HEXCEL CORP /DE/
Form 10-K
February 07, 2018

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UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D. C. 20549

FORM 10–K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the Fiscal Year Ended December 31, 2017

or

Transition Report Pursuant to Section 13 or 15 (d) of the Securities Exchange Act of 1934
For the transition period from to

Commission File Number 1-8472

Hexcel Corporation

(Exact name of registrant as specified in its charter)

Delaware	94-1109521
(State of Incorporation)	(I.R.S. Employer Identification No.)

281 Tresser Boulevard

Stamford, Connecticut 06901

(Address of principal executive offices and zip code)

Registrant's telephone number, including area code: (203) 969-0666

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

Title of each class	Name of each exchange on which registered
COMMON STOCK	NEW YORK STOCK EXCHANGE

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

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

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

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

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

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

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any or new revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

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

The aggregate market value of the registrant's common stock held by non-affiliates was $4,694,720,597 based on the reported last sale price of common stock on June 30, 2017, which is the last business day of the registrant's most

recently completed second fiscal quarter.

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

Class	Outstanding as of January 31, 2018
COMMON STOCK	89,842,578

Documents Incorporated by Reference:

Proxy Statement for Annual Meeting of Stockholders (to the extent specified herein) — Part III.

PART I

ITEM 1. Business.

General Development of Business

Hexcel Corporation, founded in 1946, was incorporated in California in 1948, and reincorporated in Delaware in 1983. Hexcel Corporation and its subsidiaries (herein referred to as “Hexcel”, “the Company”, “we”, “us”, or “our”), is a leadi advanced composites company. We develop, manufacture, and market lightweight, high-performance structural materials, including carbon fibers, specialty reinforcements, prepregs and other fiber-reinforced matrix materials, honeycomb, adhesives, engineered honeycomb and composite structures, for use in Commercial Aerospace, Space & Defense and Industrial markets. Our products are used in a wide variety of end applications, such as commercial and military aircraft, space launch vehicles and satellites, wind turbine blades, automotive, recreational products and other industrial applications. Our composite solutions enable our customers to improve the performance of their products by reducing weight while enhancing strength and durability.

We serve international markets through manufacturing facilities, sales offices and representatives located in the Americas, Asia Pacific, Europe, Russia and Africa.

We are also a partner in a joint venture in Malaysia, which manufactures composite structures for Commercial Aerospace applications.

In 2017, we acquired Structil SA (“Structil”) which further enhances our technology portfolio work with new adhesive, prepreg and pultrusion technologies. We also acquired the aerospace and defense assets of Oxford Performance Materials (“OPM”) bringing thermoplastic, carbon fiber reinforced 3D printed parts to our product offerings.

Narrative Description of Business and Segments

We are a manufacturer of products within a single industry: Advanced Composites. Hexcel has two reportable segments: Composite Materials and Engineered Products. The Composite Materials segment is comprised of our carbon fiber, specialty reinforcements, resins, prepregs and other fiber-reinforced matrix materials, and honeycomb core product lines and pultruded profiles. The Engineered Products segment is comprised of lightweight high strength composite structures, engineered core and honeycomb products with added functionality.

The following summaries describe the ongoing activities related to the Composite Materials and Engineered Products segments as of December 31, 2017.

Composite Materials

The Composite Materials segment manufactures and markets carbon fibers, fabrics and specialty reinforcements, prepregs and other fiber-reinforced matrix materials, structural adhesives, honeycomb, molding compounds, tooling materials, polyurethane systems and laminates that are incorporated into many applications, including military and commercial aircraft, wind turbine blades, recreational products, transport (cars, boats, trains) and other industrial applications.

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The following table identifies the principal products and examples of the primary end-uses from the Composite Materials segment:

SEGMENT	PRODUCTS	PRIMARY END-USES
COMPOSITE MATERIALS	Carbon Fibers	Raw materials for prepregs, fabrics and specialty reinforcements Filament winding for various aerospace, defense and industrial applications
	Fabrics, Multi-axials and Specialty Reinforcements	Raw materials for prepregs and honeycomb Composites and components used in aerospace, defense, wind energy, automotive, recreation, marine and other industrial applications
	Prepregs, Other Fiber-Reinforced Matrix Materials and Resins	Composite structures Commercial and military aircraft components Satellites and launchers Aero-engines Wind turbine and helicopter blades Cars, boats and trains Skis, snowboards, bicycles and hockey sticks
	Structural Adhesives	Bonding of metals, honeycomb and composite materials
	Honeycomb	Composite structures and interiors Impact and shock absorption systems Helicopter blades
	Pultruded Profiles (acquired from Structil)	Tubes Rods and flat sections for sporting goods Robotics Medical and billing applications

