Energy Recovery, Inc.
Form 10-K
March 10, 2017

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington D.C. 20549

Form 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2016
or
TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from to

Commission File Number: 001-34112

Energy Recovery, Inc.

(Exact Name of Registrant as Specified in Its Charter)

Delaware	**01-0616867**
(State or Other Jurisdiction of Incorporation or Organization)	*(I.R.S. Employer Identification No.)*

1717 Doolittle Drive, San Leandro, CA 94577

(Address of Principal Executive Offices)

Registrant's telephone number, including area code: (510) 483-7370

Securities registered pursuant to Section 12(b) of the Securities Exchange Act of 1934:

Title of Each Class	**Name of Exchange on Which Registered**
Common stock, $0.001 par value	The NASDAQ Stock Market LLC

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark whether the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.

Yes No

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

Yes No

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

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 (Do not check if a smaller reporting company)	Smaller reporting company

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

The aggregate market value of the voting stock held by non-affiliates amounted to approximately $274 million on June 30, 2016.

The number of shares of the registrant's common stock outstanding as of February 28, 2017 was 53,880,311.

DOCUMENTS INCORPORATED BY REFERENCE

Parts of the Proxy Statement for the Registrant's Annual Meeting of Stockholders to be held on June 22, 2017 are incorporated by reference into Part III of this Annual Report on Form 10-K.

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FORWARD- LOOKING INFORMATION

This Annual Report on Form 10-K, including "Item 7—Management's Discussion and Analysis of Financial Condition and Results of Operations" and certain information incorporated by reference, contain forward-looking statements within the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements in this report include, but are not limited to, statements about our expectations, objectives, anticipations, plans, hopes, beliefs, intentions, or strategies regarding the future.

Forward-looking statements represent our current expectations about future events, are based on assumptions, and involve risks and uncertainties. If the risks or uncertainties occur or the assumptions prove incorrect, then our results may differ materially from those set forth or implied by the forward-looking statements. Our forward-looking statements are not guarantees of future performance or events.

Words such as "expects," "anticipates," "aims," "projects," "intends," "plans," "believes," "estimates," "seeks," variation and similar expressions are also intended to identify such forward-looking statements. These forward-looking statements are subject to risks, uncertainties, and assumptions that are difficult to predict; therefore, actual results may differ materially and adversely from those expressed in any forward-looking statements. Readers are directed to risks and uncertainties identified under "Item 1A—Risk Factors" and elsewhere in this report for factors that may cause actual results to be different from those expressed in these forward-looking statements. Except as required by law, we undertake no obligation to revise or update publicly any forward-looking statements for any reason.

Forward-looking statements in this report include, without limitation, statements about the following:

our belief that levels of gross profit margin are sustainable to the extent that volume grows, we experience a favorable product mix, pricing remains stable, and we continue to realize cost savings through production efficiencies and enhanced yields;

our plan to improve our existing energy recovery devices and to develop and manufacture new and enhanced versions of these devices;

our belief that our PX® energy recovery devices are the most cost-effective energy recovery devices over time and will result in low life-cycle costs;

our belief that our turbocharger devices have long operating lives;

our objective of finding new applications for our technology and developing new products for use outside of desalination, including oil & gas applications;

our expectation that our expenses for research and development and sales and marketing may increase as a result of diversification into markets outside of desalination;

our expectation that we will continue to rely on sales of our energy recovery devices in the desalination market for a substantial portion of our revenue and that new desalination markets, including the United States, will provide revenue opportunities to us;

our ability to meet projected new product development dates, anticipated cost reduction targets, or revenue growth objectives for new products;

our belief that we can commercialize the VorTeq™ hydraulic fracturing system;

our belief that customers will accept and adopt our new products;

our belief that our current facilities will be adequate for the foreseeable future;

our expectation that sales outside of the United States will remain a significant portion of our revenue;

the timing of our receipt of payment for products or services from our customers;

our belief that our existing cash balances and cash generated from our operations will be sufficient to meet our anticipated liquidity needs for the foreseeable future, with the exception of a decision to enter into an acquisition and/or fund investments in newly developed technology arising from rapid market adoption that could require us to seek additional equity or debt financing;

our expectation that, as we expand our international sales, a portion of our revenue could continue to be denominated in foreign currencies;

our belief that new markets will grow in the water desalination market;

our expectation that we will be able to enforce our intellectual property rights; and

other factors disclosed under Items 1 – Business, Item 1A- Risk Factors, Item 2 – Properties, Item 7 – Management's Discussion and Analysis of Financial Condition and Results of Operation, Item 7A – Quantitative and Qualitative Disclosures about Market Risks and elsewhere in this Form 10-K.

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You should not place undue reliance on these forward-looking statements, which reflect management's opinions only as of the date of the filing of this Annual Report on Form 10-K. All forward-looking statements included in this document are subject to additional risks and uncertainties further discussed under "Item 1A – Risk Factors" and are based on information available to us as of March 9, 2017. We assume no obligation to update any such forward-looking statements. It is important to note that our actual results could differ materially from the results set forth or implied by our forward-looking statements. The factors that could cause our actual results to differ from those included in such forward-looking statements are set forth under the heading "Item 1A – Risk Factors" and our results disclosed from time to time in our reports on Forms 10-Q and 8-K and our Annual Reports to Stockholders.

PART I

Item 1 — Business

Overview

Energy Recovery, Inc. (the "Company," "Energy Recovery," "our," "us," and "we") is an energy solutions provider to industri
fluid flow markets worldwide. Our core competencies are fluid dynamics and advanced material science. Our products make industrial processes more operational and capital expenditure efficient. Our solutions convert wasted pressure energy into a reusable asset and preserve or eliminate pumping technology in hostile processing environments. Our solutions are marketed and sold in fluid flow markets, such as water desalination, oil & gas, and chemical processing, under the trademarks ERI®, PX®, Pressure Exchanger®, PX Pressure Exchanger®, AT™, AquaBold™, VorTeq™, IsoBoost®, and IsoGen®. Our solutions are owned, manufactured, and/or developed, in whole or in part, in the United States of America ("U.S.") and the Republic of Ireland.

Energy Recovery was incorporated in Virginia in 1992, reincorporated in Delaware in 2001, and became a public company in July 2008. Our headquarters and primary manufacturing center is located at 1717 Doolittle Drive, San Leandro, California 94577, and we have four (4) wholly-owned subsidiaries: ERI Energy Recovery Holdings Ireland Limited; ERI Energy Recovery Ireland Ltd.; Energy Recovery Iberia, S.L.; and Energy Recovery Canada Corp. We also have sales offices in Dubai, United Arab Emirates and Shanghai, Peoples Republic of China. Our main telephone number is (510) 483-7370.

The Energy Recovery website is *www.energyrecovery.com*. We use the Investor Relations section of our website as a routine channel for distribution of important information, including news releases, presentations, and financial statements. We intend to use the Investor Relations section of our website as a means of complying with our disclosure obligations under Regulation FD. Accordingly, investors should monitor our Investor Relations website in addition to press releases, Securities and Exchange Commission ("SEC") filings, and public conference calls and webcasts. Our Annual Report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, all amendments to those reports, and the Proxy Statement for our Annual Meeting of Stockholders are made available, free of charge, in the Investor Relations section of our website, as soon as reasonably practicable after the reports have been filed with or furnished to the SEC. The information contained on our website or any other website is not part of this report nor is it considered to be incorporated by reference herein or with any other filing we make with the SEC.

Fluid Flow Markets

Our primary industrial fluid flow markets are water desalination and oil & gas. We have been and continue to be the technology leader for energy recovery devices ("ERDs") in the water desalination market with our proprietary Pressure Exchanger ("PX") and turbocharger technologies. We also provide high-performance and high-efficiency pumps to facilitate a packaged solution for our customers. Building on our leading technology, we have expanded our technology solutions offering into other fluid flow markets, such as those found in upstream, midstream, and downstream applications of the oil & gas industry, and are exploring other end markets for which our solutions may be applicable. We offer the VorTeq hydraulic fracturing system ("VorTeq"), IsoBoost, and IsoGen product lines to the oil & gas market.

Water Desalination

Water desalination has been our core market for revenue generation to date. The water desalination market ranges from small water desalination plants such as those used in cruise ships and resorts, to mega-project desalination plant deployments globally. Because of the geographical location of many significant desalination projects, geopolitical and economic events can have an effect on the timing of expected projects. In addition, population and economic growth in countries such as India and China are driving water demand for human, agricultural, and industrial use. We anticipate that markets traditionally not associated with water desalination, including the United States, will inevitably develop and provide further revenue growth opportunities. Our solutions leverage our PX, turbocharger, and pump technologies providing our customers significant operational efficiency and energy savings.

Oil & Gas

Across the oil & gas upstream, midstream and downstream markets, highly pressurized fluid flows are required to extract and process oil and gas. These pressurized fluid flows are both a necessity and liability to the oil & gas industry.

Within the oil & gas upstream sector, hydraulic fracturing is a well-stimulation technique in which pressurized liquid containing a highly abrasive, proppant-laden fluid is injected into a wellbore to create cracks in deep-rock formations thereby permitting oil & gas extraction. Oilfield service providers utilize high-pressure hydraulic fracturing pumps to pressurize the fracturing fluid at treating pressures up to 15,000 psi. These pumps are routinely destroyed by the abrasive fluids during the hydraulic fracturing process causing significant oilfield service operator costs associated with excessive downtime, repairs, maintenance, and capital equipment redundancy. Our VorTeq leverages our PX technology to isolate high-pressure hydraulic fracturing pumps from abrasive fracturing fluid thereby enabling oilfield service operators to realize immediate and long-term savings.

Within the oil & gas midstream and downstream sectors, pressure energy becomes a waste product at different stages of oil and gas processing. It is at these stages that our IsoBoost and IsoGen technology enables the recovery of pressure energy in the fluid flow either through the exchange of pressure within the application or by converting it to electricity. Our technology enables gas processing plant and pipeline owners and operators to achieve immediate and long-term energy savings with little or no operational disruption.

OUR SOLUTIONS

Energy, repairs, maintenance, and capital costs are major cost drivers in the water desalination and oil & gas markets. Energy Recovery has developed proprietary technology solutions to address these major cost drivers. In the water desalination market, our energy recovery solutions reduce plant operating costs by capturing and reusing the otherwise lost pressure energy from the reject stream of the desalination process. In the oil & gas market, our hydraulic fracturing solution reduces operating and capital equipment costs by isolating high cost pumping equipment from highly abrasive fracturing fluids; while our centrifugal solutions reduce plant or pipeline operating costs by capturing and reusing otherwise lost pressure energy.

Water Desalination

Our water desalination ERDs are categorized into two technology groups: PX Pressure Exchangers and turbochargers. The first technology group is comprised of our patented PX ERD technology consisting of ceramic rotors and almost frictionless hydrodynamic bearings. Our PX ERDs enable water desalination plant operators to capture wasted hydraulic pressure energy from a high-pressure fluid flow and transfer the energy to a low-pressure fluid flow, thereby recovering wasted pressure energy. Our PX ERDs perform with up to 98% efficiency and unmatched uptime in the desalination industry, and can reduce a desalination plant’s energy costs by up to 60%.

The second technology group is comprised of turbochargers (“AT Turbochargers”) designed for low-pressure brackish and high-pressure seawater reverse osmosis systems. Our AT Turbochargers provide premium efficiency with state-of-the-art engineering and configuration. Designed for reliability and optimum efficiency, our turbochargers offer substantial savings, and the custom-designed hydraulics and 3-D geometry allow for optimum performance. Also, the patent-protected technology for volute inserts allows field flexibility.

Complementing both our PX ERDs and AT Turbochargers are our high-performance, high-efficiency pumps.

Oil & Gas

In the oil & gas market, we design and manufacture innovative solutions that preserve or eliminate pumping technology in hostile processing environments and convert wasted pressure energy into a reusable asset. Our core technology solutions are the VorTeq and our centrifugal line of products, the IsoBoost and the IsoGen.

The VorTeq is an enabling technology for oilfield service (“OFS”) companies to isolate and preserve costly hydraulic fracturing pumps by re-routing hostile fracturing fluid away from these critical pumps. These hydraulic fracturing pumps will then process only water, which leads to reduced repairs and maintenance costs, increased fleet revenue, and reduced capital costs by extending pump life expectancy and eliminating redundant capital equipment. The VorTeq further allows for the migration to increasingly efficient pumping technology that could lead to the revolutionizing of the hydraulic fracturing system.

During 2015, we conducted VorTeq field trials with Liberty Oil Field Services, our early stage test partner, culminating in the successful delivery of proppant to a well located in the Bakken Formation. In October 2015, through our subsidiary ERI Energy Recovery Ireland, Ltd., we entered into a fifteen-year license agreement with Schlumberger Technology Corporation (the “VorTeq Licensee”) for the exclusive, worldwide right to use the VorTeq for hydraulic fracturing onshore operations. The VorTeq is currently in the research and development stage and we are actively working towards commercialization.

IsoBoost and IsoGen technologies were commercialized in 2012. Our IsoBoost energy recovery systems are comprised of hydraulic turbo chargers and related controls and automation systems. The IsoBoost enable oil & gas operators to capture wasted hydraulic pressure energy from a high-pressure fluid flow and transfer the energy to a low-pressure fluid flow, thereby recovering wasted pressure energy. Our IsoGen energy recovery systems are comprised of hydraulic turbines, generators, and related controls and automation systems. The IsoGen enables oil & gas operators to capture hydraulic energy and generate electricity from high-pressure fluid flows. Additionally, our energy recovery and power generation systems result in lower capital costs for oil & gas operators by minimizing the need for high-pressure pumps that consume large amounts of energy.

We have contracted and delivered oil and gas solutions, as pilot projects, to customers in North America, Asia, and the Middle East for use in gas processing and ammonia processing applications. In 2015, we commissioned our first IsoGen unit in a major gas processing plant in the Middle East. In 2016, we received our first major purchase order for multiple units of our IsoBoost technology for integration into a major gas processing plant to be constructed in the Middle East. The contract is for approximately $7 million worth of equipment and services with an option for an additional $4 million to be determined at a later date, which may or may not be exercised. The optional supply may not be confirmed by the customer until the latter portion of 2017.

Services

We provide a portfolio of services tailored to our customers’ needs. Specifically, we assist our customers in the early stages of planning and design by leveraging our broad experience in fluid flows and advanced material science. We also provide engineering, technical support, and training to customers during installation and commissioning. Additionally, we offer preventive maintenance and support services as well as reinstallation services. To date, the revenue from these services has not represented a significant portion of our revenue.

CUSTOMERS

Water Desalination

Our water desalination customers include major international engineering, procurement, and construction (“EPC”) firms that design and build large desalination plants; original equipment manufacturers (“OEM”) which are companies that supply equipment and packaged solutions for small- to medium-sized desalination plants; and national, state and local municipalities worldwide.

