \$18.0 million (\$13.5 million) and Cdn. 16.9 million (\$12.6 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 US 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 per share less any amounts paid as a return of capital in respect of such share plus all unpaid dividends and accrued interest. Holders of the Series 1 Preferred Shares do not have any mandatory or conditional redemption rights.

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 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 at October 31, 2016 and 2015 was \$0.7 million.

#### Note 13. 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. Due to the nature of the internal financial and operational reports reviewed by the chief operating decision maker, who 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, 2016, 2015 and 2014 were as follows (in thousands):

	2016	2015	2014
United States	\$48,697	\$52,109	\$52,765
South Korea	52,007	109,953	124,669
England	277	142	119
Germany	7,147	764	869
Canada	124	—	820
Spain	—	109	1,051
Total	\$108,252	\$163,077	\$180,293

Service agreement revenue which is included within Service agreements and license revenues on the consolidated statement of operations was \$26.6 million, \$16.3 million and \$21.7 million, for the years ended October 31, 2016, 2015 and 2014, respectively.

Long-lived assets located outside of the United States at October 31, 2016 and 2015 are not significant individually or in the aggregate.

#### Note 14. Benefit Plans

We have shareholder approved equity incentive plans, a shareholder 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 2006 and 2010 Equity Incentive Plans (collectively, the “Equity Plans”). In April 2016, the number of shares of common stock reserved for issuance under the Equity Plans was increased to 2.5 million shares by vote of a majority of the Company's security holders. 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. At October 31, 2016, there were 0.8 million shares available for grant. At October 31, 2016, equity awards outstanding consisted of incentive stock options, nonstatutory stock options, RSAs and RSUs.

The Company's 1998 Equity Incentive Plan remains in effect only to the extent of awards outstanding under the plan at October 31, 2016.

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

	2016	2015	2014
Cost of revenues	\$745	\$769	\$751
General and administrative expense	2,110	1,990	1,718
Research and development expense	504	360	436
	\$3,359	\$3,119	\$2,905

#### 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:

	2016	2015	2014
Expected life (in years)	7.0	7.0	7.0
Risk free interest rate	1.5 %	1.7 %	2.3 %
Volatility	80.1 %	80.3 %	81.1 %
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, 2016:

Options	Shares	Weighted-Average Option Price
Outstanding at October 31, 2015	257,769	\$ 57.89
Granted	24,310	\$ 6.44
Canceled	(35,156 )	\$ 113.31
Outstanding at October 31, 2016	246,923	\$ 44.88

The weighted average grant-date fair value per share for options granted during the years ended October 31, 2016, 2015 and 2014 was \$6.44, \$13.24 and \$21.48, respectively. There were no options exercised in fiscal year 2016, 2015 or 2014.

The following table summarizes information about stock options outstanding and exercisable at October 31, 2016:

Range of Exercise Prices	Options Outstanding		Options Exercisable	
	Number	Weighted Average Remaining Contractual Life	Number	Weighted Average Exercise Price
\$3.24 — \$61.20	165,498	6.2	154,421	\$ 19.49
\$61.21 — \$119.04	76,205	0.9	76,205	\$ 96.40
\$119.05 — \$176.88	5,220	0.9	5,220	\$ 120.28
	246,923	4.5	235,846	\$ 46.57

There was no intrinsic value for options outstanding and exercisable at October 31, 2016.

#### Restricted Stock Awards and Units

The following table summarizes our RSA and RSU activity for the year ended October 31, 2016:

	Shares	Weighted-Average Price
Restricted Stock Awards and Units Outstanding at October 31, 2015	483,570	16.67
Granted	704,153	6.40
Vested	182,738	16.11
Forfeited	14,950	13.21
Outstanding at October 31, 2016	990,035	9.52

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 4 years. At October 31, 2016, the 1.0 million outstanding RSAs and RSUs had an average remaining life of 2.8 years and an aggregate intrinsic value of \$3.0 million.

At October 31, 2016, total unrecognized compensation cost related to RSAs including RSUs was \$7.5 million which is expected to be recognized over the next 2.8 years on a weighted-average basis.