Carbon Fibers: HexTow® carbon fibers are manufactured for sale to third-party customers as well as for our own use in manufacturing certain reinforcements and composite materials. Carbon fibers are also woven into carbon fabrics,

used as reinforcement in conjunction with a resin matrix to produce pre-impregnated composite materials (referred to as “prepregs”). Carbon fiber is also used in filament winding to produce finished composite components. Key product applications include structural components for commercial and military aircraft, space launch vehicles, and certain other applications such as recreational and industrial equipment.

Fabrics, Multi-axials and Specialty Reinforcements: HexForce® fabrics, multiaxials and specialty reinforcements are made from a variety of fibers, including carbon, glass, aramid and other high strength polymers, quartz, ceramic and other specialty fibers. These reinforcements are used in the production of prepregs and other matrix materials for third-party customers as well as for our own use. They are also used in the manufacture of a variety of industrial and recreational products such as wind energy blades, automotive components, oil exploration and production equipment, boats, surfboards, skis and other sporting goods equipment.

Prepregs: HexPly® prepregs are manufactured for sale to third-party customers and for internal use by our Engineered Products segment in manufacturing composite laminates and monolithic structures. Prepregs are used in primary and secondary structural aerospace applications such as wing components, horizontal and vertical stabilizer components, fairings, radomes and engine fan blades and cases, engine nacelles as well as overhead storage bins and other interior components. They are also used in many of the industrial and recreational products noted above. Prepregs are manufactured by combining high-performance reinforcement fabrics or unidirectional fibers with a resin matrix to form a composite material that, when cured, has exceptional structural properties not present in either of the constituent materials. Prepregs are applied via hand layup, automatic tape layup and advanced fiber placement to produce finished composite components. Prepreg reinforcements include glass, carbon, aramid, quartz, ceramic and other specialty fibers. Resin matrices include bismaleimide, cyanate ester, epoxy, phenolic, polyimide and other specialty resins.

Other Fiber-Reinforced Matrix Materials: Fiber reinforced matrix developments include HexMC®, a form of quasi-isotropic carbon fiber prepreg that enables small to medium sized, complex-shaped, composite components to be mass produced. HexTool® is

a specialized form of HexMC® for use in the cost-effective construction of high temperature resistant composite tooling. HexFIT® film infusion material is a product that combines resin films and dry fiber reinforcements to save lay-up time in production and enables the manufacture of large contoured composite structures, such as wind turbine blades.

Resins: HexFlow® polymer matrix materials are sold in liquid and film form for use in direct process manufacturing of composite parts. Resins can be combined with fiber reinforcements in manufacturing processes such as resin transfer molding ("RTM"), resin film infusion ("RFI") or vacuum assisted resin transfer molding ("VARTM") to produce high quality composite components for both aerospace and industrial applications, without the need for customer investment in autoclaves.

Structural Adhesives: We manufacture and market a comprehensive range of Redux® film and paste adhesives. These structural adhesives, which bond metal to metal and composites and honeycomb structures, are used in the aerospace industry and for many industrial applications.

Honeycomb: HexWeb® honeycomb is a lightweight, cellular structure generally composed of a sheet of nested hexagonal cells. It can also be manufactured in over-expanded and asymmetric cell configurations to meet special design requirements such as contours or complex curvatures. Honeycomb is primarily used as a lightweight core material and acts as a highly efficient energy absorber. When sandwiched between composite or metallic facing skins, honeycomb significantly increases the stiffness of the structure, while adding very little weight.

We produce honeycomb from a number of metallic and non-metallic materials. Most metallic honeycomb is made from aluminum and is available in a selection of alloys, cell sizes and dimensions. Non-metallic materials used in the manufacture of honeycomb include fiberglass, carbon fiber, thermoplastics, non-flammable aramid papers, aramid fiber and other specialty materials.