Large Engineering, Procurement and Construction Firms

A significant portion of our revenue historically has come from sales of our ERD solutions to large EPC firms worldwide that have the required desalination expertise to engineer, undertake procurement for, construct, and sometimes own and operate, large desalination plants or mega-projects (“MPD”). We work with these firms to specify our solutions for their plants. The time between project tender and shipment can range from sixteen (16) to thirty-six (36) months. Each MPD project typically represents a revenue opportunity of $1 million to $10 million.

A limited number of these EPC firms can account for 10% or more of our product revenue. Revenue from customers representing 10% or more of product revenue varies from year to year. For the years ended December 31, 2016 and 2015, one customer, Acciona Agua, S.A.U., accounted for approximately 11% and 14%, respectively, of total product revenue. For the year ended December 31, 2014, one customer, IDE Americas, Inc., accounted for approximately 14% of total product revenue.

Original Equipment Manufacturers

We also sell our solutions and services to OEM suppliers of pumps and other water-related equipment for assembly and use in small- to medium-sized desalination plants located in hotels, power plants, cruise ships, farm operations, island bottlers, mobile and containerized water desalination solutions, and small municipalities. These OEMs also purchase our solutions for “quick water” or emergency water solutions. The time from project tender and shipment can range from one (1) to twelve (12) months. OEM projects typically represent revenue opportunities of $0.01 million to $1 million.

Our OEM customer base accounted for approximately 39%, 45%, and 57% of our total revenues, for the years ended December 31, 2016, 2015, and 2014, respectively. We typically sell and promote our packaged solutions to this sales channel represented by a product mix of PX Pressure Exchangers, turbochargers, high-pressure pumps, and circulation “booster” pumps.

Oil & Gas

Our oil & gas customers include international oil companies (“IOC”), national oil companies (“NOC”), exploration and production companies (“E&P”), oilfield service companies (“OFS”), and EPC firms that design and build oil & gas processing plants.

Upstream

OFS companies provide the infrastructure, equipment, intellectual property, and services needed by the oil & gas industry to explore for, extract, and transport crude oil and natural gas. OFS hydraulic fracturing operators face significant pressure to reduce costs as oil & gas companies curtail capital expenditures and seek operational efficiencies in response to lower commodity prices. We developed the VorTeq which enables these operators to isolate pumps from fracturing fluid thereby reducing operating and capital costs.

In the third quarter of 2014, we entered into a strategic partnership with Liberty Oil Field Services to pilot and conduct field trials with the VorTeq. These field trials commenced in the second quarter of 2015 and were completed in the fourth quarter of 2015 with the successful delivery of proppant to a well located in the Bakken Formation. In October 2015, we entered into a fifteen-year license agreement with the VorTeq Licensee for the exclusive, worldwide right to use our VorTeq technology for hydraulic fracturing onshore operations.

One customer, Schlumberger Technology Corporation, accounted for 100% of our license and development revenue for 2016 and 2015, which represented 9% and 2% of our total revenue for the years ended December 31, 2016 and 2015, respectively. There was no license and development revenue recognized for 2014.

Midstream and Downstream

We have contracted and delivered gas and oil solutions, as pilot projects, to customers in North America, Asia, and the Middle East for use in gas processing and/or ammonia processing applications. In 2015, we commissioned our first IsoGen unit in a major gas processing plant in the Middle East. In 2016, we received our first major purchase order for multiple units of our IsoBoost technology for integration into a major gas processing plant to be constructed in the Middle East.

For the year ended December 31, 2016, we recognized Oil & Gas Segment revenue from our licensing agreement with the VorTeq Licensee and from a purchase order for multiple units of our IsoBoost technology. For the year ended December 31, 2015, we recognized Oil & Gas Segment revenue from the license agreement with the VorTeq Licensee, a cancellation fee of an IsoBoost purchase order, and from the commissioning of an IsoGen system. For the year ended December 31, 2014, we recognized Oil & Gas Segment rental income from the operating lease and subsequent lease buy-out of an IsoGen system.

While one customer, Tecnicas Reunidas, accounted for 100% of our 2016 Oil & Gas Segment product revenue, no Oil & Gas Segment customer accounted for more than 10% of our total product revenue for the years ended December 31, 2016, 2015, and 2014, respectively.

Additional information regarding our product revenue by segment is included in Note 13 to the Consolidated Financial Statements in Part II, Item 8 of this Form 10-K.

COMPETITION

Water Desalination

The market for ERDs and pumps in the water desalination market is competitive. As the demand for fresh water increases and the market expands, we expect competition to persist and intensify.

We have three main competitors for our ERDs: Flowserve Corporation (“Flowserve”), Fluid Equipment Development Company (“FEDCO”), and Danfoss Group (“Danfoss”). We compete with these companies on the basis of price, quality, efficiency, lead time, life expectancy, downtime, and maintenance costs. Although these companies may offer competing solutions at lower initial price, our solutions offer a competitive advantage because we believe that they provide the lowest life-cycle cost and are therefore the most cost-effective ERDs for the reverse osmosis desalination industry over time.

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In the market for large desalination projects, our PX ERDs and large turbochargers compete primarily with Flowserve's DWEER product. We believe that our PX ERDs have a competitive advantage over DWEER devices because our devices are made with highly durable and corrosion-resistant ceramic parts that are designed for a life of more than 25 years, are warranted for high efficiencies, cause no unplanned downtime, and offer lower lifecycle costs. Additionally, the PX ERDs offer optimum scalability with a quick startup as well as minimal maintenance. We believe that our large turbocharger solutions also have a competitive advantage over Flowserve's Pelton Turbine product, particularly in countries where energy costs are low and upfront capital costs are a critical factor in purchase decisions, because our turbocharger solutions have lower upfront capital costs, a simple design with one rotating assembly, a small physical footprint, and a long operating life that leads to low total lifecycle costs.

In the market for small-to-medium-sized desalination plants, our solutions compete with FEDCO's turbochargers and Danfoss's ERDs. We believe that our PX ERDs have a competitive advantage over these solutions because our devices provide up to 98% energy efficiency, have lower lifecycle maintenance costs, and are made of highly durable and corrosion-resistant ceramic parts. We also believe that our turbochargers compete favorably with FEDCO's turbochargers on the basis of efficiency and price and because our turbochargers have design advantages that enhance efficiency, field flexibility, and serviceability.

In the market for high-pressure pumps, our solutions compete with pumps manufactured by Clyde Union Ltd.; Düchting Pumpen Maschinenfabrik GmbH & Co KG; FEDCO; Flowserve; KSB Aktiengesellschaft; Torishima Pump Mfg. Co., Ltd.; Sulzer Pumps, Ltd.; and other companies. We believe that our pump solutions are competitive with these solutions because our pumps are developed specifically for reverse osmosis desalination, are highly efficient, and feature product-lubricated bearings.

Oil & Gas

The market for our technology in the oil & gas market is competitive. As demand for our products increase, we expect competition to intensify.

Within the oil & gas upstream market, OFS hydraulic fracturing operators utilize high-pressure hydraulic fracturing pumps to pressurize fracturing fluid. This fluid is sent through traditional missile manifolds into the wellbore to create cracks in the deep-rock formations thereby permitting oil & gas extraction. Our VorTeq is a hydraulic pumping system that replaces the traditional missile manifold used by OFS hydraulic fracturing operators. There are many manufacturers of the traditional missile manifolds.

We believe our VorTeq technology represents a competitive advantage over existing missile manifold technology because our solution re-routes abrasive proppant away from high-pressure pumps, thereby extending pump lifespan, reducing repairs and maintenance costs, and decreasing the need for redundant capital equipment. In addition, because our VorTeq technology isolates the high-pressure pumps from abrasive proppant, OFS hydraulic fracturing operators have the ability to transition to more robust, longer lived centrifugal pumps thereby further decreasing operating and capital costs.

Within the oil & gas midstream and downstream markets, acid gas removal — also known as amine gas treating — refers to a process that utilizes solvents such as an amine solution to remove acid gasses, specifically hydrogen sulfide (H2S) and carbon dioxide (CO2) from natural gas, synthesis gas, or other hydrocarbon streams. Our IsoBoost and IsoGen technologies integrate into acid gas removal systems to reduce energy consumption and increase the reliability and uptime of the amine circulation system. Currently, most acid gas removal plants use pumps and valves to pressurize and depressurize the amine solution and the depressurization of the cleansing fluid (e.g. amine) provides an opportunity for the use of ERDs.

Our IsoBoost system is based partly on hydraulic turbocharger technology. While to our knowledge the only turbocharger systems presently utilized in acid gas removal applications are manufactured by Energy Recovery, there is at least one established competitor, FEDCO, which makes a similar hydraulic turbocharger for desalination applications. We combine our highly competitive turbocharger technology with process equipment and control systems to make a unique, proprietary, and highly competitive offering for oil & gas and petrochemical plants.

Our IsoGen system is partly based on hydraulic turbine technology which converts recovered energy to electric power. Many other companies make hydraulic turbines for a broad range of applications. For acid gas removal plants, our competitors utilize reverse running pumps (also called hydraulic power recovery turbines or HPRTs) to perform the same energy recovery function that our IsoGen systems provide. These reverse running pumps are typically part of a large “skid-mounted” system, incorporating a multi-stage pump and motor, all rotating about a common shaft. Flowserve, Sulzer Pumps, Ltd, and Shin Nippon Machinery are known to have supplied these systems and other major pump companies may have built systems for this application as well. We believe most of our competitors’ reverse running pump systems present concerns related to reliability, operational flexibility, and low energy efficiency, as compared to our IsoGen solution.

Sales and Marketing

Energy Recovery has historically offered its products through a direct sales force and a capital sale procurement model. In 2015, the Company evolved its business model to a hybrid of direct capital sales and technology licensing. In 2016, the Company further expanded its procurement offerings to include energy service agreements, operating leases, and various forms of project financing.

We market and sell our solutions directly to customers through our direct sales organization and, in some countries, through authorized, independent sales agents. Our current sales organization consists of two groups: Water Desalination and Oil & Gas.

The Water Desalination group targets MPD, OEM, and aftermarket opportunities within the reverse osmosis desalination market. MPD opportunities are for desalination projects exceeding 50,000 cubic meters per day. OEM opportunities include sales of PX ERDs, turbochargers, and pumps for plants typically designed to produce less than 50,000 cubic meters per day. Aftermarket opportunities include new and replacement parts and products, as well as technical support, training, product installation, and plant commissioning.

Our Oil & Gas group targets IOCs, NOCs, E&Ps, OFSs, or EPCs on behalf of oil producers and chemical producers who have applications for our solutions and services.

Our sales branch in Dubai, United Arab Emirates serves the Middle East, where many water and oil & gas customers are located. We have a sales force in Spain focused on the Spain and European markets. We also have a sales office in Shanghai, China to address this emerging market for our energy recovery solutions. In North America, our sales office along with our corporate headquarters is located in San Leandro, California. As opportunities and diversification

dictate, particularly in oil & gas, we will look to expand our geographical presence.

A significant portion of our revenue is from outside of the United States. Additional segment and geographical information regarding our product revenue is included in Note 13 to the Consolidated Financial Statements in Part II, Item 8 of this Form 10-K.

Manufacturing

Our primary Water Segment product manufacturing facility is located in San Leandro, California, where our ERDs and pumps are produced, assembled, and tested. We produce the majority of our ceramic components for our PX solutions in our advanced ceramics manufacturing facility, as well as complete machining and assemble of all ceramic components for our PX devices. In addition, many components of our turbochargers and pumps are also manufactured in San Leandro to protect the proprietary nature of our manufacturing methods and product designs and to maintain premium quality standards.

Our Oil & Gas Segment product manufacturing, assembly, and testing is conducted through our operations in Ireland. To produce our Oil & Gas Segment products, we utilize multiple supply chain partners and complete many machining, assembly, and testing operations in house to protect the proprietary nature of our manufacturing methods and product designs and to maintain premium quality standards. Our Ireland operations are also responsible for overseeing the commercialization of the VorTeq and expanding our manufacturing activities in Europe.

Research and Development

When developing products and ultimately markets for our products, we seek three distinct process criteria: (1) high rates of fluid flow; (2) large pressure differentials; and (3) high degrees of capital intensity, specifically in the form of pumping assets. Based on these criteria, our product development strategy is to identify fluid flow applications where pumps are being destroyed and/or where pressure energy is being wasted. Our technologies isolate pumping assets from hostile process fluids, or recover otherwise wasted pressure energy. Our research and development effort is therefore focused on (1) advancing new products in markets beyond desalination, with a specific and immediate emphasis on oil & gas, where our technology is utilized to preserve pumping assets; and (2) enhancing our existing energy recovery device and pumps for the water desalination market.

Energy Recovery developed a robust, multi-year product development road map which guides our research and development resource allocation. Specific to new product development, our focus is overwhelmingly on our proprietary pressure exchanger technology given its prohibitive nature and broad technical application. Our corporate objective is to achieve proof of concept of one new derivative of the pressure exchanger annually.

To support our product strategy, we have and will continue to invest in identifying and hiring strong engineering talent with expertise in fluid physics and advanced material science. In addition, to enable increasingly complex and shorter-cycle product development, we have invested in advanced numerical modeling and analysis infrastructure allowing for three-dimensional, multi-phase, multiphysics, computational fluid dynamics; this coupled with our existing structural interaction analytical capabilities supports our objective of achieving the proof of concept of one new derivative of the pressure exchanger each year.

Within our Water Segment, research and development investments have produced the latest and most efficient energy recovery device, the PX Prime. In addition, we continue to advance our turbocharger and pump technologies to better service our water end markets.

Within our Oil & Gas Segment, research and development investments are primarily focused on commercializing the VorTeq and developing products for applications where pumping assets are compromised due to hostile process fluids. We expect to announce a new product for these applications in 2017. Our priority remains the commercialization of our VorTeq.

Research and development expense totaled $10.1 million, $7.7 million, and $9.7 million for the years ended December 31, 2016, 2015, and 2014, respectively. Research and development costs are expensed as incurred. We expect research and development expenses to increase in the future as we further fund our product development road map and more broadly, execute against our product strategy.

Seasonality

In our Water Segment, we often experience substantial fluctuations in product revenue from quarter-to-quarter and from year-to-year because a single order for our ERDs by a large EPC firm for a particular plant may represent significant revenue. In addition, historically our EPC customers tend to order a significant amount of equipment for delivery in the fourth quarter, and as a consequence, a significant portion of our annual sales typically occur during the fourth quarter.

We do not currently have enough history to determine seasonal revenue patterns within our Oil & Gas Segment.

Intellectual Property

We seek patent protection for new technologies, inventions, and improvements that are likely to be incorporated into our solutions. We rely on patents, trade secret laws, and contractual safeguards to protect the proprietary tooling, processing techniques, and other know-how used in the production of our solutions. We have a robust intellectual property portfolio consisting of U.S. and International issued patents as well as pending patent applications.