#### Stock Awards

During the years ended October 31, 2016, 2015 and 2014, we awarded 24,379; 2,399 and 979 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 \$0.2 million, \$0.1 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, 2016 was as follows:

	Number of Shares
Balance at October 31, 2015	88,043
Issued at \$9.02 per share	(11,664)
Issued at \$5.07 per share	(14,153)
Available for issuance at October 31, 2016	62,226

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:

	2016	2015	2014
Expected life (in years)	0.5	0.5	0.5
Risk free interest rate	0.30%	0.07%	0.08%
Volatility	37.0%	72.0%	75.0%
Dividends yield	— %	— %	— %

The weighted-average fair value of shares issued under the ESPP during fiscal year 2016 and 2015 was \$6.86 and \$16.08 per share, respectively.

#### 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 \$0.6 million, \$0.4 million and \$0.3 million for the years ended October 31, 2016, 2015, and 2014, respectively.

#### Note 15. Income Taxes

The components of loss from continuing operations before income taxes for the years ended October 31, 2016, 2015, and 2014 were as follows (in thousands):

	2016	2015	2014
U.S.	\$(46,708)	\$(26,459)	\$(35,167)
Foreign	(3,981 )	(2,951 )	(3,228 )
Loss before income taxes	\$(50,689)	\$(29,410)	\$(38,395)

There was current income tax expense of \$0.5 million, \$0.3 million and \$0.5 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, 2016, 2015 and 2014. Franchise tax expense, which is included in administrative and selling expenses, was \$0.4 million for year ended October 31, 2016 and \$0.2 million for each of the years ended October 31, 2015 and 2014.

The reconciliation of the federal statutory income tax rate to our effective income tax rate for the years ended October 31, 2016, 2015 and 2014 was as follows:

	2016	2015	2014
Statutory federal income tax rate	(34.0)%	(34.0)%	(34.0)%
Increase (decrease) in income taxes resulting from:			
State taxes, net of Federal benefits	(0.2 )%	(0.1 )%	(1.8 )%
Foreign withholding tax	1.1 %	0.9 %	1.0 %
Net operating loss adjustment and true-ups	3.3 %	4.7 %	(25.4)%
Nondeductible expenditures	0.9 %	0.1 %	14.5 %
Change in state tax rate	(0.3 )%	1.6 %	(0.8 )%
Other, net	0.2 %	0.4 %	0.4 %
Valuation allowance	30.1 %	27.3 %	47.1 %
Effective income tax rate	1.1 %	0.9 %	1.0 %

Our deferred tax assets and liabilities consisted of the following at October 31, 2016 and 2015 (in thousands):

	2016	2015
Deferred tax assets:		
Compensation and benefit accruals	\$9,625	\$8,389
Bad debt and other allowances	1,276	1,109
Capital loss and tax credit carry-forwards	12,772	12,998
Net operating losses (domestic and foreign)	265,799	257,373
Deferred license revenue	8,616	9,313
Inventory valuation allowances	278	77
Accumulated depreciation	4,653	535
Grant revenue	1,327	—
Gross deferred tax assets:	304,346	289,794
Valuation allowance	(304,346)	(289,794)
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 2012 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.

At October 31, 2016, we had federal and state NOL carryforwards of \$748.6 million and \$405.8 million, respectively, for which a portion of the NOL has not been recognized in connection with share-based compensation. The Federal NOL carryforwards expire in varying amounts from 2020 through 2035 while state NOL carryforwards expire in varying amounts from fiscal year 2017 through 2035. Additionally, we had \$11.1 million of state tax credits available, of which \$0.7 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 have completed a detailed Section 382 study in fiscal year 2016 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 2016 under Section 382. The acquisition of VERSA in fiscal year 2013

triggered a Section 382 ownership change which will limit the

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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 at October 31, 2016 and 2015 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 various 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. We are currently not under any income tax examinations.