We sell honeycomb as standard blocks and in slices cut from a block. Honeycomb is also used in Acousti-Cap® where a non-metallic, permeable cap material is embedded into honeycomb core that is used in aircraft engine nacelles to dramatically reduce noise during takeoff and landing without adding a structural weight penalty. Aerospace is the largest market for honeycomb products. In addition, we produce honeycomb for our Engineered Products segment for use in manufacturing finished parts for airframe Original Equipment Manufacturers ("OEMs").

Polyspeed® Pultruded profiles: Hexcel manufactures a wide range of pultruded sections including rods, flat sections, tubes and specific profiles that are usually made from carbon fiber but can also be made from glass, quartz, basalt or other fibers. The profile matrix is a Hexcel formulation of thermoset resin (epoxy or polyurethane). Hexcel pultruded profiles are used in a wide range of industrial applications.

The following table identifies the key customers and the major manufacturing facilities of the Composite Materials segment:

COMPOSITE MATERIALS
KEY CUSTOMERS

Aernnova	Daher	Sikorsky, a Lockheed Martin Company
Airbus	Embraer	Solvay
AVIC	FACC	Spirit Aerosystems
Bell	General Electric	Toray

BMW	GKN	Trek
The Boeing Company	Leonardo	Triumph
Bombardier	Nordam	United Technologies
CFAN	Orbital ATK	Vestas
CTRM Aero Composites	Safran	

MAJOR MANUFACTURING FACILITIES

Casa Grande, Arizona	Neumarkt, Austria
Dagneux, France	Roussillon, France
Decatur, Alabama	Parla, Spain
Duxford, England	Salt Lake City, Utah
Illescas, Spain	Seguin, Texas
Leicester, England	Stade, Germany
Les Avenières, France	Tianjin, China
Nantes, France	Windsor, Colorado

Net sales for the Composite Materials segment to third-party customers were $1,597 million in 2017, $1,610 million in 2016 and $1,459 million in 2015, which represented about 78% to 81%, of our net sales each year. Net sales for composite materials are highly dependent upon the number of large commercial aircraft produced as further discussed under the captions “Significant Customers,” “Markets” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations”. In addition, less than 5% of our total production of composite materials in 2017 was used internally by the Engineered Products segment.

Engineered Products

The Engineered Products segment manufactures and markets composite structures and precision machined honeycomb parts primarily for use in the aerospace industry. Composite structures are manufactured from a variety of composite and other materials, including prepregs, honeycomb, and structural adhesives, using such manufacturing processes as autoclave processing, multi-axis numerically controlled machining, heat forming, and other composite manufacturing techniques. Composite structures includes Hex printed parts. Hex parts offer significant weight cost and time-to-market reductions compared to incumbent metal or composite technologies.

The following table identifies the principal products and examples of the primary end-uses from the Engineered Products segment:

SEGMENT	PRODUCTS	PRIMARY END-USES
ENGINEERED PRODUCTS	Composite Structures	Aircraft structures and finished aircraft components, including wing to body fairings, wing panels, flight deck panels, door liners, helicopter blades, spars and tip caps
	Engineered Honeycomb	Aircraft structural sub-components and semi-finished components used in helicopter blades, engine nacelles, and aircraft surfaces (flaps, wings, elevators and fairings)
	HexTool® Tooling	Mold tools made from carbon fiber and high temperature resistant BMI or epoxy resin. Used in the manufacture of composite aircraft structures, providing a lower weight, easier to handle alternative to traditional metal tooling.

Net sales for the Engineered Products segment to third-party customers were $376 million in 2017, $394 million in 2016, and $403 million in 2015, which represented about 19% to 22% of our net sales each year.

The Engineered Products segment has a 50% ownership interest in a Malaysian joint venture, Aerospace Composites Malaysia Sdn. Bhd. (“ACM”) with Boeing Worldwide Operations Limited. Under the terms of the joint venture agreement, Hexcel and The Boeing Company (“Boeing”) have transferred the manufacture of certain semi-finished composite components to this joint venture. Hexcel purchases certain semi-finished composite components from the joint venture, and inspects and performs additional skilled assembly work before delivering them to Boeing. The joint venture also manufactures composite components for other aircraft component manufacturers. ACM had revenue of $62 million in 2017, and $58 million and $69 million in 2016 and 2015, respectively.