We have registered the following trademarks with the United States Patent and Trademark office: “ERI,” “PX,” “PX Pressure Exchanger,” “Pressure Exchanger,” the Energy Recovery logo, “ERI Energy Recovery, Inc.,” “Making Desalination Affordable,” “AT,” “AquaBold,” “VorTeq,” “IsoBoost,” and “IsoGen.” We have also applied for and received registrations in international trademark offices.

In July 2015, the U.S. parent company transferred our Oil & Gas Segment intellectual property via platform license agreements to ERI Energy Recovery Holdings Ireland Limited.

Employees

As of December 31, 2016, we had 120 employees: 40 in manufacturing; 30 in corporate services and management; 28 in sales, service, and marketing; and 22 in engineering and research and development. Fourteen of these employees were located outside of the United States. We also engage a relatively small number of independent contractors, primarily as sales agents worldwide. We have not experienced any work stoppages, and our employees are not unionized.

Item 1A — Risk Factors

The following discussion sets forth what management currently believes could be the most significant risks and uncertainties that could impact our businesses, results of operations, and financial condition. Other risks and uncertainties, including those not currently known to the Company or its management, could also negatively impact our businesses, results of operations, and financial conditions. Accordingly, the following should not be considered a complete discussion of all of the risks and uncertainties the Company may face. We may amend or supplement these risk factors from time to time in other reports we file with the Securities and Exchange Commission ("SEC").

Risk Related to our Water Segment

Our Water Segment depends on the construction of new desalination plants for revenue, and as a result, our operating results have experienced, and may continue to experience, significant variability due to volatility in capital spending, availability of project financing, and other factors affecting the water desalination industry.

We currently derive the majority of our revenue from sales of products and services used in desalination plants for municipalities, hotels, mobile containerized desalination solutions, resorts, and agricultural operations in dry or drought-ridden regions of the world. The demand for our Water Segment products may decrease if the construction of desalination plants declines for political, economic, or other factors, especially in these dry or drought-ridden regions. Other factors that could affect the number and capacity of desalination plants built or the timing of their completion include the availability of required engineering and design resources; a weak global economy; shortage in the supply of credit and other forms of financing; changes in government regulation, permitting requirements, or priorities; and reduced capital spending for desalination. Each of these factors could result in reduced or uneven demand for our Water Segment products. Pronounced variability or delays in the construction of desalination plants or reductions in spending for desalination, could negatively impact our Water Segment sales and revenue, which in turn could have an adverse effect on our entire business, financial condition, or results of operations and make it difficult for us to accurately forecast our future sales and revenue.

Our Water Segment faces competition from a number of companies that offer competing energy recovery and pump solutions. If any one of these companies produces superior technology or offers more cost-effective products, our competitive position in the market could be harmed and our profits may decline.

The market for ERD and pumps for desalination plants is competitive and evolving. We expect competition, especially competition on price, to persist and intensify as the desalination market grows and new competitors enter the market. Some of our current and potential competitors may have significantly greater financial, technical, marketing, and other resources; longer operating histories; or greater name recognition. They may also have more

extensive products and product lines that would enable them to offer multi-product or packaged solutions as well as competing products at lower prices or with other more favorable terms and conditions. As a result, our ability to sustain our market share may be adversely impacted, which would affect our business, operating results, and financial condition. In addition, if one of our competitors were to merge or partner with another company, the change in the competitive landscape could adversely affect our continuing ability to compete effectively.

If we are unable to collect unbilled receivables, which are caused in part by holdback provisions, our operating results could be adversely affected.

Our contracts with large engineering, procurement, and construction firms generally contain holdback provisions that typically delay final installment payments for our products by up to twenty-four (24) months, after the product has been shipped and revenue has been recognized. Generally 10% or less of the revenue we recognize pursuant to our customer contracts is subject to such holdback provisions and is accounted for as unbilled receivables. Such holdbacks may result in relatively high unbilled receivables. If we are unable to collect these performance holdbacks, our results of operations would be adversely affected.

We depend on a limited number of suppliers for some of our components. If our suppliers are not able to meet our demand and/or requirements, our business could be harmed.

We rely on a limited number of suppliers for vessel housings, stainless steel ports, alumina powder, and tungsten carbide for our portfolio of PX ERDs and stainless steel castings and components for our turbochargers and pumps. Our reliance on a limited number of manufacturers for these supplies involves a number of risks, including reduced control over delivery schedules, quality assurance, manufacturing yields, production costs, and lack of guaranteed production capacity or product supply. We do not have long-term supply agreements with these suppliers but secure these supplies on a purchase order basis. Our suppliers have no obligation to supply products to us for any specific period, in any specific quantity, or at any specific price, except as set forth in a particular purchase order. Our requirements may represent a small portion of the total production capacities of these suppliers, and our suppliers may reallocate capacity to other customers, even during periods of high demand for our products. We have in the past experienced, and may in the future experience, product quality issues and delivery delays with our suppliers due to factors such as high industry demand or the inability of our vendors to consistently meet our quality or delivery requirements. If our suppliers were to cancel or materially change their commitments to us or fail to meet quality or delivery requirements needed to satisfy customer orders for our products, we could lose time-sensitive customer orders, be unable to develop or sell our products cost-effectively or on a timely basis, if at all, and have significantly decreased revenue, which could harm our business, operating results, and financial condition. We may qualify additional suppliers in the future, which would require time and resources. If we do not qualify additional suppliers, we may be exposed to increased risk of capacity shortages due to our dependence on current suppliers.

Risk Related to our Oil & Gas Segment

We may not be able to successfully commercialize the VorTeq.

In October 2015, we entered into the VorTeq License Agreement with the VorTeq Licensee which provides the VorTeq Licensee with exclusive worldwide rights to our VorTeq technology for hydraulic fracturing onshore applications. Once the VorTeq is commercialized, the VorTeq Licensee will begin paying ongoing recurring royalty fees to us for the VorTeq technology. In order to commercialize the VorTeq, the VorTeq License Agreement provides, among other things, that we successfully meet certain specified milestones against key performance indicators set forth in the license agreement. The VorTeq is a relatively new technology and the hydraulic fracturing process is extremely complex which presents a wide range of technological challenges for us. If we are unable to successfully solve these challenges and, as a result, fail to meet the milestones, we may not be able to successfully commercialize the VorTeq. In that circumstance, we will not receive any royalty payments from the VorTeq Licensee, which could have an adverse effect on our entire business, financial condition, or results of operation.

If the VorTeq Licensee fails to adopt the VorTeq, for any reason, we may not receive royalty payments or be able to successfully commercialize the VorTeq.

The successful commercialization of the VorTeq depends heavily on the VorTeq Licensee's support and ultimate adoption of the technology. If the VorTeq Licensee fails to adopt the VorTeq, for any reason, we may not be able to successfully commercialize the VorTeq with the VorTeq Licensee and consequently, we may not receive any royalties under the VorTeq License Agreement. In addition, we may not be able to find a suitable replacement for the VorTeq Licensee or be able to negotiate royalties similar to those contained in the VorTeq License Agreement or to commercialize the VorTeq at all. Failure to commercialize the VorTeq could have an adverse effect on our entire business, financial condition, or results of operation.

We may not meet the key performance indicators necessary to meet the two milestones in the VorTeq License Agreement.

The VorTeq License Agreement calls for certain milestone key performance indicators that if met will result in payments to the Company of $25 million for each of two milestones. Achievement of these milestones is uncertain, and while we believe we can meet the milestones, if we are unable to do so, the milestone payments will be delayed until such time as the milestones are met or not earned and received at all. Failure to meet said milestones may also jeopardize commercialization and the rate of adoption of our VorTeq.

Our Oil & Gas Segment may be impacted by prolonged deflation in global oil prices which may cause delays or cancellations of projects by Oil & Gas Segment customers, negatively affecting the rate of our market penetration and consequently our revenue and profitability.

A deflationary oil environment such as the one experienced over the last few years may delay and even stall adoption and deployment of our products within our Oil & Gas Segment including but not limited to the VorTeq as licensed for onshore applications by the VorTeq Licensee. Emerging market economies, those dependent on commodity exports, and especially those for whom oil exports make up a significant percent of total exports, may be unable to retrofit or expand their oil exploration, production, and gas processing infrastructure thus negatively impacting our addressable market and future revenue. Additionally, oil price deflation may continue to lead to widespread liquidity and insolvency issues for exploration, production, and processing customers, which may negatively affect our addressable markets and therefore our financial performance.

Within our Oil & Gas Segment, the use of the percentage-of-completion method of accounting for the IsoBoost and IsoGen products requires us to make estimates and judgments, which are subject to an inherent degree of uncertainty and which may differ from actual results.

The IsoBoost and IsoGen systems are highly engineered, customized solutions that are designed and manufactured over an extended period of time and are built specifically to meet a customer’s specifications. It is the Company’s position that the percentage-of-completion method of accounting is appropriate for the IsoBoost and IsoGen systems given the facts and circumstances of these projects. This methodology requires the application of significant judgment by management in selecting the appropriate assumptions for calculating revenue and costs. Revenue and profits are recognized over the life of a project based on costs incurred to date compared to total estimated project costs. Revisions to revenues and profits are made once amounts are known and can be reasonably estimated. In addition, percentage-of-completion revenue may vary from quarter to quarter while a project is being completed due to accounting requirements. Given the uncertainties in accurately estimating the costs of projects, as well as providing reliable estimates to completion, it is possible for actual amounts to vary significantly from estimates previously made, which may result in the reversal of revenues and gross profit previously recognized and publicly reported.

Risk Related to our Entire Business

Our diversification into new fluid flow markets, such as oil & gas, may not be successful

We have made a substantial investment in research, development, and sales to execute on our diversification strategy into fluid flow markets such as oil & gas and chemical processing. While we see diversification as core to our growth strategy, there is no guarantee that we will be successful in our efforts. Our model for growth is based on our ability to initiate and embrace disruptive technology trends, to enter new markets, both in terms of geographies and product areas, and to drive broad adoption of the products and services that we develop and market. Any inability to execute this model for growth could damage our reputation, limit our growth, and negatively affect our operation results. For example, while we believe that our products will enable gas processing plant operators to operate at a high level of energy efficiency with minimal downtime, we may be subject to warranty claims if customers of these offerings experience significant downtimes or failures for which our warranty reserves may be inadequate given the lack of historical failure rates associated with new product introductions. We also could be subject to damage claims based on our products against which we may not be able to properly insure. In addition, profitability, if any, in new industrial verticals may be lower than in our Water Segment, and we may not be sufficiently successful in our diversification efforts to recoup investments.

Our operating results may fluctuate significantly, making our future operating results difficult to predict and causing our operating results to fall below expectations.

Our operating results may fluctuate due to a variety of factors, many of which are outside of our control.

We have experienced significant fluctuations in revenue from quarter-to-quarter and year-to-year, and we expect such fluctuations to continue. In addition, in the past, customer buying patterns led to a significant portion of our sales occurring in the fourth quarter. This presents the risk that delays, cancellations, or other adverse events in the fourth quarter could have a substantial negative impact on annual results. As a result, comparing our operating results on a period-to-period basis may not be meaningful. Since it is difficult for us to anticipate our future results, in the event our revenue or operating results fall below the expectations of investors or securities analysts, our stock price may decline.

Our sales cycles can be long and unpredictable, and our sales efforts require considerable time and expense. As a result, our sales are difficult to predict and may vary substantially from quarter to quarter, which may cause our operating results to fluctuate.

Our sales efforts involve substantial education of our current and prospective customers about the use and benefits of our energy recovery products. This education process can be time-consuming and typically involves a significant product evaluation process which is particularly pronounced when dealing with product introduction into new fluid flow industrial verticals. In our Water Segment, the sales cycle for our OEM customers, which are involved with smaller desalination plants, averages one (1) to twelve (12) months. The Water Segment sales cycle for our international engineering, procurement, and construction firm customers, which are involved with larger desalination plants, ranges from sixteen (16) to thirty-six (36) months. In our Oil & Gas Segment, experience indicates that sales efforts are prolonged due in part to customers' reluctance to accept new technology, procurement processes, plant turnaround dates, and budgetary constraints. The sales cycle for our Oil & Gas Segment customers ranges from 16 to 36 months. These long sales cycles make quarter-by-quarter revenue predictions difficult and results in our expending significant resources well in advance of orders for our products.

Our business entails significant costs that are fixed or difficult to reduce in the short term while demand for our products is variable and subject to fluctuation, which may adversely affect our operating results.

Our business requires investments in facilities, equipment, research and development, and training that are either fixed or difficult to reduce or scale in the short term. At the same time, the market for our products is variable and has experienced downturns due to factors such as economic recessions, increased precipitation, uncertain global financial markets, and political changes, many of which are outside of our control. During periods of reduced product demand, we may experience higher relative costs and excess manufacturing capacity, resulting in high overhead and lower gross profit margins while causing cash flow and profitability to decline. Similarly, although we believe that our existing manufacturing facilities are capable of meeting current demand and demand for the foreseeable future, the continued success of our business depends on our ability to expand our manufacturing, research and development, and testing facilities to meet market needs. If we are unable to respond timely to an increase in demand, our revenue, gross profit margin, net income, and cash flow may be adversely affected.

Parts of our inventory may become excess or obsolete, which would increase our cost of revenues.

Inventory of raw materials, parts, components, work in-process, or finished products may accumulate, and we may encounter losses due to a variety of factors, including technological change in the water desalination and oil & gas industries that result in product changes; long delays in shipment of our products or order cancellations; our need to order raw materials that have long lead times and our inability to estimate exact amounts and types of items needed, especially with regard to the configuration of our high-efficiency pumps and IsoBoost and IsoGen systems; and cost reduction initiatives resulting in component changes within the products.

In addition, we may from time to time purchase more inventory than is immediately required in order to shorten our delivery time in case of an anticipated increase in demand for our products. If we are unable to forecast demand for our products with a reasonable degree of certainty and our actual orders from our customers are lower than these forecasts, we may accumulate excess inventory that we may be required to write off, and our business, financial condition, and results of operations could be adversely affected.

We are subject to risks related to product defects, which could lead to warranty claims in excess of our warranty provision or result in a significant or a large number of warranty or other claims in any given year.

We provide a warranty for certain products for a period of eighteen (18) to thirty (30) months and provide up to a five-year warranty for the ceramic components of our PX-branded products. We test our products in our manufacturing facilities through a variety of means; however, there can be no assurance that our testing will reveal latent defects in our products, which may not become apparent until after the products have been sold into the market. The testing may not replicate the harsh, corrosive, and varied conditions of the desalination and other plants in which they are installed. It is also possible that components purchased from our suppliers could break down under those conditions. Certain components of our turbochargers and pumps are custom-made and may not scale or perform as required in production environments. Accordingly, there is a risk that we may have significant warranty claims or breach supply agreements due to product defects. We may incur additional cost of revenue if our warranty provisions are not sufficient to cover the actual cost of resolving issues related to defects in our products. If these additional expenses are significant, they could adversely affect our business, financial condition, and results of operations.