#### Note 16. Earnings Per Share

Basic earnings (loss) per common share ("EPS") are generally calculated as income (loss) available to common shareholders divided by the weighted average number of common shares outstanding. Diluted EPS is generally calculated as income (loss) available to common shareholders 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, 2016, 2015 and 2014 was as follows:

	2016	2015	2014
Numerator			
Net loss	\$ (51,208 )	\$ (29,684 )	\$ (38,883 )
Net loss attributable to noncontrolling interest	251	325	758
Preferred stock dividend	(3,200 )	(3,200 )	(3,200 )
Net loss attributable to common shareholders	\$ (54,157 )	\$ (32,559 )	\$ (41,325 )
Denominator			
Weighted average basic common shares	29,773,700	24,513,731	20,473,915
Effect of dilutive securities <sup>(1)</sup>	—	—	—
Weighted average diluted common shares	29,773,700	24,513,731	20,473,915
Basic loss per share	(1.82 )	(1.33 )	(2.02 )
Diluted loss per share <sup>(1)</sup>	(1.82 )	(1.33 )	(2.02 )

Due to the net loss to common shareholders 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.

<sup>(1)</sup> At October 31, 2016 and 2015, potentially dilutive securities excluded from the diluted loss per share calculation are as follows:

	October 31, 2016	October 31, 2015
July 2016 Offering - Series A Warrants	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	246,923	257,769
Unvested RSAs	915,831	450,783
5% Series B Cumulative Convertible Preferred Stock <sup>(2)</sup>	454,043	454,043
Series 1 Preferred Shares to satisfy conversion requirements <sup>(2)</sup>	1,042,000	337,200
Total potentially dilutive securities	14,331,463	1,666,461

<sup>(2)</sup>

Refer to Note 12, Redeemable Preferred Stock, for information on the calculation of the common shares upon conversion.



## Note 17. Commitments and Contingencies

## Lease agreements

At October 31, 2016 and 2015, we had capital lease obligations of \$0.7 million. 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 2019. Rent expense was \$1.8 million, \$1.7 million and \$1.7 million for the years ended October 2016, 2015 and 2014, respectively.

On April 22, 2016, the Company modified its Torrington, Connecticut, lease to extend the term for an additional period of 15 years from January 1, 2016, and to provide the Company the right to expand the existing facility to 167,000 square feet. The Company has the right to purchase the facility and premises for a price of \$4.7 million at any time during the fifteen year term, but no later than December 31, 2030.

Non-cancelable minimum payments applicable to operating and capital leases at October 31, 2016 were as follows (in thousands):

	Operating Leases	Capital Leases
2016	\$ 1,321	\$ 375
2017	1,053	216
2018	737	60
2019	325	9
2020	363	—
Thereafter	3,751	—
Total	\$ 7,550	\$ 660

## Service and Warranty 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. An estimate is not recorded for a potential performance guarantee liability until a performance issue has occurred on 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 historical fleet performance, which totaled \$3.3 million and \$2.6 million at October 31, 2016 and 2015, respectively, and is recorded in Accrued Liabilities.

Our loss accrual on service agreements, excluding the accrual for performance guarantees, totaled \$2.7 million and \$0.8 million at October 31, 2016 and 2015, 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 for each contract.

## 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 owner 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. We are typically not required to produce minimum amounts of power under our PPA agreements and we typically have the right to terminate PPA agreements by giving written notice to the customer, subject to certain exit costs.

## 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 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 to be 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. See Note 10 for additional information. 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.

The first phase of the expansion is expected to result in expenditures of up to \$23.0 million that will be partially off-set by the \$10.0 million of first phase funding received from the State of Connecticut. The total investment for both phases of the expansion could be up to \$65.0 million over a five year period, of which \$20.0 million will be funded by low cost financing from the State of Connecticut.

Other

At October 31, 2016, the Company has unconditional purchase commitments aggregating \$61.7 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 (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 18. Supplemental Cash Flow Information

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

	Year Ended October 31,		
	2016	2015	2014
Cash interest paid	\$1,941	\$677	\$1,892
Income taxes paid	\$80	\$8	\$35
Noncash financing and investing activity:			
Common stock issued for convertible note conversions and make-whole settlements	\$—	\$—	\$46,186
Common stock issued for Employee Stock Purchase Plan in settlement of prior year accrued employee contributions	\$105	\$169	\$105
Accrued sale of common stock, cash received in a subsequent period	\$357	\$494	\$633
Accrued purchase of fixed assets, cash paid in subsequent period	\$3,952	\$—	\$—
Accrued purchase of project assets, cash paid in subsequent period	\$1,797	—	—