The following table identifies the key customers and the major manufacturing facilities of the Engineered Products segment:

ENGINEERED PRODUCTS

KEY CUSTOMERS	MAJOR MANUFACTURING FACILITIES
The Boeing Company	Burlington, Washington
Bell	Kent, Washington
CTRM Aero Composites	Pottsville, Pennsylvania
General Electric	Welkenraedt, Belgium
GKN	Alor Setar, Malaysia (JV)
Sikorsky, a Lockheed Martin Company	Casablanca, Morocco
Spirit Aerosystems	
United Technologies	

Financial Information About Segments and Geographic Areas

Financial information and further discussion of our segments and geographic areas, including external sales and long-lived assets, are contained under the caption “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and in Note 16 to the accompanying consolidated financial statements of this Annual Report on Form 10-K.

Significant Customers

Approximately 44%, 41% and 35% of our 2017, 2016 and 2015 net sales, respectively, were to Airbus and its subcontractors. Of the 44% of overall sales to Airbus and its subcontractors in 2017, 40% related to Commercial Aerospace market applications and 4% related to Space & Defense market applications. Approximately 25%, 28% and 31% of our 2017, 2016 and 2015 net sales, respectively, were to Boeing and related subcontractors. Of the 25% of overall sales to Boeing and its subcontractors in 2017, 23% related to Commercial Aerospace market applications and 2% related to Space & Defense market applications.

Markets

Our products are sold for a broad range of end-uses where durability, strength and weight are important factors to our customers. The following tables summarize our net sales to third-party customers by market and by geography for each of the three years ended December 31:

	2017	2016	2015
Net Sales by Market			
Commercial Aerospace	72 %	71 %	69 %
Space & Defense	17	16	18
Industrial	11	13	13
Total	100 %	100 %	100 %
Net Sales by Geography (a)			
United States	48 %	48 %	51 %
Europe, China and Africa	52	52	49
Total	100 %	100 %	100 %

(a) Net sales by geography based on the location in which the product sold was manufactured.

	2017	2016	2015
Net Sales to External Customers (b)			
United States	41 %	42 %	46 %
Europe	42	41	37
All Others	17	17	17
Total	100 %	100 %	100 %

(b) Net sales to external customers based on the location to which the product sold was delivered

Commercial Aerospace

The Commercial Aerospace industry is our largest user of advanced composites. Commercial Aerospace represented 72% of our 2017 net sales. Approximately 89% of these revenues can be identified as sales to Airbus, Boeing and their subcontractors for the production of commercial aircraft. The remaining 11% of these revenues were for regional, and business and other commercial aircraft. The economic benefits airlines can obtain from weight savings in both fuel economy and aircraft range, combined with the design enhancement that comes from the advantages of advanced composites over traditional materials, has resulted in the aerospace industry becoming the leader in the adoption and use of these materials. While military aircraft and spacecraft have championed the development of these materials, Commercial Aerospace has had the greater production volumes and has commercialized the use of these products. Accordingly, the demand for advanced structural material products is closely correlated to the demand for new commercial aircraft.

The use of advanced composites in Commercial Aerospace is primarily in the manufacture of new commercial aircraft. The aftermarket for these products is very small as many of these materials are designed to last for the life of the aircraft. The demand for

new commercial aircraft is driven by two principal factors, the first of which is airline passenger traffic (the number of revenue passenger miles flown by the airlines) which affects the required size of airline fleets. The International Air Transport Association (IATA) estimates 2017 revenue passenger miles were 7.6% higher than 2016. Growth in passenger traffic requires growth in the size of the fleet of commercial aircraft operated by airlines worldwide.

A second factor, which is less sensitive to the general economy, is the replacement rates for existing aircraft. The rates of retirement of passenger and freight aircraft, resulting mainly from obsolescence, are determined in part by the regulatory requirements established by various civil aviation authorities worldwide as well as public concern regarding aircraft age, safety and noise. These rates may also be affected by the desire of the various airlines to improve operating costs with higher payloads and more fuel-efficient aircraft (which in turn is influenced by the price of fuel) and by reducing maintenance expense. In addition, there is expected to be increasing pressure on airlines to replace their aging fleet with more fuel efficient and quieter aircraft to be more environmentally responsible. When aircraft are retired from commercial airline fleets, they may be converted to cargo freight aircraft, used for parts or scrapped.