Business interruptions may damage our facilities or those of our suppliers.

Our operations and those of our suppliers may be vulnerable to interruption by fire, earthquake, flood, and other natural disasters, as well as power loss, telecommunications failure, and other events beyond our control. Our facilities in California are located near major earthquake faults and have experienced earthquakes in the past. If a natural disaster occurs, our ability to conduct our operations could be seriously impaired, which could harm our business, financial condition, results of operations, and cash flows. We cannot be sure that the insurance we maintain against general business interruptions will be adequate to cover all of our losses.

If we are unable to protect our technology or enforce our intellectual property rights, our competitive position could be harmed, and we could be required to incur significant expenses to enforce our rights.

Our competitive position depends on our ability to establish and maintain proprietary rights in our technology and to protect our technology from copying by others. We rely on trade secret, patent, copyright, and trademark laws, as well as confidentiality agreements with employees and third parties, all of which may offer only limited protection. We hold a number of U.S. and counterpart international patents, and when their terms expire, we could become more vulnerable to increased competition. The protection of our intellectual property in some countries may be limited. While we have expanded our portfolio of patent applications, we do not know whether any of our pending patent applications will result in the issuance of patents or whether the examination process will require us to narrow our claims, and even if patents are issued, they may be contested, circumvented, or invalidated. Moreover, while we believe our issued patents and patent pending applications are essential to the protection of our technology, the rights granted under any of our issued patents or patents that may be issued in the future may not provide us with proprietary protection or competitive advantages, and as with any technology, competitors may be able to develop similar or superior technologies now or in the future. In addition, our granted patents may not prevent misappropriation of our technology, particularly in foreign countries where intellectual property laws may not protect our proprietary rights as fully as those in the United States. This may render our patents impaired or useless and ultimately expose us to currently unanticipated competition. Protecting against the unauthorized use of our products, trademarks, and other proprietary rights is expensive, difficult, and in some cases, impossible. Litigation may be necessary in the future to enforce or defend our intellectual property rights or to determine the validity and scope of the proprietary rights of others. Intellectual property litigation could result in substantial costs and diversion of management resources, either of which could harm our business.

Claims by others that we infringe their proprietary rights could harm our business.

Third parties could claim that our technology infringes their intellectual property rights. In addition, we or our customers may be contacted by third parties suggesting that we obtain a license to certain of their intellectual property rights that they may believe we are infringing. We expect that infringement claims against us may increase as the number of products and competitors in our market increases and overlaps occur. In addition, to the extent that we gain greater visibility, we believe that we will face a higher risk of being the subject of intellectual property infringement claims. Any claim of infringement by a third party, even those without merit, could cause us to incur substantial costs defending against the claim and could distract management from our business. Furthermore, a party making such a

claim, if successful, could secure a judgment that requires us to pay substantial damages. A judgment against us could also include an injunction or other court order that could prevent us from offering our products. In addition, we might be required to seek a license for the use of such intellectual property, which may not be available on commercially reasonable terms, or at all. Alternatively, we may be required to develop non-infringing technology, which could require significant effort and expense and may ultimately not be successful. Any of these events could seriously harm our business. Third parties may also assert infringement claims against our customers. Because we generally indemnify our customers if our products infringe the proprietary rights of third parties, any such claims would require us to initiate or defend protracted and costly litigation on their behalf in one or more jurisdictions, regardless of the merits of these claims. If any of these claims succeed, we may be forced to pay damages on behalf of our customers.

We are currently involved in legal proceedings, and may be subject to additional future legal proceedings, that may result in material adverse outcomes.

In addition to intellectual property litigation risks discussed above, we are presently involved, and may become involved in the future, in various commercial and other disputes as well as related claims and legal proceedings that arise from time to time in the course of our business. See Note 9 to the Consolidated Financial Statements in Part II, Item 8 of this Form 10-K for information about certain legal proceedings in which we are involved. Our current legal proceedings and any future lawsuits to which we may become a party are and will likely be expensive and time consuming to investigate, defend and resolve, and will divert our management’s attention. Any litigation to which we are a party may result in an onerous or unfavorable judgment that may not be reversed upon appeal or in payments of substantial monetary damages or fines, or we may decide to settle lawsuits on similarly unfavorable terms, which could have an adverse effect on our business, financial condition, or results of operations.

Our global operations expose us to risks and challenges associated with conducting business internationally, and our results of operations may be adversely affected by our efforts to comply with the laws of other countries, as well as U.S. laws which apply to international operations, such as the Foreign Corrupt Practices Act (FCPA) and U.S. export control laws.

We operate on a global basis with offices or activities in Europe, Africa, Asia, South America, and North America. We face risks inherent in conducting business internationally, including compliance with international and U.S. laws and regulations that apply to our international operations. These laws and regulations include tax laws, anti-competition regulations, import and trade restrictions, export control laws, and laws which prohibit corrupt payments to governmental officials or certain payments or remunerations to customers, including the U.S. Foreign Corrupt Practices Act (FCPA) or other anti-corruption laws that have recently been the subject of a substantial increase in global enforcement. Many of our products are subject to U.S. export law restrictions that limit the destinations and types of customers to which our products may be sold, or require an export license in connection with sales outside the United States. Given the high level of complexity of these laws, there is a risk that some provisions may be inadvertently or intentionally breached, for example through fraudulent or negligent behavior of individual employees, our failure to comply with certain formal documentation requirements, or otherwise. Also, we may be held liable for actions taken by our local dealers and partners. Violations of these laws and regulations could result in fines, criminal sanctions against us, our officers or our employees, and prohibitions or conditions on the conduct of our business. Any such violations could include prohibitions or conditions on our ability to offer our products in one or more countries and could materially damage our reputation, our brand, our business, and our operating results.

In addition, we operate in many parts of the world that have experienced significant governmental corruption to some degree and, in certain circumstances, strict compliance with anti-bribery laws may conflict with local customs and practices. We may be subject to competitive disadvantages to the extent that our competitors are able to secure business, licenses, or other preferential treatment by making payments to government officials and others in positions of influence or through other methods that relevant law and regulations prohibit us from using. Our success depends, in part, on our ability to anticipate these risks and manage these difficulties.

These factors or any combination of these factors may adversely affect our revenue or our overall financial performance.

Significant developments stemming from the recent U.S. presidential election could have a material adverse effect on us.

The current administration has called for substantial change to fiscal and tax policies, regulatory oversight of businesses, and greater restrictions on free trade including significant increases on tariffs on goods imported into the United States, including from China. Proposals espoused by the current administration may result in changes to social, political, regulatory, and economic conditions in the United States or in laws and policies affecting the development and investment in countries where we currently conduct business, sell our products, or procure our raw materials. In addition, these changes could result in negative sentiments towards the United States among non-U.S. customers. We

cannot predict the impact, if any, of these changes to our business. However, it is possible that these changes could adversely affect our business due to the substantial exposure we have to international markets which could have an adverse effect on our business, financial condition, or results of operations.

Regulations related to conflict minerals could adversely impact our business.

The Dodd-Frank Wall Street Reform and Consumer Protection Act contains provisions to improve transparency and accountability concerning the supply of certain minerals, known as conflict minerals, originating from the Democratic Republic of Congo ("DRC") and adjoining countries. As a result, in August 2012, the SEC adopted annual disclosure and reporting requirements for those companies who use conflict minerals mined from the DRC and adjoining countries in their products. Based on our purchasing policy and supplier selection, it is considered unlikely that any conflict minerals are used in the manufacturing of our products. Nevertheless, we are continuing reasonable country of origin inquiry and have implemented a program of due diligence on the source and chain of custody for conflict minerals.

There are costs associated with complying with these disclosure requirements, including loss of customers and potential changes to products, processes, or sources of supply as a consequence of our verification activities. The implementation of these rules could adversely affect the sourcing, supply, and pricing of materials used in our products. As there may be only a limited number of suppliers offering “conflict free” minerals, we cannot be sure that we will be able to obtain necessary materials from such suppliers in sufficient quantities or at competitive prices. Also, we may face reputational challenges if we determine that certain of our products contain minerals not determined to be conflict-free or if we are unable to sufficiently verify the origins for all conflict minerals used in our products through the procedures we have implemented.

We may have risks associated with security of our information technology systems.

We make significant efforts to maintain the security and integrity of our information technology systems and data. Despite significant efforts to create security barriers to such systems, it is virtually impossible for us to entirely mitigate this risk. There is a risk of industrial espionage, cyber-attacks, misuse or theft of information or assets, or damage to assets by people who may gain unauthorized access to our facilities, systems, or information. Such cybersecurity breaches, misuse, or other disruptions could lead to the disclosure of confidential information, improper usage and distribution of our intellectual property, theft, manipulation and destruction of private and proprietary data, and production downtimes.

Although we actively employ measures to prevent unauthorized access to our information systems, preventing unauthorized use or infringement of our rights is inherently difficult. These events could adversely affect our financial results and any legal action in connection with any such cybersecurity breach could be costly and time-consuming and may divert management's attention and adversely affect the market's perception of us and our products.

We may have risks associated with our new international tax optimization structure.

In 2015, the Company implemented a new international tax optimization structure. Subsidiaries were established in Ireland and the Company transferred our Oil & Gas Segment intellectual property via platform licenses to ERI Energy Recovery Holdings Ireland Limited. The Company has undertaken extensive due diligence, implemented and continues to implement manufacturing, research and development, and sales operations to create Irish substance, and has conferred with tax experts to ensure that uncertain tax positions are unlikely. It is possible that the new international tax structure could be examined by the Internal Revenue Service in the U.S. and/or the Tax Authorities in Ireland, and it is possible that such an examination could result in an unfavorable impact on the Company.

If we need additional capital to fund future growth, it may not be available on favorable terms, or at all.

Our primary source of cash historically has been customer payments for our products and services and proceeds from the issuance of common stock. This has funded our operations and capital expenditures. We may require additional capital from equity or debt financing in the future to fund our operations or respond to competitive pressures or strategic opportunities, such as a potential acquisition or the expansion of operations. We may not be able to secure such additional financing on favorable terms or at all. The terms of additional financing may place limits on our financial and operational flexibility. If we raise additional funds through further issuances of equity, convertible debt securities, or other securities convertible into equity, our existing stockholders could suffer significant dilution in their percentage ownership of our company, and any new securities that we issue could have rights, preferences, or privileges senior to those of existing or future holders of our common stock. If we are unable to obtain necessary financing on terms satisfactory to us, if and when we require it, our ability to grow or support our business and to respond to business challenges or opportunities could be significantly limited.

We may seek to expand through acquisitions of and investments in other businesses, technologies, and assets. These acquisition activities may be unsuccessful or divert management's attention.

We may consider strategic and complementary acquisitions of and investments in other businesses, technologies, and assets, and such acquisitions or investments are subject to risks that could affect our business, including risks related to:

- the necessity of coordinating geographically disparate organizations

- implementing common systems and controls
- integrating personnel with diverse business and cultural backgrounds
- integrating acquired research and manufacturing facilities, technology and products
- combining different corporate cultures and legal systems
- unanticipated expenses related to integration, including technical and operational integration
- increased costs and unanticipated liabilities, including with respect to registration, environmental, health and safety matters, that may affect sales and operating results
- retaining key employees
- obtaining required government and third-party approvals
- legal limitations in new jurisdictions
- installing effective internal controls and audit procedures
- issuing common stock that could dilute the interests of our existing stockholders
- spending cash and incurring debt
- assuming contingent liabilities and
- creating additional expenses.

We may not be able to identify opportunities or complete transactions on commercially reasonable terms, or at all, or actually realize any anticipated benefits from such acquisitions or investments. Similarly, we may not be able to obtain financing for acquisitions or investments on attractive terms. If we do complete acquisitions, we cannot ensure that they will ultimately strengthen our competitive or financial position or that they will not be viewed negatively by customers, financial markets, investors, or the media. In addition, the success of any acquisitions or investments also

will depend, in part, on our ability to integrate the acquisition or investment with our existing operations.

Insiders and principal stockholders will likely have significant influence over matters requiring stockholder approval.

Our directors, executive officers, and other principal stockholders beneficially own, in the aggregate, a substantial amount of our outstanding common stock. These stockholders could likely have significant influence over all matters requiring stockholder approval, including the election of directors and approval of significant corporate transactions such as a merger or other sale of our company or its assets.

The market price of our common stock may continue to be volatile.

The market price of our common stock has been, and is likely to continue to be, volatile and subject to fluctuations. Changes in the stock market generally or as it concerns our industry, as well as geopolitical, economic, and business factors unrelated to us, may also affect our stock price. Significant declines in the market price of our common stock or failure of the market price to increase could harm our ability to recruit and retain key employees, reduce our access to debt or equity capital, and otherwise harm our business or financial condition. In addition, we may not be able to use our common stock effectively as consideration in connection with any future acquisitions.

Anti-takeover provisions in our charter documents and under Delaware law could discourage, delay, or prevent a change in control of our company and may affect the trading price of our common stock.

Provisions in our amended and restated certificate of incorporation and bylaws may have the effect of delaying or preventing a change of control or changes in our management. Our amended and restated certificate of incorporation and amended and restated bylaws include provisions that:

- authorize our Board of Directors to issue, without further action by the stockholders, up to 10,000,000 shares of undesignated preferred stock;

- require that any action to be taken by our stockholders be effected at a duly called annual or special meeting and not by written consent;

- specify that special meetings of our stockholders can be called only by our Board of Directors, the chairman of the board, the chief executive officer, or the president;
- establish an advance notice procedure for stockholder approvals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to our Board of Directors;
- establish that our Board of Directors is divided into three classes, Class I, Class II, and Class III, with each class serving staggered terms;
- provide that our directors may be removed only for cause;
- provide that vacancies on our Board of Directors may be filled only by a majority vote of directors then in office, even though less than a quorum;
- specify that no stockholder is permitted to cumulate votes at any election of directors; and
- require a super-majority of votes to amend certain of the above mentioned provisions.

In addition, we are subject to the provisions of Section 203 of the Delaware General Corporation Law regulating corporate takeovers. Section 203 generally prohibits us from engaging in a business combination with an interested stockholder subject to certain exceptions.

Item 1B — Unresolved Staff Comments

None

Item 2 — Properties

We lease approximately 170,000 square feet of space in San Leandro, California for product manufacturing, research and development, and executive headquarters under a lease that expires in November of 2019. We believe that this facility will be adequate for our purposes for the foreseeable future. Additionally, we lease offices near Dublin, Ireland; Dubai, United Arab Emirates; Shanghai, Peoples Republic of China; and Houston, Texas.

Item 3 — Legal Proceedings

See Note 9 — C*ommitments and Contingencies* to the Consolidated Financial Statements in Part II, Item 8 of this Form 10-K Item 8 of this report, under the heading "*Litigation,*" which is incorporated by reference into this Item 3, for a description of the lawsuits pending against us.

Item 4 — Mine Safety Disclosures

Not applicable.