## Note 19. Quarterly Information (Unaudited)

Selected unaudited financial data for each quarter of fiscal year 2016 and 2015 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, 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 shareholders	(12,512 )	(16,173 )	(11,810 )	(13,662 )	(54,157 )
Net loss to common shareholders per basic and diluted common share <sup>(1)</sup>	\$(0.48 )	\$(0.56 )	\$(0.38 )	\$(0.41 )	(1.82 )
Year ended October 31, 2015					
Revenues	\$41,670	\$28,600	\$41,356	\$51,451	\$163,077
Gross profit	4,014	2,023	3,595	3,144	12,776
Loss on operations	(5,130 )	(8,793 )	(7,103 )	(7,866 )	(28,892 )
Net loss	(4,154 )	(9,997 )	(6,628 )	(8,905 )	(29,684 )
Preferred stock dividends	(800 )	(800 )	(800 )	(800 )	(3,200 )
Net loss to common shareholders	(4,866 )	(10,694 )	(7,339 )	(9,660 )	(32,559 )
Net loss to common shareholders per basic and diluted common share <sup>(1)</sup>	\$(0.20 )	\$(0.44 )	\$(0.29 )	\$(0.38 )	(1.33 )

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

## Note 20. Subsequent Events

On November 30, 2016, a business restructuring was completed 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 is reducing materials spend as well as implementing 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 and remote locations. A total of 96 positions, or approximately 17% of the global workforce, was impacted. The production rate has been reduced to twenty-five megawatts annually, from the prior rate of fifty megawatts annually, in order to position for delays in anticipated order flow. A personnel-related restructuring charge of approximately \$3.0 million will be incurred in fiscal year 2017, with approximately one half of the charge composed of cash severance costs and the remainder representing non-cash charges. This production level is anticipated to be temporary and will be reevaluated as order flow dictates, with any future increases being undertaken from what is now a lower cost basis.

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

None.

Item 9A. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures.

The Company maintains disclosure controls and procedures, which are designed to provide reasonable assurance that information required to be disclosed in the Company's periodic SEC reports is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to its principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure.

We carried out an evaluation, under the supervision and with the participation of our principal executive officer and principal financial officer, of the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the period covered by this report. Based on that evaluation, the Company's principal executive officer and principal financial officer have concluded that the Company's disclosure controls and procedures were effective to provide reasonable assurance that information required to be disclosed in the Company's periodic SEC reports is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to its principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure.

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 of 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, 2016, 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, 2016 based on the specified criteria. The Company's independent registered public accounting firm, KPMG LLP, has issued an audit report on the Company's internal control over financial reporting, which appears in Part II, Item 8 of this Form 10-K.

Changes in Internal Control Over Financial Reporting.

Our management has evaluated, with the participation of our principal executive and principal financial officers, whether any changes in our internal control over financial reporting that occurred during our last fiscal quarter (the

registrant's fourth fiscal quarter in the case of an annual report) have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. Based on the evaluation we conducted, our management has concluded that no such changes have occurred.

We completed the implementation of the first phase of an enterprise resource planning ("ERP") system on November 1, 2015. This includes the manufacturing facility in Torrington, CT and the headquarters in Danbury, CT. The ERP is expected to improve the efficiency of our supply chain and financial transaction processes. The global implementation is expected to occur in phases over the next several years. As with any new information technology application we implement, this application, along with the internal controls over financial reporting included in this process, were tested for effectiveness. We concluded, as part of our evaluation described in the above paragraph, that the implementation of an ERP system has not materially affected, and is not reasonably likely to materially affect, our internal control over financial reporting.

**Item 9B. OTHER INFORMATION**

None.

**PART III**

**Item 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE**

The information required by this Item 10, with respect to our executive officers, is included in Part I of the Annual Report on Form 10-K. The other information required by this Item 10 is incorporated by reference to the Company's 2016 Proxy Statement to be filed with the SEC within 120 days from fiscal year end.

**Item 11. EXECUTIVE COMPENSATION**

Information required under this Item is incorporated by reference to the Company's 2016 Proxy Statement to be filed with the SEC within 120 days from fiscal year end.

**Item 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS**

Information required under this Item is incorporated by reference to the Company's 2016 Proxy Statement to be filed with the SEC within 120 days from fiscal year end.