PART II

Item 5 — Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information

Our common stock is quoted on the NASDAQ Stock Market under the symbol "ERII."

The following table sets forth the high and low intra-day sales prices of our common stock for the periods indicated.

	2016		2015	
	High	**Low**	**High**	**Low**
First Quarter	$10.82	$5.28	$5.37	$2.49
Second Quarter	$13.35	$7.77	$3.71	$2.28
Third Quarter	$16.67	$8.35	$3.07	$2.07
Fourth Quarter	$16.30	$8.53	$9.50	$2.09

Stockholders

As of February 28, 2017, there were approximately thirty-two (32) stockholders of record of our common stock as reported by our transfer agent, one of which is Cede & Co., a nominee for Depository Trust Company (DTC). All of the shares of common stock held by brokerage firms, banks, and other financial institutions as nominees for beneficial owners are deposited into participant accounts at DTC and are therefore considered to be held of record by Cede & Co. as one stockholder.

Dividend Policy

We have never declared or paid any dividends on our common stock, and we do not currently intend to pay any dividends on our common stock for the foreseeable future. Any future determination to pay dividends on our common stock will be, subject to applicable law, at the discretion of our Board of Directors, and will depend upon, among other

factors, our results of operations, financial condition, capital requirements, and contractual restrictions in loan or other agreements.

Stock Repurchase Program

In January 2016, our Board of Directors authorized a stock repurchase program under which the Company, at the discretion of management, could repurchase up to $6.0 million in aggregate cost of our outstanding common stock through June 30, 2016 (the "January Authorization"). In May 2016, our Board of Directors rescinded the January Authorization and authorized a new stock repurchase program under which the Company, at the discretion of management, could repurchase up to $10.0 million in aggregate cost of our outstanding common stock through October 31, 2016 (the "May Authorization"). At December 31, 2016, 673,700 shares, at an aggregate cost of $4.1 million, had been repurchased under the January Authorization and 568,500 shares, at an aggregate cost of $5.3 million, had been repurchased under the May Authorization. The May Authorization expired in October 2016 and there was no repurchase authorization in place at December 31, 2016.

A stock repurchase program was not in place during the year ended December 31, 2015, therefore no shares were repurchased during 2015.

In February 2014, our Board of Directors authorized a stock repurchase program under which up to three million shares, not to exceed $6.0 million in aggregate cost, of our outstanding common stock could be repurchased through December 31, 2014 at the discretion of management. During the year ended December 31, 2014, 696,853 shares at an aggregate cost of $2.8 million were repurchased under this authorization. This 2014 repurchase authorization expired on December 31, 2014.

Sales of Unregistered Securities

There were no outstanding warrants during the year ended December 31, 2016. All outstanding warrants had been exercised as of December 31, 2015.

During the year ended December 31, 2015, warrants to purchase 200,000 shares of common stock were exercised for cash at a price of $1.00 per share. The proceeds received from this exercise totaled $200,000.

During the year ended December 31, 2014, warrants to purchase 450,000 shares of common stock were exercised. Warrants to purchase 50,000 shares of common stock were exercised for cash at a price of $1.00 per share. The proceeds received from this exercise totaled $50,000. Warrants to purchase 400,000 shares of common stock were exercised for 311,111 shares of common stock in lieu of cash proceeds. The remaining 88,889 warrants were cancelled and considered payment for the exercise.

These shares issued pursuant to the warrants were not registered under the Securities Act of 1933, as amended, in reliance upon the exemption set forth in Section 4(2) of that Act for transactions not involving a public offering.

Stock Performance Graph

The following graph shows the cumulative total stockholder return of an investment of $100 on December 31, 2011 in (i) our common stock, (ii) common stock of a selected group of peer issuers ("Peer Group"), and (iii) the NASDAQ Composite Index. Cumulative total return assumes the reinvestment of dividends, although dividends have never been declared on our stock, and is based on the returns of the component companies weighted according to their capitalizations as of the end of each quarterly period. The NASDAQ Composite Index tracks the aggregate price performance of equity securities traded on the NASDAQ. The Peer Group tracks the weighted average price performance of equity securities of seven companies in our industry: Consolidated Water Co. Ltd.; Flowserve Corp.; Hyflux Ltd., Kurita Water Industries Ltd.; Pentair PLC; Tetra Tech, Inc.; and The Gorman-Rupp Company. The return of each component issuer of the Peer Group is weighted according to the respective issuer's stock market capitalization at the end of each period for which a return is indicated. Our stock price performance shown in the graph below is not indicative of future stock price performance.

The following graph and its related information is not "soliciting material," is not deemed "filed" with the Securities and Exchange Commission, and is not to be incorporated by reference into any filing of the Company under the 1933 Securities Act or 1934 Securities Exchange Act, whether made before or after the date hereof and irrespective of any general incorporation language contained in such filing.

COMPARISON OF FIVE-YEAR CUMULATIVE TOTAL RETURN *

Among Energy Recovery Inc., The NASDAQ Composite Index,

And A Peer Group

* Graph represents the value of $100 invested on December 31, 2011 in stock or index, including reinvestment of dividends as of the fiscal year ending December 31.

	12/31/11	**12/31/12**	**12/31/13**	**12/31/14**	**12/31/15**	**12/31/16**
Energy Recovery, Inc.	100.00	131.78	215.12	204.26	274.03	401.16
NASDAQ Composite Index	100.00	116.41	165.47	188.69	200.32	216.54
Peer Group	100.00	129.13	189.14	160.70	126.75	150.14

Item 6 — Selected Financial Data

The following selected financial data should be read in conjunction with “Item 7 – Management’s Discussion and Analysis of Financial Condition and Results of Operations” and “Item 8 – Financial Statements and Supplementary Data” included in this Report on Form 10-K.

	Years Ended December 31,				
	2016	**2015**	**2014**	**2013**	**2012**
Consolidated Statements of Operations Data:					
Product revenue	$49,715	$43,671	$30,426	$43,045	$42,632
Product cost of revenue	17,849	19,111	13,713	17,323	22,419
Product gross profit	31,866	24,560	16,713	25,722	20,213
License and development revenue	5,000	1,042	—	—	—
Operating expenses:					
General and administrative	16,626	19,773	14,139	15,192	15,146
Sales and marketing	9,116	9,326	10,525	7,952	7,290
Research and development	10,136	7,659	9,690	4,361	4,774
Amortization of intangible assets	631	635	842	921	1,042
Restructuring charges	—	—	—	184	369
Impairment of intangibles	—	—	—	—	1,020
Proceeds from litigation settlement	—	—	—	—	(775)
Total operating expenses	36,509	37,393	35,196	28,610	28,866
Income (loss) from operations	357	(11,791)	(18,483)	(2,888)	(8,653)
Other income (expense):					
Interest expense	(3)	(42)	—	—	(6)
Other non-operating income (expense), net	290	(139)	69	109	143
Income (loss) before income taxes	644	(11,972)	(18,414)	(2,779)	(8,516)
(Benefit from) provision for income taxes	(390)	(334)	291	327	(262)
Net income (loss)	$1,034	$(11,638)	$(18,705)	$(3,106)	$(8,254)
Income (loss) per share – basic	$0.02	$(0.22)	$(0.36)	$(0.06)	$(0.16)
Income (loss) per share – diluted	$0.02	$(0.22)	$(0.36)	$(0.06)	$(0.16)
Number of shares used in per share calculation:					
Basic	52,341	52,151	51,675	51,066	51,452
Diluted	55,451	52,151	51,675	51,066	51,452

	As of December 31,				
	2016	**2015**	**2014**	**2013**	**2012**
Consolidated Balance Sheets Data:					
Cash and cash equivalents	$61,364	$99,931	$15,501	$14,371	$16,642

Short-term investments	39,073	257	13,072	5,856	9,497
Long-term investments	—	—	267	13,694	4,773
Total assets	149,063	151,799	85,941	101,935	104,554
Long-term liabilities	66,772	72,116	4,501	4,338	4,317
Total liabilities	83,930	88,140	16,023	15,020	17,173
Total stockholders’ equity	65,133	63,659	69,918	86,915	87,381

Item 7 — Management's Discussion and Analysis of Financial Condition and Results of Operations

The following Management Discussion and Analysis of Financial Condition and Results of Operations is intended to help the reader understand our results of operations and financial condition. It should be read in conjunction with the Consolidated Financial Statements and related Notes included in "Item 8 – Financial Statements and Supplementary Data" in this Report.

Overview

Energy Recovery, Inc. (the "Company," "Energy Recovery," "our," "us," and "we") is an energy solutions provider to industrial fluid flow markets worldwide. Our core competencies are fluid dynamics and advanced material science. Our products make industrial processes more operating and capital expenditure efficient. Our solutions convert wasted pressure energy into a reusable asset and preserve or eliminate pumping technology in hostile processing environments. Our solutions are marketed and sold in fluid flow markets, such as water, oil & gas, and chemical processing, under the trademarks ERI®, PX®, Pressure Exchanger®, PX Pressure Exchanger®, AT™, AquaBold™, VorTeq™, IsoBoost® and IsoGen®. Our solutions are owned, manufactured, and/or developed, in whole or in part, in the United States of America, ("U.S.") and the Republic of Ireland.

Energy Recovery was incorporated in Virginia in 1992, reincorporated in Delaware in 2001, and became a public company in July 2008. We introduced the initial version of our Pressure Exchanger energy recovery device in early 1997 for sea water reverse osmosis desalination. In 2009, we acquired Pump Engineering, LLC, which manufactured centrifugal energy recovery devices, known as turbochargers, as well as high-pressure pumps. In 2012, we introduced the IsoBoost and IsoGen products for use in the oil & gas industry. In 2015, we conducted field trials for the VorTeq hydraulic fracturing solution ("VorTeq") also for use in the oil & gas industry for oil field hydraulic fracturing operations and entered into a fifteen-year license agreement with Schlumberger Technology Corporation (the "VorTeq Licensee"). In 2016, we received our first major purchase order for multiple units of our IsoBoost technology for integration into a major gas processing plant to be constructed in the Middle East.

Our reportable operating segments consist of the Water Segment and the Oil & Gas Segment. These segments are based on the industries in which the technology solutions are sold, the type of energy recovery device or other technology sold, and the related solution and service.

Water Segment

Our Water Segment consists of revenues and expenses associated with solutions sold for use in reverse osmosis desalination. Our Water Segment revenue is principally derived from the sale of energy recovery devices (“ERDs”), however, we also derive revenue from the sale of our high-pressure and circulation pumps, which we manufacture and sell in connection with our ERDs for use in desalination plants. Additionally, we receive revenue from the sale of spare parts and services, including start-up and commissioning services that we provide for our customers.

With respect to product revenue from our ERDs in our Water Segment, a significant portion of our revenue is typically generated by sales to a limited number of large engineering, procurement, and construction (“EPC”) firms, which are involved with the design and construction of larger desalination plants. Sales to these firms often involve a long sales cycle, which can range from sixteen (16) to thirty-six (36) months. A single large desalination project can generate an order for numerous ERDs and generally represents an opportunity for significant revenue. We also sell our devices to many small- to medium-sized original equipment manufacturers (“OEM”), which commission smaller desalination plants, order fewer ERDs per plant, and have shorter sales cycles.

We often experience substantial fluctuations in our Water Segment product revenue from quarter-to-quarter and from year-to-year because a single order for our ERDs by a large EPC firm for a particular plant may represent significant revenue. In addition, historically our EPC customers tend to order a significant amount of equipment for delivery in the fourth quarter, and as a consequence, a significant portion of our annual sales typically occurs during that quarter. Normal seasonality trends also generally lead to our lowest revenue being in the first quarter of the year.

A limited number of our customers account for a substantial portion of our product revenue and accounts receivable in the Water Segment. Revenue from customers representing 10% or more of product revenue in the Water Segment varies from period to period. For the years ended December 31, 2016, 2015, and 2014, one Water Segment customer per year accounted for approximately 11%, 14%, and 14%, respectively, of our total product revenue. See Note 14 — *“Concentrations”* in the Notes to the Consolidated Financial Statements in Item 8 of this Form 10-K for further details on customer concentration.

At December 31, 2016, one Water Segment customer accounted for 13% of our accounts receivable and unbilled receivable balance. At December 31, 2015, two Water Segment customers accounted for 26% and 18%, respectively, of our accounts receivable and unbilled receivable balance. See Note 14 — *"Concentrations"* in the Notes to the Consolidated Financial Statements in Item 8 of this Form 10-K for further details on customer concentration.

At December 31, 2016 and 2015, no Water Segment vendor accounted for more than 10% of our accounts payable balance. See Note 14 — *"Concentrations"* in the Notes to the Consolidated Financial Statements in Item 8 of this Form 10-K for further details on vendor concentration.

During the years ended December 31, 2016, 2015, and 2014, most of our Water Segment product revenue was attributable to sales outside of the United States. We expect sales outside of the United States to remain a significant portion of our revenue for the foreseeable future.

Oil & Gas Segment

Our Oil & Gas Segment consists of revenues and expenses associated with solutions sold or licensed for use in hydraulic fracturing, gas processing, and chemical processing. In the past several years, we have invested significant research and development costs to expand our business into pressurized fluid flow industries within the oil & gas industry.

In 2012, we introduced the IsoBoost and IsoGen products for use in the oil & gas industry. For the years ended December 31, 2014 and 2015, we recognized Oil & Gas Segment product revenue from the operating lease, subsequent lease buy-out, and commissioning services of an IsoGen system. For the year ended December 31, 2015, we also recognized Oil & Gas Segment product revenue related to the cancellation fee of a cancelled sales order for an IsoBoost system.

In 2014, we announced a new product for the hydraulic fracturing industry, the VorTeq. Field trials were initiated for the VorTeq in the second quarter of 2015 and completed in December 2015 with the successful delivery of proppant to a well located in the Bakken Formation.

In October 2015, through our subsidiary ERI Energy Recovery Ireland Ltd., we entered into a license agreement with the VorTeq Licensee ("VorTeq License Agreement"). The VorTeq License Agreement has a term of fifteen (15) years for the exclusive, worldwide right to use our VorTeq technology for hydraulic fracturing onshore operations. The VorTeq License Agreement includes $125 million in payments paid in stages: a $75 million upfront, exclusivity fee

payment and two separate $25 million payments upon successful achievement of two milestone tests. Following product commercialization, the VorTeq License Agreement includes recurring royalty payments throughout the fifteen-year term.

The revenue related to the VorTeq License Agreement exclusivity fee will be recognized pro-ratably over the fifteen-year agreement. Revenue from each milestone payment will be recognized when the milestone is reached. Revenue from the recurring royalty payments will be recognized when earned throughout the term of the agreement.

In 2016, we received our first major purchase order for multiple units of our IsoBoost technology for integration into a major gas processing plant to be constructed in the Middle East and we recognized Oil & Gas Segment product revenue using the percentage-of-completion method of accounting. For the years ended December 31, 2016, we recognized Oil & Gas Segment revenue related to our VorTeq License Agreement and product revenue related to the sale of the IsoBoost systems.

One customer accounted for 100% of our Oil &Gas Segment license and development revenue for 2016 and 2015, which represented 9% and 2% of our total revenue for the years ended December 31, 2016 and 2015, respectively. There was no Oil &Gas Segment license and development revenue recognized for 2014.

While one customer accounted for 100% of our Oil & Gas Segment product revenue for the year ended December 31, 2016, no Oil & Gas Segment customer accounted for more than 10% of our total product revenue for the years ended December 31, 2016, 2015, and 2014, respectively. See Note 14 – *"Concentrations"* in the Notes to the Consolidated Financial Statements in Item 8 of this Form 10-K for further details on customer concentration.

At December 31, 2016, one Oil & Gas Segment customer accounted for 16% of our accounts receivable and unbilled receivable balance. At December 31, 2015, no Oil & Gas Segment customer accounted for more than 10% of our accounts receivable and unbilled receivable balance. See Note 14 – *"Concentrations"* in the Notes to the Consolidated Financial Statements in Item 8 of this Form 10-K for further details on customer concentration.

At December 31, 2016, one Oil & Gas Segment vendor accounted for 18% of our accounts payable balance. At December 31, 2015, no Oil & Gas Segment vendor accounted for more than 10% of our accounts payable balance. See Note 14 – *"Concentrations"* in the Notes to the Consolidated Financial Statements in Item 8 of this Form 10-K for further details on vendor concentration.

During the years ended December 31, 2016, 2015, and 2014, all of our Oil & Gas Segment product revenue was attributable to sales outside of the United States.

Critical Accounting Policies and Estimates

Our Consolidated Financial Statements are prepared in accordance with generally accepted accounting principles ("GAAP") in the United States. These accounting principles require us to make estimates and judgments that can affect the reported amounts of assets and liabilities as of the date of the Consolidated Financial Statements as well as the reported amounts of revenue and expense during the periods presented. We believe that the estimates and judgments upon which we rely are reasonable based upon information available to us at the time that we make these estimates and judgments. To the extent that there are material differences between these estimates and actual results, our consolidated financial results will be affected. The accounting policies that reflect our more significant estimates and judgments and which we believe are the most critical to aid in fully understanding and evaluating our reported financial results are revenue recognition, including percentage-of-completion accounting for oil & gas projects; allowance for doubtful accounts; allowance for product warranty; valuation of stock options; valuation and impairment of goodwill and acquired intangible assets; valuation adjustments for excess and obsolete inventory; deferred taxes and valuation allowances on deferred tax assets; and evaluation and measurement of contingencies, including contingent consideration.

The following is not intended to be a comprehensive list of all of our accounting policies or estimates. Our accounting policies are more fully described in Note 2 – "*Summary of Significant Accounting Policies,"* included in "Item 8 — Financial Statements and Supplementary Data" in this Report.

Revenue Recognition

Product and service revenue recognition – Water Segment

We recognize revenue when the earnings process is complete, as evidenced by a written agreement with the customer, transfer of title, fixed pricing that is determinable, and collection that is reasonably assured. Transfer of title typically occurs upon shipment of the equipment pursuant to a written purchase order or contract. The portion of the sales agreement related to the field services and training for commissioning of our devices in a desalination plant is deferred until we have performed such services. We regularly evaluate our revenue arrangements to identify deliverables and to determine whether these deliverables are separable into multiple units of accounting.

Under our revenue recognition policy, evidence of an arrangement is met when we have an executed purchase order, sales order, or stand-alone contract. Typically, smaller projects utilize sales or purchase orders that conform to standard terms and conditions.

The specified product performance criteria for our PX ERD pertain to the ability of our product to meet its published performance specifications and warranty provisions, which our products have demonstrated on a consistent basis. This factor, combined with historical performance metrics, provides our management with a reasonable basis to conclude that the PX ERDs will perform satisfactorily upon commissioning of the plant. To ensure this successful product performance, we provide service consisting principally of supervision of customer personnel and training to the customers during the commissioning of the plant. The installation of the PX ERDs is relatively simple, requires no customization, and is performed by the customer under the supervision of our personnel. We defer the value of the service and training component of the contract and recognize such revenue as services are rendered. Based on these factors, our management has concluded that, for sale of PX ERDs, as well as for turbochargers and pumps, delivery and performance have been completed upon shipment or delivery when title transfers based on the shipping terms.

We perform an evaluation of customer credit worthiness on an individual contract basis to assess whether collectability is reasonably assured. As part of this evaluation, our management considers many factors about the individual customer, including the underlying financial strength of the customer and/or partnership consortium and management's prior history or industry-specific knowledge about the customer and its supplier relationships. For smaller projects, we require the customer to remit payment generally within 30 to 90 days after product delivery. In some cases, if credit worthiness cannot be determined, prepayment or other security is required.

We establish separate units of accounting for contracts, as our contracts with customers typically include one or both of the deliverables, products or commissioning, and there is no right of return under the terms of the contract.

Commissioning includes supervision of the installation, start-up, and training to ensure that the installation performed by the customer, which is relatively simple and straightforward, is completed consistent with the recommendations under the factory warranty. The commissioning services' element of our contracts represents an incidental portion of the total contract price. The allocable consideration for these services relative to that for the underlying products has been well under 1% of any arrangement. Commissioning is often bundled into the large stand-alone contracts, and we frequently sell products without commissioning since our product can be easily installed in a plant without supervision. These facts and circumstances validate that the delivered element has value on a stand-alone basis and should be considered a separate unit of accounting.

Having established separate units of accounting, we then allocate amounts to each unit of accounting. With respect to products, we have established vendor specific objective evidence ("VSOE") based on the price at which such products are sold separately without commissioning services. With respect to commissioning, we charge out our engineers for field visits to customers based on a stand-alone standard daily field service charge as well as a flat service rate for travel, if applicable. This has been determined to be the VSOE of the service based on stand-alone sales of other comparable professional services at consistent pricing.

The amount allocable to the delivered unit of account (in our case the product) is limited to the amount that is not contingent upon the delivery of additional items or meeting specified performance conditions. We adhere to consistent pricing in both stand-alone sale of products and professional services and the contractual pricing of products and commissioning of services in bundled arrangements.

For large projects, stand-alone contracts are utilized. For these contracts, consistent with industry practice, our customers typically require their suppliers, including Energy Recovery, to accept contractual holdback provisions (also referred to as a retention payment) whereby the final amounts due under the sales contract are remitted over extended periods of time or alternatively, stand-by letters of credit are issued to guarantee performance. These retention payments are generally 10% or less of the total contract amount and are due and payable when the customer is satisfied that certain specified product performance criteria have been met upon commissioning of the desalination plant, which may be up to twenty-four (24) months from the date of product delivery as described further below.

Under stand-alone contracts, the usual payment arrangements are summarized as follows:

- an advance payment due upon execution of the contract, typically 10% to 20% of the total contract amount. This advance payment is accounted for as deferred revenue until shipment or when products are delivered to the customer, depending on the Incoterms and transfer of title;

- a payment ranging from 50% to 70% of the total contract is typically due upon delivery of the product. This payment is often divided into two parts. The first part, which is due thirty (30) to sixty (60) days following delivery of the product and documentation, is invoiced upon shipment when the product revenue is recognized and results in an open accounts receivable with the customer. The second part is typically due ninety (90) to one hundred twenty (120) days following product delivery and documentation. This payment is booked to unbilled receivables upon shipment when the product revenue is recognized, and it is invoiced to the customer upon notification that the equipment has been received or when the time period has expired. We have no performance obligation to complete to be legally entitled to this payment. It is invoiced based on the passage of time.

- a final retention payment of generally 10% or less of the contract amount is due either at the completion of plant commissioning or upon the issuance of a stand-by letter of credit, which is typically issued up to twenty-four (24) months from the delivery date of products and documentation. This payment is recorded to unbilled receivables upon shipment when the product revenue is recognized, and it is invoiced to the customer when it is determined that commissioning is complete or the stand-by letter of credit has been issued. This payment is not contingent upon the delivery of commissioning services. The Company had no performance obligation to complete to be legally entitled to this payment. It is invoiced based on the passage of time.

We do not provide our customers with a right of product return; however, we will accept returns of products that are deemed to be damaged or defective when delivered that are covered by the terms and conditions of the product warranty. Product returns have not been significant.

Shipping and handling charges billed to customers are included in product revenue. The cost of shipping to customers is included in cost of revenue.

License, milestone payment, and royalty revenue recognition – Oil & Gas Segment

License and development revenue is comprised of the amortization of the upfront non-refundable $75 million exclusivity fee received in connection with the VorTeq License Agreement. See Note 16 – *VorTeq License Agreement* in the Notes to the Consolidated Financial Statements in Item 8 of this Form 10-K. The VorTeq License Agreement comprises a fifteen-year exclusivity license for our VorTeq technology, milestone payments upon achievement of successful tests in accordance with the Key Performance Indicators (“KPIs”) and, after commercialization is achieved, royalty payments for the supply and servicing of certain components of the VorTeq. All payments are non-refundable.

We recognize license and development revenue in accordance with ASC 605 “Revenue Recognition,” subtopic ASC 605-25 “Revenue with Multiple Element Arrangements” and subtopic ASC 605-28 “Revenue Recognition-Milestone Method,” which provides accounting guidance for revenue recognition for arrangements with multiple deliverables and guidance on defining the milestone and determining when the use of the milestone method of revenue recognition is appropriate, respectively.

For multiple-element arrangements, each deliverable is accounted for as a separate unit of accounting if both the following criteria are met: (1) the delivered item or items have value to the customer on a standalone basis and (2) for an arrangement that includes a general right of return relative to the delivered item(s), delivery or performance of the undelivered item(s) is considered probable and substantially in our control. Contingent deliverables within multiple element arrangements are excluded from the evaluation of the units of accounting. Non-refundable, upfront license fees where we have continuing obligation to perform are recognized over the period of the continuing performance obligation. The VorTeq License Agreement was determined to include a single unit of accounting. The initial upfront

fee of $75 million is recognized on a straight-line basis over the fifteen-year term of the arrangement based on the performance period of the last or final deliverables, which include the license and support.

We recognize revenue from milestone payments when: (i) the milestone event is substantive and its achievability has substantive uncertainty at the inception of the agreement, and (ii) it does not have ongoing performance obligations related to the achievement of the milestone earned. Milestone payments are considered substantive if all of the following conditions are met, the milestone payment: (a) is commensurate with either the Company's performance subsequent to the inception of the arrangement to achieve the milestone or the enhancement of the value of the delivered item or items as a result of a specific outcome resulting from the Company's performance subsequent to the inception of the arrangement to achieve the milestone; (b) relates solely to past performance; and (c) is reasonable relative to all of the deliverables and payment terms (including other potential milestone consideration) within the arrangement. The VorTeq License Agreement includes two substantive milestones of $25 million each due on achievement of successful tests in accordance with KPIs. No revenues associated with achievement of the milestones have been recognized to date.

Percentage-of-completion revenue recognition – Oil & Gas Segment

IsoBoost and IsoGen systems are highly engineered, customized solutions that are designed and manufactured over an extended period of time and are built specifically to meet a customer's specifications. It is the Company's position that percentage-of-completion method of accounting is appropriate for IsoBoost and IsoGen systems given the facts and circumstances of these projects. In the event that a purchase order for an IsoBoost or IsoGen does not meet these facts and circumstances, then percentage-of-completion method of accounting does not apply.

Revenue from fixed price contracts is recognized using the percentage-of-completion method of accounting in the ratio of costs incurred to estimated final costs. Contract costs include all direct material and labor costs related to contract performance. Pre-contract costs with no future benefit are expensed in the period in which they are incurred. Since the financial reporting of these contracts depends on estimates, which are assessed continually during the term of the contract, recognized revenues and profit are subject to revisions as the contract progresses to completion. Revisions in profit estimates are reflected in the period in which the facts that give rise to the revisions become known. If material, the effects of any changes in estimates are disclosed in the notes to the consolidated financial statements. When estimates indicate that a loss will be incurred on a contract, a provision for the expected loss is recorded in the period in which the loss becomes evident. No loss has been incurred to date. Revenue is recognized only to the extent costs have been recognized in the same period.

Allowances for Doubtful Accounts

We record a provision for doubtful accounts based on historical experience and a detailed assessment of the collectability of our accounts receivable. In estimating the allowance for doubtful accounts, we consider, among other factors, the aging of the accounts receivable, our historical write-offs, the credit worthiness of each customer, and general economic conditions. Account balances are charged off against the allowance when we believe that it is probable that the receivable will not be recovered. Actual write-offs may be in excess of our estimated allowance.

Warranty Costs

We sell products with a limited warranty for a period ranging from eighteen (18) months to five (5) years. We accrue for warranty costs based on estimated product failure rates, historical activity, and expectations of future costs. Periodically, we evaluate and adjust the warranty costs to the extent that actual warranty costs vary from the original estimates.

During the year ended December 31, 2015, we adjusted previously established warranty reserves. The adjustment related to expired warranties, which increased gross profit and reduced net loss by $0.4 million.

Stock-based Compensation

We measure and recognize stock-based compensation expense based on the fair value measurement for all stock-based awards made to our employees and directors — including restricted stock units ("RSUs"), restricted shares ("RS"), and employee stock options — over the requisite service period (typically the vesting period of the awards). The fair value of RSUs and RS is based on our stock price on the date of grant. The fair value of stock options is calculated on the date of grant using the Black-Scholes option pricing model, which requires a number of complex assumptions including expected life, expected volatility, risk-free interest rate, and dividend yield. The estimation of awards that will ultimately vest requires judgment, and to the extent that actual results or updated estimates differ from our current estimates, such amounts are recorded as a cumulative adjustment in the period in which the estimates are revised. See Note 12 – *"Stock-based Compensation"* in the Notes to the Consolidated Financial Statements in Item 8 of this Form 10-K for further discussion of stock-based compensation.

Goodwill and Other Intangible Assets

The purchase price of an acquired company is allocated between intangible assets and the net tangible assets of the acquired business with the residual purchase price recorded as goodwill. The determination of the value of the intangible assets acquired involves certain judgments and estimates. These judgments can include, but are not limited to, the cash flows that an asset is expected to generate in the future and the appropriate weighted average cost of capital.

Acquired intangible assets with determinable useful lives are amortized on a straight-line or accelerated basis over the estimated periods benefited, ranging from one (1) to twenty (20) years. Acquired intangible assets with contractual terms are amortized over their respective legal or contractual lives. Customer relationships and other non-contractual intangible assets with determinable lives are amortized over periods ranging from five (5) to twenty (20) years.

We evaluate the recoverability of intangible assets by comparing the carrying amount of an asset to estimated future net undiscounted cash flows generated by the asset. If such assets are considered to be impaired, the impairment recognized is measured as the amount by which the carrying amount of the assets exceeds the fair value of the assets. The evaluation of recoverability involves estimates of future operating cash flows based upon certain forecasted assumptions, including, but not limited to, revenue growth rates, gross profit margins, and operating expenses over the expected remaining useful life of the related asset. A shortfall in these estimated operating cash flows could result in an impairment charge in the future.