**Item 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE**

Information required under this Item is incorporated by reference to the Company's 2016 Proxy Statement to be filed with the SEC within 120 days from fiscal year end.

**Item 14. PRINCIPAL ACCOUNTING FEES AND SERVICES**

Information required under this Item is incorporated by reference to the Company's 2016 Proxy Statement to be filed with the SEC within 120 days from fiscal year end.



PART IV

Item 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

The following documents are filed as part of this report:

1 Financial Statements — See Index to Consolidated Financial Statements at Item 8 of the Annual Report on Form 10-K.

2 Financial Statement Schedules — Supplemental schedules are not provided because of the absence of conditions under which they are required or because the required information is given in the financial statements or notes thereto

3 Exhibits — The following exhibits are filed as part of, or incorporated by reference into, this Annual Report on Form 10-K.

EXHIBITS TO THE 10-K

Exhibit  
Description  
No.

3.1 Certificate of Incorporation of the Registrant, as amended, July 12, 1999 (incorporated by reference to exhibit of the same number contained in the Company's Form 8-K dated September 21, 1999).

3.2 Certificate of Amendment of the Certificate of Incorporation of the Registrant, dated October 31, 2003 (incorporated by reference to exhibit of the same number contained in the Company's Form 8-K dated November 4, 2003).

3.3 Certificate of Amendment of the Certificate of Incorporation of the Registrant, dated November 21, 2000.

3.4 Amended Certificate of Designation of Series B Cumulative Convertible Perpetual Preferred Stock, dated March 14, 2005.

3.5 Certificate of Amendment of the Certificate of Incorporation of the Registrant, dated April 8, 2011.

3.6 Certificate of Amendment of the Certificate of Incorporation of the Registrant, dated April 5, 2012.

3.7 Certificate of Amendment of the Certificate of Incorporation of the Registrant, dated December 3, 2015 (incorporated by reference to exhibit 3.1 contained in the Company's Form 8-K dated December 3, 2015).

3.8 Amended and Restated By-Laws of the Registrant, dated December 15, 2016 (incorporated by reference to exhibit 3.2 of the same number contained in the Company's Form 8-K dated December 20, 2011).

3.9 Certificate of Amendment of the Certificate of Incorporation of the Registrant, dated April 18, 2016 (incorporated by reference to exhibit of the same number contained in the Company's Form 10-Q for the period ended July 31, 2016).

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Exhibit No.	Description
4	Specimen of Common Share Certificate (incorporated by reference to exhibit of the same number contained in the Company's Annual Report on Form 10K/A for fiscal year ended October 31, 1999).
4.2	Schedule A to Articles of Amendment of FuelCell Energy, Ltd., setting forth the rights, privileges, restrictions and conditions of Class A Cumulative Redeemable Exchangeable Preferred Shares (incorporated by reference to exhibit of the same number contained in the Company's Form 10-Q for the period ended January 31, 2009).
4.3	Certificate of Designation for the 5% Series B Cumulative Convertible Perpetual Preferred Stock (Liquidation Preference \$1,000) (incorporated by reference to Exhibit 3.1 contained in the Company's Form 8-K, dated November 22, 2004).
10.1	Purchase and Sale Agreement between Groton Fuel Cell 1, LLC and PNC Energy Capital LLC, dated October 31, 2016.
10.2	Lease Agreement between Groton Fuel Cell 1, LLC and PNC Energy Capital LLC, dated October 31, 2016.
10.3	Pledge Agreement between FuelCell Energy Finance, LLC and PNC Energy Capital LLC dated October 31, 2016.
10.4	** Alliance Agreement between FuelCell Energy, Inc. and POSCO Energy, dated as of February 7, 2007 (incorporated by reference to exhibit 10.1 contained in the Company's Form 10-Q/A for the period ended January 31, 2009).
10.5	** Technology Transfer, License and Distribution Agreement between FuelCell Energy, Inc. and POSCO Energy, dated as of February 7, 2007 (incorporated by reference to exhibit 10.2 contained in the Company's Form 10-Q/A for the period ended January 31, 2009).
10.6	Loan agreement, dated April 29, 2008, between the Company and the Connecticut Development Authority (incorporated by reference to exhibit 10.3 contained in the Company's Form 10-Q for the period ended January 31, 2009).
10.7	**Stack Technology Transfer and License Agreement dated as of October 27, 2009, by and between FuelCell Energy, Inc. and POSCO Energy (incorporated by reference to exhibit 10.1 of the Company's Form 8-K, dated November 2, 2009).
10.36	*The FuelCell Energy, Inc. Section 423 Amended and Restated Stock Purchase Plan (incorporated by reference to exhibit of the same number contained in the Company's Form 10-K for the period ended October 31, 2015).
10.54	*FuelCell Energy, Inc. 1998 Equity Incentive Plan (incorporated by reference to exhibit of the same number contained in the Company's Form 10-K for the period ended October 31, 2015).
10.55	Lease agreement, dated March 8, 2000, between the Company and Technology Park Associates, L.L.C. (incorporated by reference to exhibit of the same number contained in the Company's 10-Q for the period ended April 30, 2000)