Goodwill is not amortized, but is evaluated annually for impairment at the reporting unit level or when indicators of a potential impairment are present. We estimate the fair value of the reporting unit using the discounted cash flow and market approaches. Forecast of future cash flows are based on our best estimate of future net sales and operating expenses, based primarily on expected category expansion, pricing, market segment, and general economic conditions.

As of December 31, 2016 and 2015, acquired intangibles, including goodwill, relate to the acquisition of Pump Engineering, LLC during the fourth quarter of 2009. See Note 6 – *"Goodwill and Intangible Assets"* in the Notes to the Consolidated Financial Statements for further discussion of intangible assets.

Inventories

Inventories are stated at the lower of cost (using the first-in, first-out "FIFO" method) or market. We calculate inventory valuation adjustments for excess and obsolete inventory based on current inventory levels, movement, expected useful lives, and estimated future demand of the products and spare parts.

Income Taxes

Current and non-current tax assets and liabilities are based upon an estimate of taxes refundable or payable for each of the jurisdictions in which we are subject to tax. In the ordinary course of business, there is inherent uncertainty in quantifying income tax positions. We assess income tax positions and record tax benefits for all years subject to

examination based upon our evaluation of the facts, circumstances, and information available at the reporting dates. For those tax positions where it is more likely than not that a tax benefit will be sustained, we record the largest amount of tax benefit with a greater than 50% likelihood of being realized upon ultimate settlement with a taxing authority that has full knowledge of all relevant information. For those income tax positions where it is not more likely than not that a tax benefit will be sustained, no tax benefit is recognized in the financial statements. When applicable, associated interest and penalties are recognized as a component of income tax expense. Accrued interest and penalties are included within the related tax asset or liability on the Consolidated Balance Sheets.

Deferred income taxes are provided for temporary differences arising from differences in bases of assets and liabilities for tax and financial reporting purposes. Deferred income taxes are recorded on temporary differences using enacted tax rates in effect for the year in which the temporary differences are expected to reverse. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in income in the period that includes the enactment date. Deferred tax assets are reduced by a valuation allowance when, in the opinion of management, it is more likely than not that some portion or all of the deferred tax assets will not be realized. Significant judgment is required in determining whether and to what extent any valuation allowance is needed on our deferred tax assets. In making such a determination, we consider all available positive and negative evidence including recent results of operations, scheduled reversals of deferred tax liabilities, projected future income, and available tax planning strategies. As of December 31, 2016, we have a valuation allowance of approximately $21.1 million to reduce our U.S. deferred income tax assets to the amount expected to be realized. See Note 10 – *"Income Taxes"* in the Notes to the Consolidated Financial Statements in Item 8 of this Form 10-K for further discussion of the tax valuation allowance.

We have recorded a valuation allowance against all of our U.S. deferred tax assets as of December 31, 2016. We intend to continue maintaining a full valuation allowance on our U.S. deferred tax assets until there is sufficient evidence to support the reversal of all or some portion of this allowance. However, given our current earnings and anticipated future earnings, we believe that there is a reasonable possibility that within the next twelve (12) months, sufficient positive evidence may become available to allow us to reach a conclusion that a significant portion of the valuation allowance will no longer be needed. Release of the valuation allowance would result in the recognition of certain deferred tax assets and a decrease in income tax expense for the period the release is recorded. However, the exact timing and amount of the valuation allowance release are subject to change on the basis of the level of profitability that we are able to actually achieve.

Our operations are subject to income and transaction taxes in the U.S. and in foreign jurisdictions. Significant estimates and judgments are required in determining our worldwide provision for income taxes. Some of these estimates are based on interpretations of existing tax laws or regulations. The ultimate amount of tax liability may be uncertain as a result.

Results of Operations

2016 Compared to 2015

Total revenue

	For the Year Ended December 31,				Change	
	2016		2015		Increase (Decrease)	
Product revenue	$49,715	91 %	$43,671	98 %	$6,044	14 %
License and development revenue	5,000	9 %	1,042	2 %	3,958	380 %
Total revenue	$54,715	100 %	$44,713	100 %	$10,002	22 %

Product revenue

	For the Year Ended December 31,			
Segment	**2016**	**2015**	**$ Change**	**% Change**
Water	$47,545	$43,530	$ 4,015	9 %
Oil & Gas	2,170	141	2,029	1,439 %
Total product revenue	$49,715	$43,671	$ 6,044	14 %

Total product revenue increased by $6.0 million, or 14%, to $49.7 million in 2016 from $43.7 million in 2015. Of the $6.0 million increase, $4.0 million was attributable to the Water Segment and $2.0 million was attributable to the Oil & Gas Segment.

The increase in Water Segment product revenue was primarily due to higher mega-project (MPD), OEM, and aftermarket shipments in 2016 as compared to 2015. Of the $4.0 million increase in our Water Segment product revenue, $1.9 million related to MPD sales, $1.2 million related to OEM sales, $0.9 million related to aftermarket sales.

Of the $2.0 million increase in Oil & Gas Segment product revenue, $2.2 million was due to the percentage-of-completion revenue recognition associated with the sale of multiple IsoBoost systems. The increase was offset by ($0.2) million related to the commissioning of an IsoGen system and the cancellation of a purchase order for an IsoBoost in early 2015.

Product revenue attributable to domestic and international sales as a percentage of total product revenue was as follows:

	For the Year Ended December 31,	
	2016	**2015**
Domestic revenue	2 %	7 %
International revenue	98 %	93 %
Total product revenue	100 %	100 %

License and development revenue

	For the Year Ended December 31,			
Segment	**2016**	**2015**	**$ Change**	**% Change**
Water	$—	$—	$ —	—
Oil & Gas	5,000	1,042	3,958	380 %
License and development revenue	$5,000	$1,042	$ 3,958	380 %

License and development revenue increased by $4.0 million, or 380%, to $5.0 million in 2016 from $1.0 million in 2015. In October 2015, we entered into a fifteen-year exclusive license agreement with the VorTeq Licensee for the use of our VorTeq technology and received a $75 million up-front exclusivity fee. The increase of $4.0 million in license and development revenue in 2016 compared to 2015 was due to the recognition of a full year of amortization of the deferred revenue compared to a partial year of amortization in 2015 related to this license agreement.

License and development revenue attributable to domestic and international sales as a percentage of total license and development revenue was as follows:

	For the Year Ended December 31, 2016	2015
Domestic revenue	—	—
International revenue	100%	100 %
Total license and development revenue	100%	100 %

Product gross profit

	Year Ended December 31, 2016			Year Ended December 31, 2015		
	Water	**Oil &Gas**	**Total**	**Water**	**Oil &Gas**	**Total**
Product gross profit	$31,192	$ 674	$31,866	$24,485	$ 75	$24,560
Product gross margin	66 %	31 %	64 %	56 %	53 %	56 %

Product gross profit represents our product revenue less our product cost of revenue. Our product cost of revenue consists primarily of raw materials, personnel costs (including stock-based compensation), manufacturing overhead, warranty costs, depreciation expense, and manufactured components.

Product gross profit increased by $7.3 million, or 30%, to $31.9 million in 2016 from $24.6 million in 2015. For the year ended December 31, 2016, product gross margin (total product gross profit as a percentage of product revenue) was 64% compared to 56% for the year ended December 31, 2015.

The increase in product gross profit in 2016 compared to 2015 was primarily due to increased sales volume, favorable product price and mix, and increased operational efficiencies.

Manufacturing headcount decreased to 40 for the year ended December 31, 2016 from 42 for the year ended December 31, 2015.

Stock-based compensation expense included in cost of revenue was $0.1 million for the year ended December 31, 2016 and $0.1 million for the year ended December 31, 2015.

Operating expenses

	For the Year Ended December 31,				Change	
	2016		2015		Increase (Decrease)	
Total revenue	$54,715	100%	$44,713	100%	$10,002	22 %
Operating expenses:						
General and administrative	16,626	30 %	19,773	44 %	(3,147)	(16%)
Sales and marketing	9,116	17 %	9,326	21 %	(210)	(2 %)
Research and development	10,136	19 %	7,659	17 %	2,477	32 %
Amortization of intangible assets	631	1 %	635	1 %	(4)	(1 %)
Total operating expenses	$36,509	67 %	$37,393	84 %	$(884)	(2 %)

General and administrative

General and administrative expense decreased by ($3.2) million, or 16%, to $16.6 million in 2016 from $19.8 million in 2015. Of the($3.2) million decrease in general and administrative expense, ($2.1) million related to professional, legal, and other administrative costs and ($1.1) million related to stock-based compensation expense.

General and administrative headcount increased to 30 for the year ended December 31, 2016 from 26 for the year ended December 31, 2015.

Stock-based compensation expense included in general and administrative expense was $2.1 million for the year ended December 31, 2016 and $3.1 million for the year ended December 31, 2015. The decrease in stock-based compensation is primarily related to the decrease of non-recurring expenses associated with the accelerated vesting and modification of options connected to the resignation of the former Chief Executive Officer in the first quarter of 2015.

Sales and marketing

Sales and marketing expense decreased by ($0.2) million, or 2%, to $9.1 million in 2016 from $9.3 million in 2015. Of the ($0.2) million decrease in sales and marketing expense, ($0.4) million related to compensation, sales commissions, and employee-related benefits, which was partially offset by a $0.2 million increase related to bonuses.

Sales and marketing headcount decreased to 28 for the year ended December 31, 2016 from 29 for the year ended December 31, 2015.

Stock-based compensation expense included in sales and marketing expense was $0.5 million for the year ended December 31, 2016 and $0.4 million for the year ended December 31, 2015.

Research and development

Research and development expense increased by $2.4 million, or 32%, to $10.1 million in 2016 from $7.7 million in 2015. Of the $2.4 million increase in research and development expense, $1.2 million related to direct research and development project costs associated with new product initiatives and $1.2 million related to compensation and employee-related benefits.

Research and development headcount increased to 22 for the year ended December 31, 2016 from 17 for the year ended December 31, 2015.

Stock-based compensation expense included in research and development expense was $569,000 for the year ended December 31, 2016 and $354,000 for the year ended December 31, 2015.

Amortization of intangible assets

Amortization of intangible assets is related to finite-lived intangible assets acquired as a result of our purchase of Pump Engineering, LLC in December 2009. Amortization expense decreased by ($0.004) million, or 1%, to $0.6 million in 2016 from $0.6 million in 2015.

Other income (expense)

	For the Year Ended December 31,				Change	
	2016		2015		Increase (Decrease)	
Total revenue	$54,715	100%	$44,713	100%	$10,002	22 %
Other income (expense):						
Interest expense	(3)	*	(42)	*	39	93 %
Other non-operating income (expense), net	290	1 %	(139)	*	429	309%
Total other (expense) income	$287	1 %	$(181)	*	$468	259%

* less than 1%

Other income (expense) increased by $0.5 million, or 259%, to income of $0.3 million in 2016 from an expense of ($0.2) million in 2015. The increase was due to higher interest income; lower interest expense; the favorable disposition of foreign currency options; and favorable foreign currency exchange in 2016 compared to 2015.

Income taxes

Our income tax benefit was $0.4 million for the year ended December 31, 2016 compared to a tax benefit of $0.3 million for the year ended December 31, 2015. The tax benefit of $0.4 million for the year ended December 31, 2016, consisted of $0.7 million benefit related to the losses in our Ireland subsidiary which was partially offset by tax expense of ($0.3) million related to the deferred tax effects associated with the amortization of goodwill and other taxes.

The tax benefit of $0.3 million for the year ended December 31, 2015, consisted of $0.6 million benefit related to the losses in our Ireland subsidiary which was partially offset by tax expense of ($0.3) million related to the deferred tax effects associated with the amortization of goodwill and other taxes.

2015 Compared to 2014

Total revenue

	For the Year Ended December 31,				Change	
	2015		2014		Increase (Decrease)	
Product revenue	$43,671	98 %	$30,426	100%	$13,245	44%
License and development revenue	1,042	2 %	—	—	1,042	—
Total revenue	$44,713	100%	$30,426	100%	$14,287	47%

Product revenue

Segment	For the Year Ended December 31, 2015	2014	$ Change	% Change
Water	$43,530	$29,643	$13,887	47 %
Oil & Gas	141	783	(642)	(82 %)
Total product revenue	$43,671	$30,426	$13,245	44 %

Total product revenue increased by $13.2 million, or 44%, to $43.7 million in 2015 from $30.4 million in 2014. Of the $13.2 million increase, $13.8 million was attributable to the Water Segment, which was partially offset by a decrease of ($0.6) million in the Oil & Gas Segment.

The increase in Water Segment product revenue was primarily due to significantly higher MPD, OEM, and aftermarket shipments in 2015 as compared to 2014. Of the $13.2 million increase in Water Segment product revenue, $9.8 million related to MPD sales, $2.8 million related to OEM sales, $1.2 million related to aftermarket sales.

The decrease in Oil & Gas Segment product revenue of ($0.6) million related to the lease buy-out of an IsoGen system in 2014 and the commissioning of that system in early 2015.

Product revenue attributable to domestic and international sales as a percentage of total product revenue was as follows:

	For the Year Ended December 31,	
	2015	**2014**
Domestic revenue	7 %	4 %
International revenue	93 %	96 %
Total product revenue	100 %	100 %

License and development revenue

	For the Year Ended December 31,			
Segment	**2015**	**2014**	**$ Change**	**% Change**
Water	$—	$ —	$ —	—
Oil & Gas	1,042	—	1,042	—
License and development revenue	$1,042	$ —	$ 1,042	—

License and development revenue increased by $1.0 million, to $1.0 million in 2015 from zero in 2014. In October 2015, we entered into a fifteen-year exclusive license agreement with the VorTeq Licensee for the use of our VorTeq technology and received a $75 million up-front exclusivity fee. The increase in license and development revenue in 2015 was due to the recognition of a partial year of amortization in 2015 related to this license agreement.

License and development revenue attributable to domestic and international sales as a percentage of total license and development revenue was as follows:

	For the Year Ended December 31,	
	2015	2014
Domestic revenue	—	—
International revenue	100 %	—
Total license and development revenue	100 %	—

Product gross profit

	Year Ended December 31, 2015			Year Ended December 31, 2014		
	Water	Oil &Gas	Total	Water	Oil &Gas	Total
Product gross profit	$24,485	$ 75	$24,560	$15,930	$ 783	$16,713
Product gross margin	56 %	53 %	56 %	54 %	100 %	55 %

Product gross profit increased by $7.9 million, or 47%, to $24.6 million in 2015 from $16.7 million in 2014. For the year ended December 31, 2015, total product gross margin was 56% compared to 55% for the year ended December 31, 2014.