Exhibit No.	Description
10.56	Security agreement, dated June 30, 2000, between the Company and the Connecticut Development Authority (incorporated by reference to exhibit of the same number contained in the Company's 10-Q for the period ended July 31, 2000)
10.57	Loan agreement, dated June 30, 2000, between the Company and the Connecticut Development Authority (incorporated by reference to exhibit of the same number contained in the Company's 10-Q for the period ended July 31, 2000)
10.58	*FuelCell Energy, Inc. 2006 Equity Incentive Plan (incorporated by reference to exhibit of the same number contained in the Company's Form 10-K for the period ended October 31, 2015).
10.59	*Amended and Restated 2010 Equity Incentive Plan (incorporated by reference to exhibit of the same number contained in the Company's Form 10-K for the period ended October 31, 2015).
10.60	Letter agreement, dated September 28, 2015, between the Company and Technology Park Associates, L.L.C. exercising the extension option per the terms of the Lease Agreement, dated March 8, 2000, between the Company and Technology Park Associates, L.L.C. (incorporated by reference to exhibit of the same number contained in the Company's Form 10-K for the period ended October 31, 2015).
10.63	Intracreditor Subordination and Confirmation Agreement made and effective as of January 4, 2011 by JPMorgan Chase Bank, N.A. (incorporated by reference to exhibit of the same number contained in the Company's 10-K for the period ended October 31, 2010 dated January 14, 2011)
10.65	*Employment Agreement, dated January 28, 2010 between FuelCell Energy, Inc. and Arthur Bottone, Senior Vice President, Chief Commercial Officer (incorporated by reference to exhibit of the same number contained in the Company's 10-K for the period ended October 31, 2010 dated January 14, 2011).
10.66	*First Amendment to Employment Agreement, dated December 19, 2011 and effective as of January 1, 2012 between FuelCell Energy, Inc. and Arthur Bottone, President and Chief Executive Officer (incorporated by reference to exhibit 10.3 of the Company's Form 8-K dated December 23, 2011).
10.67	*Employment Agreement, dated March 21, 2012 and effective as of January 1, 2012 between FuelCell Energy, Inc. and Anthony Rauseo, Chief Operating Officer (incorporated by reference to the exhibit of the same number contained in the Company's Form 8-K, dated March 31, 2012).
10.68	*Employment Agreement, dated March 21, 2012 and effective as of January 1, 2012 between FuelCell Energy, Inc. and Michael Bishop, Chief Financial Officer (incorporated by reference to the exhibit of the same number contained in the Company's Form 8-K, dated March 21, 2012).
10.69	Letter Agreement dated March 31, 2011, Guarantee dated April 1, 2011 by and between the Company and Enbridge, Inc. and Revised Special Rights and Restrictions attributable to the Class A Preferred Stock of FuelCell Energy, Ltd. for each (incorporated by reference to the Company's Form 8-K dated April 6, 2011).

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Exhibit No.	Description
10.70	Amendment dated June 23, 2015 to the Export Loan Agreement dated January 4, 2012, between the Company and JPMorgan Chase Bank N.A. (incorporated by reference to Exhibit 10.70 of the Company's Form 10-Q for the quarter ended July 31, 2015)
10.71	Securities Exchange Agreement dated December 20, 2012 by and among the Company and Versa Power Systems Inc., and the stockholders of Versa Power Systems Inc., (incorporated by reference to the Company's Form 8-K dated December 20, 2012).
10.72	Purchase and Sale Contract dated October 31, 2012 by and between POSCO Energy Co., LTD. and the Company (incorporated by reference to the Company's Form 8-K dated as of October 31, 2012).
10.73	Cell Technology Transfer and License Agreement dated October 31, 2012 by and between the Company and POSCO Energy, Co., LTD (incorporated by reference to the Company's Form 8-K dated as of October 31, 2012 and the Company's Form 8-K/A dated as of January 7, 2013).
10.74	Amendment to Technology Transfer Distribution and Licensing Agreement dated as of February 7, 2007 and the Stack Technology Transfer License Agreement dated as of October 27, 2009, each by and between the Company and POSCO Energy, Co., LTD (incorporated by reference to the Company's Form 8-K dated as of October 31, 2012).
10.75	Underwriting Agreement, dated as of March 22, 2012, among the Company, Lazard Capital Markets LLC, Stifel, Nicolaus & Company, Incorporated and FBR Capital Markets & Co. (incorporated by reference to exhibit 1.1 of the Company's Form 8-K dated March 22, 2012).
10.76	Securities Purchase Agreement, dated April 30, 2012, by and between the Company and POSCO Energy Co., Ltd, dated April 30, 2012 (incorporated by reference to exhibit 10.1 of the Company's Form 8-K dated April 30, 2012).
10.77	Underwriting Agreement, dated as of June 19, 2013, between the Company and Lazard Capital Markets LLC as representative of the several underwriters named therein (incorporated by reference to Exhibit 10.1 of the Company's Form 8-K, dated June 20, 2013).
10.79	Promissory Note of the Company, dated August 1, 2014, to JPMorgan Chase Bank, N.A. (incorporated by reference to Exhibit 10.64 of the Company's Form 8-K, dated August 1, 2014).
10.80	Loan Agreement, dated as of March 5, 2013, between Clean Energy Finance and Investment Authority, as Lender, and the Company, as Borrower (incorporated by reference to Exhibit 10.69 of the Company's Form 8-K, dated March 12, 2013).
10.81	Security Agreement, dated March 5, 2013, by the Company in favor of the Clean Energy Finance and Investment Authority (incorporated by reference to Exhibit 10.70 of the Company's Form 8-K, dated March 12, 2013).
10.82	

Securities Purchase Agreement, dated July 30, 2014, between the Company and NRG Energy, Inc. (incorporated by reference to Exhibit 10.82 of the Company's Form 10-Q for the quarter ended July 31, 2014).

Exhibit No.	Description
10.83	Loan Agreement, dated July 20, 2014, between FuelCell Energy Finance, LLC and NRG Energy (incorporated by reference to Exhibit 10.83 of the Company's Form 10-Q for the quarter ended July 31, 2014).
10.84	Assistance Agreement, dated November 9, 2015, by and between the State of Connecticut Acting by the Department of Economic Community and Development and FuelCell Energy, Inc. (incorporated by reference to exhibit of the same number contained in the Company's Form 10-K for the period ended October 31, 2015).
10.85	Phase 1 Promissory Note, dated November 9, 2015, between the Company and the State of Connecticut Acting by the Department of Economic Community and Development (incorporated by reference to exhibit of the same number contained in the Company's Form 10-K for the period ended October 31, 2015).
10.86	Security Purchase Agreement, dated July 6, 2016, between the Company and investors as listed on a Schedule of Buyers contained within the Security Purchase Agreement (incorporated by reference to the Company's Form 8-K , dated July 7, 2016).
10.87	Series A Warrants to purchase common stock (incorporated by reference to the Company's Form 8-K, dated July 7, 2016).
10.88	Series B Warrants to purchase common stock (incorporated by reference to the Company's Form 8-K, dated July 7, 2016).
10.89	Amendment No. 1 to Securities Purchase Agreement, dated July 8, 2016, between the Company and investors as listed on a Schedule of Buyers contained within the Securities Purchase Agreement (incorporated by reference to the Company's Form 8-K, dated July 12, 2016).
14	Code of Ethics applicable to the Company's principal executive officer, principal financial officer and principal accounting officer. (incorporated by reference to exhibit of the same number contained in the Company's 10-K for the fiscal year ended October 31, 2003)
21	Subsidiaries of the Registrant
23.1	Consent of Independent Registered Public Accounting Firm
31.1	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes Oxley Act of 2002
31.2	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes Oxley Act of 2002
32.1	Certification of Chief Executive Officer pursuant to Section 906 of the Sarbanes Oxley Act of 2002
32.2	Certification of Chief Financial Officer pursuant to Section 906 of the Sarbanes Oxley Act of 2002