The increase in total product gross profit in 2015 compared to 2014 was primarily due to higher production volume and a shift in product mix toward PX ERDs due to increased MPD sales volume in the Water Segment as well as increased operational efficiencies. The increase in product gross profit in the Water Segment was slightly offset by a decrease in the product gross profit of the Oil & Gas Segment due to cost associated with the commissioning of an IsoGen in 2015.

Manufacturing headcount increased to 42 for the year ended December 31, 2015 from 38 for the year ended December 31, 2014.

Stock-based compensation expense included in cost of revenue was $0.1 million for the year ended December 31, 2015 and $0.1 million for the year ended December 31, 2014.

Operating expenses

	For the Year Ended December 31,				Change	
	2015		2014		Increase (Decrease)	
Total revenue	$44,713	100%	$30,426	100%	$14,287	47 %
Operating expenses:						
General and administrative	19,773	44 %	14,139	46 %	5,634	40 %
Sales and marketing	9,326	21 %	10,525	35 %	(1,199)	(11%)
Research and development	7,659	17 %	9,690	32 %	(2,031)	(21%)
Amortization of intangible assets	635	1 %	842	3 %	(207)	(25%)
Total operating expenses	$37,393	84 %	$35,196	116%	$2,197	6 %

General and administrative

General and administrative expense increased by $5.7 million, or 40%, to $19.8 million in 2015 from $14.1 million in 2014. Of the $5.7 million increase in general and administrative expense, $2.0 million related to increased stock-based compensation expense, including non-recurring expense associated with the resignation of our former Chief Executive Officer in January 2015; $1.8 million related to compensation and employee-related benefits, that included non-recurring termination benefits associated with a reduction in force in the first quarter of 2015; $1.1 million related to professional, legal, and other administrative costs, including non-recurring expenses related to the termination of the former Senior Vice-President of Sales in 2014; $0.9 million related to the reversal of VAT in the first quarter of 2014 that was expensed in 2011 and prior years; $0.4 million related to bad debt expense, occupancy costs, and other taxes; and $0.2 million related to the fair value remeasurement of the contingent consideration related to the acquisition of Pump Engineering which was settled in 2014. Partially offsetting these increases was a decrease of ($0.7) million in other general and administrative miscellaneous costs.

General and administrative headcount decreased to 26 for the year ended December 31, 2015 from 28 for the year ended December 31, 2014.

Stock-based compensation expense included in general and administrative expense was $3.1 million for 2015 and $1.2 million for 2014. The increase in stock-based compensation is primarily related to the increased value of options granted to non-employee directors in February 2015, the full vesting of restricted shares granted to a non-employee director in December 2014, and non-recurring expenses related to the accelerated vesting and modification of options associated with the resignation of our former Chief Executive Officer in the first quarter of 2015.

Sales and marketing

Sales and marketing expense decreased by ($1.2) million, or 11%, to $9.3 million in 2015 from $ 10.5 million in 2014. Of the ($1.2) million decrease in sales and marketing expense, ($1.3) million related to marketing, professional, occupancy, and other sales and marketing costs and ($0.7) million related to compensation and employee-related benefits. The decreases were partially offset by an increase of $0.8 million related to sales commissions and bonuses.

Sales and marketing headcount decreased to 29 for the year ended December 31, 2015 from 36 for the year ended December 31, 2014.

Stock-based compensation expense included in sales and marketing expense was $436,000 for the year ended December 31, 2015 and $487,000 for the year ended December 31, 2014.

Research and development

Research and development expense decreased by ($2.0) million, or 21%, to $7.7 million in 2015 from $9.7 million in 2014. Of the ($2.0) million decrease in research and development expense, ($2.4) million related to direct research and development project costs associated with new product initiatives and ($0.3) million related to consulting and professional services. The decreases were partially offset by an increase of $0.7 million related to compensation, employee-related benefits, and occupancy costs.

Research and development headcount decreased to 17 for the year ended December 31, 2015 from 22 for the year ended December 31, 2014.

Stock-based compensation expense included in research and development expense was $0.4 million for the year ended December 31, 2015 and $0.3 million for the year ended December 31, 2014.

Amortization of intangible assets

Amortization expense decreased by ($0.2) million, or 25%, to $0.6 million in 2015 from $0.8 million in 2014. The decrease was due to the full amortization of all intangibles, except developed technology, in November of 2014.

Other income (expense)

	For the Year Ended December 31,				Change	
	2015		2014		Increase (Decrease)	
Total revenue	$44,713	100%	$30,426	100%	$14,287	47 %
Other income (expense):						
Interest expense	(42)	*	—	*	(42)	*
Other non-operating income (expense), net	(139)	*	69	*	(208)	(301%)
Total other (expense) income	$(181)	*	$69	*	$(250)	(362%)

* less than 1%

Other income (expense) decreased by ($0.3) million, or 362%, to an expense of ($0.2) million in 2015 from income of $0.1 million in 2014. The decrease was due to lower interest income; higher interest expense; unfavorable fair value re-measurement of put foreign currency options; and favorable foreign currency exchange in 2015 compared to 2014.

Income taxes

Our income tax benefit was $0.3 million for the year ended December 31, 2015 compared to a tax provision of ($0.3) million for the year ended December 31, 2014. The tax benefit of $0.3 million for the year ended December 31, 2015, consisted of $0.6 million benefit related to the losses in our Ireland subsidiary. The benefit was partially offset by tax expense of ($0.3) million related to the deferred tax effects associated with the amortization of goodwill and other taxes.

The tax provision of ($0.3) million for the year ended December 31, 2014, consisted of tax expense of ($0.3) million related to the deferred tax effects associated with the amortization of goodwill and state and other taxes. The tax expenses were offset by a tax benefit associated with foreign currency translation adjustments recorded in other comprehensive income.

Liquidity and Capital Resources

Historically, our primary sources of cash are proceeds from customer payments for our products and services and the issuance of common stock. In October 2015, we received a payment of $75 million for an exclusive license to our VorTeq. From January 1, 2005 through December 31, 2016, we issued common stock for aggregate net proceeds of $94.8 million, excluding common stock issued in exchange for promissory notes. The proceeds have been used to fund our operations and capital expenditures.

As of December 31, 2016, our principal sources of liquidity consisted of unrestricted cash and cash equivalents of $61.4 million, some of which is invested in money market funds; short-term investments in marketable debt securities of $39.1 million; and accounts receivable of $11.8 million. We generally invest cash not needed for current operations predominantly in high-quality, investment-grade, and marketable debt instruments with the intent to make such funds available for operating purposes as needed.

We currently have unbilled receivables pertaining to customer contractual holdback provisions, whereby we will invoice the final retention payment(s) due under certain sales contracts in the next six (6) to twenty-four (24) months. The customer holdbacks represent amounts intended to provide a form of security for the customer; accordingly, these receivables have not been discounted to present value. At December 31, 2016 and 2015, we had $0.2 million and $1.9 million, respectively, of short-term and long-term unbilled receivables.

In June 2012, we entered into a loan agreement with a financial institution. The loan agreement was amended in June 2015, (as amended, the "Loan Agreement"). The Loan Agreement provides for a total available credit line of $16.0 million. Under the Loan Agreement, we are allowed to draw advances not to exceed the lesser of the $16 million credit line or the credit line minus all outstanding revolving loans. Revolving loans may be in the form of a base rate loan that bears interest equal to the prime rate or a Eurodollar loan that bears interest equal to the adjusted LIBOR rate plus 1.25%. Stand-by letters of credit are subject to customary fees and expenses for issuance or renewal. The unused portion of the credit facility is subject to a facility fee in an amount equal to 0.25% per annum of the average unused portion of the revolving line. The Loan Agreement also requires us to maintain a cash collateral balance equal to 101% of all outstanding advances and all outstanding stand-by letters of credit collateralized by the line of credit. The Loan Agreement matures in June 2018 and is collateralized by substantially all of our assets. As of December 31, 2016 and 2015, there were no advances drawn under the Loan Agreement. This Loan Agreement was terminated on January 24, 2017.

As of December 31, 2016, the amount outstanding on stand-by letters of credit collateralized under the Loan Agreement totaled $3.1 million, and restricted cash related to the stand-by letters of credit issued under the Loan Agreement was $3.1 million. Of the $3.1 million in restricted cash, $1.0 million was classified as current and $2.1 million was classified as non-current.

We are subject to certain financial and administrative covenants under the Loan Agreement. As of December 31, 2016, we were in compliance with these covenants.

At December 31, 2016, we also had stand-by letters of credit collateralized by restricted cash at two other financial institutions totaling $1.3 million. Total restricted cash related to these stand-by letters of credit totaled $1.3 million as of December 31, 2016, all of which was classified as current.

On January 27, 2017, we entered into a loan and pledge agreement (the "Loan and Pledge Agreement") with another financial institution. The Loan and Pledge Agreement provides for a committed revolving credit line of $16.0 million and an uncommitted revolving credit line of $4.0 million. Under the Loan and Pledge Agreement we are allowed to borrow and request letters of credit against the eligible assets held from time to time in the pledged account maintained with the financial institution. Stand-by letters of credit are secured by pledged U.S. investments and there is no cash collateral balance required. Stand-by letters of credit are subject to fees, in an amount equal to 0.7% per annum of the face amount of the letter of credit, that are payable quarterly and are non-refundable. Revolving loans incur interest per annum on the base rate equal to the LIBOR rate plus the Margin defined as 1.5%. Any default bears the aforementioned interest plus an additional 2%. The unused portion of the credit line is subject to a fee equal to the product of 0.20% per annum multiplied by the difference, if positive, between $16.0 million and the average daily balance of all advances under the committed facility plus aggregate average daily undrawn amounts of all letters of credit issued under the committed facility during the immediately preceding month or portion thereof.

Cash Flows from Operating Activities

Net cash provided by (used in) operating activities was $5.0 million, $69.1 million, and ($3.7) million, for the years ended December 31, 2016, 2015, and 2014, respectively. For the years ended December 31, 2016, 2015, and 2014, net income (losses) of $1.0 million, ($11.6) million, and ($18.7) million, respectively, were adjusted to $7.2 million, ($4.3) million, and ($10.9) million, respectively, by non-cash items totaling $6.2 million, $7.3 million, and $7.8 million, respectively.

Non-cash adjustments of $6.2 million in 2016 primarily included $3.7 million of depreciation and amortization; $3.3 million of stock-based compensation; $0.2 million of amortization of premiums paid on investments; $0.2 million provision for warranty claims; $0.1 million of reserves for doubtful accounts; ($0.5) million of deferred income taxes; ($0.4) million of valuation adjustments to excess and obsolete inventory reserves; ($0.2) million reversal of accruals related to expired warranties; and ($0.2) million of other non-cash items.

Non-cash adjustments of $7.3 million in 2015 primarily included $4.1 million of stock-based compensation; $3.8 million of depreciation and amortization; $0.2 million of amortization of premiums paid on investments; a $0.1 million provision for warranty claims; $0.1 million of reserves for doubtful accounts; ($0.4) million reversal of accruals related to expired warranties; ($0.3) million of deferred income taxes; and ($0.3) million of valuation adjustments to excess and obsolete inventory reserves.

Non-cash adjustments of $7.8 million in 2014 primarily included $4.0 million of depreciation and amortization; $2.1 million of stock-based compensation; $0.7 million of deferred income taxes and other non-cash items; $0.4 million of amortization of premiums paid on investments; $0.3 million of reserves for doubtful accounts; $0.3 million of valuation adjustments to excess and obsolete inventory reserves; a $0.2 million provision for warranty claims; ($0.2) million related to the change in fair value of a contingent consideration, which was associated with the acquisition of Pump Engineering; and ($0.1) million of unrealized gains on foreign currency transactions.

The net cash effect from changes in operating assets and liabilities was ($2.3) million, $73.3 million, and $7.2 million for the years ended December 31, 2016, 2015, and 2014, respectively. Net changes in assets and liabilities of $(2.3) million in 2016 were primarily attributable to a ($5.0) million decrease in deferred revenue due to the recognition of revenue related to our exclusive license agreement; a ($1.8) million increase in cost and estimated billings related to a percentage-of-completion revenue recognition project; a ($0.4) million increase in prepaid expenses and other assets; and a ($0.4) million decrease in accounts payable. These were offset by a $2.3 million decrease in inventories due to increased shipments; a $1.5 million decrease in accounts receivable and unbilled receivables due to timing of invoices and payments; a $1.2 million increase in accrued expenses and other liabilities; and a $0.3 million increase in product deferred revenue.

Net changes in assets and liabilities of $73.3 million in 2015 were primarily attributable to the receipt of a $75.0 million exclusive license payment, of which $1.0 million was recognized as revenue and the remainder deferred; a $2.0 million decrease in inventories related to increased shipments; a $0.3 million increase in product deferred revenue; and a $0.3 million decrease in prepaid expenses and other assets. These were offset by a ($1.7) million litigation settlement payment; a ($0.9) million increase in accounts receivable and unbilled receivables related to increased shipments; and a ($0.7) million decrease in accrued expenses and other liabilities related to decrease legal expenses and litigation matters.

Net changes in assets and liabilities of $7.2 million in 2014 were primarily attributable to an $8.9 million decrease in accounts receivable and unbilled receivables as a result of lower sales and the collection of outstanding amounts; a $1.9 million increase in accrued expenses and other liabilities related to increased legal expense and litigation matters; and a $0.6 million increase in accounts payable due to the timing of payments to employees, vendors, and other third parties. These were offset by a $3.6 million increase in inventory of which $2.3 million was an increase in finished goods principally related to a large MPD shipment built in the fourth quarter of 2014 but expected to ship in the first quarter of 2015; a $0.3 million increase in prepaid expenses; and a $0.3 million decrease in deferred revenue.

Cash Flows from Investing Activities

Cash flows from investing activities primarily relate to maturities and purchases of marketable securities to preserve principal and liquidity while at the same time maximizing yields without significantly increasing risk, capital expenditures to support our growth, and changes in our restricted cash used to collateralize our stand-by letters of credit and other contingent considerations.

Net cash (used in) provided by investing activities was ($40.7) million, $14.0 million, and $6.5 million for the years ended December 31, 2016, 2015, and 2014, respectively. Cash used in 2016 of ($40.7) million was primarily attributable to ($46.5) million used to purchase investments; ($1.1) million for capital expenditures; and ($0.6) million increase in restricted cash related to additional stand-by letters of credit. These were offset by $7.5 million in maturities of marketable security investments.

Cash provided in 2015 of $14.0 million was primarily attributable to $12.9 million in maturities of investments and the release of $1.7 million of restricted cash related to the expiration of stand-by letters of credit. These were offset by the use of ($0.6) million for capital expenditures.

Cash provided in 2014 of $6.5 million was primarily attributable to $6.0 million in maturities of investments and the release of $3.3 million of restricted cash primarily related to the settlement of a contingent consideration associated with the acquisition of Pump Engineering. These were offset by uses of ($2.6) million for capital expenditures and ($0.2)