Exhibit No.	Description
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101.SCH# XBRL Schema Document

101.INS# XBRL Instance Document

101.CAL#XBRL Calculation Linkbase Document

101.LAB#XBRL Labels Linkbase Document

101.PRE# XBRL Presentation Linkbase Document

101.DEF# XBRL Definition Linkebase Document

The exhibits marked with the section symbol (#) are interactive data files. Pursuant to Rule 406T of Regulation S-T, these interactive data files (i) are not deemed filed or part of a registration statement or prospectus for purposes of Sections 11 or 12 of the Securities Act of 1933, are not deemed filed for purposes of Section 18 of the Securities Exchange Act of 1934, irrespective of any general incorporation language included in any such filings, and otherwise are not subject to liability under these sections; and (ii) are deemed to have complied with Rule 405 of Regulation S-T (“Rule 405”) and are not subject to liability under the anti-fraud provisions of the Section 17(a)(1) of the Securities Act of 1933, Section 10(b) of the Securities Exchange Act of 1934 or under any other liability provision if we have made a good faith attempt to comply with Rule 405 and, after we become aware that the interactive data files fail to comply with Rule 405, we promptly amend the interactive data files.

\* Management Contract or Compensatory Plan or Arrangement

\*\* Confidential Treatment has been granted for portions of this document

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SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized on January 12, 2017.  
FUELCELL ENERGY, INC.

/s/ Arthur A. Bottone  
Arthur A. Bottone

Dated: January 12, 2017

President, Chief Executive Officer and Director

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Capacity	Date
/s/ Arthur A. Bottone Arthur A. Bottone	President, Chief Executive Officer and Director (Principal Executive Officer)	January 12, 2017
/s/ Michael S. Bishop Michael S. Bishop	Senior Vice President, Chief Financial Officer, Treasurer and Corporate Secretary (Principal Accounting and Financial Officer)	January 12, 2017
/s/ James H. England  James H. England	Director	January 7, 2017
/s/ Matthew Hilzinger  Matthew Hilzinger	Director	January 10, 2017
/s/ John A. Rolls  John A. Rolls	Director - Chairman of the Board	January 6, 2017
/s/ Christopher S. Sotos  Christopher S. Sotos	Director	January 9, 2017
/s/ Natica von Althann Natica von Althann	Director	January 10, 2017
/s/ Togo Dennis West Jr.  Togo Dennis West Jr.	Director	January 8, 2017



INDEX OF EXHIBITS

- Exhibit 3.3 Certificate of Amendment of the Certificate of Incorporation of the Registrant, dated November 21, 2000.
- Exhibit 3.4 Amendment Certificate of Designation of Series B Cumulative Convertible Perpetual Preferred Stock, dated March 14, 2005.
- Exhibit 3.5 Certificate of Amendment of the Certificate of Incorporation of the Registrant, dated April 8, 2011.
- Exhibit 3.6 Certificate of Amendment of the Certificate of Incorporation of the Registrant, dated April 5, 2012.
- Exhibit 10.1 Purchase and Sale Agreement between Groton Fuel Cell 1, LLC and PNC Energy Capital LLC, dated October 31, 2016.
- Exhibit 10.2 Lease Agreement between Groton Fuel Cell 1, LLC and PNC Energy Capital LLC, dated October 31, 2016.
- Exhibit 10.3 Pledge Agreement between FuelCell Energy Finance, LLC and PNC Energy Capital LLC, dated October 31, 2016.
- Exhibit 21 Subsidiaries of the Registrant
- Exhibit 23.1 Consent of Independent Registered Public Accounting Firm
- Exhibit 31.1 CEO Certification pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
- Exhibit 31.2 CFO Certification pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
- Exhibit 32.1 CEO Certification pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
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- 101.INS XBRL Instance Document
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