An additional factor that may cause airlines to defer or cancel orders is their ability to obtain financing, including leasing, for new aircraft orders. This will be dependent both upon the financial health of the airline operators, as well as the overall availability of financing in the marketplace.

Each new generation of commercial aircraft has used increasing quantities of advanced composites, replacing metals. This follows the trend previously seen in military fighter aircraft where advanced composites may now exceed 50% of the weight of the airframe. Early versions of commercial jet aircraft, such as the Boeing 707, which was developed in the early 1950's, contained almost no composite materials. One of the first commercial aircraft to use a meaningful amount of composite materials, the Boeing 767 entered into service in 1983, and was built with an airframe containing approximately 6% composite materials. The airframe of Boeing's 777 aircraft, which entered service in 1995, is approximately 11% composite. The Airbus A380, which was first delivered in 2007, has approximately 23% composite content by weight. Boeing's B787, which entered into service in 2011, has a content of more than 50% composite materials by weight. The Airbus A350 XWB ("A350") which has a composite content of 53% by weight was first delivered in December 2014. In 2011, both Airbus and Boeing announced new versions of their narrow body aircraft which will have new engines. Airbus's A320neo had its first customer delivery in January 2016, with 161 planes delivered in 2017 and 5,222 orders in backlog at December 31, 2017. Boeing's B737 MAX entered into service in 2017 with 74 planes delivered in 2017, and 4,297 orders in backlog at December 31, 2017. In 2014, Airbus announced a new version of its A330, the A330neo, which will have new engines, and Boeing announced the B777X, a new version of the B777 with composite wings and new engines. It is expected that these new aircraft will offer more opportunities for composite materials than their predecessors, as the Commercial Aerospace industry continues to utilize a greater proportion of advanced composite materials with each new generation of aircraft. We refer to this steady expansion of the use of composites in aircraft as the "secular penetration of composites" as it increases our average sales per airplane over time.

The impact on Hexcel of Airbus and Boeing's production rate changes is typically influenced by two factors: the mix of aircraft produced and the inventory supply chain effects of increases or reductions in aircraft production. We have products on all Airbus and Boeing planes. The dollar value of our materials varies by aircraft type — twin aisle aircraft use more of our materials than narrow body aircraft and newer designed aircraft use more of our materials than older generations. On average, for established programs, we deliver products into the supply chain about six months prior to aircraft delivery, with a range between one and eighteen months depending on the product. For aircraft that are in the development or ramp-up stage, such as the B737 MAX, A330neo and the B777X, we will have sales as much as several years in advance of the delivery. Increased aircraft deliveries combined with the secular penetration of composites resulted in our Commercial Aerospace revenues increasing, year over year, by approximately 11% in 2016 and 6% in 2015. The slight decline in Commercial Aerospace revenues in 2017 was as a result of older wide body

aircraft models being phased out as the new narrow body programs ramp up.

Set forth below are historical aircraft deliveries as announced by Airbus and Boeing:

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Airbus	320	378	434	453	483	498	510	534	588	626	629	635	688	718
Boeing	285	290	398	441	375	481	462	477	601	648	723	762	748	763
Total	605	668	832	894	858	979	972	1,011	1,189	1,274	1,352	1,397	1,436	1,481

Approximately 89% of our Commercial Aerospace revenues can be identified as sales to Airbus, Boeing and their subcontractors for the production of commercial aircraft. Airbus and Boeing combined deliveries in 2017 were 1,481 aircraft, surpassing the previous high of 1,436 in 2016. In 2017, the combined net orders reported by Airbus and Boeing were for 2,021 planes, bringing their backlog at December 31, 2017 to 13,129 planes or about nine years based on 2017 deliveries. The balance of our Commercial Aerospace sales

is related to regional and business aircraft manufacture, and other commercial aircraft applications. These applications also exhibit increasing utilization of composite materials with each new generation of aircraft.

Space & Defense

The Space & Defense market has historically been an innovator in the use of, and source of significant demand for, advanced composites. The aggregate demand by Space & Defense customers is primarily a function of procurement of military aircraft that utilize advanced composites by the United States and certain European governments, including both commercial and military helicopters. We are currently qualified to supply materials to a broad range of helicopter, military aircraft and space programs, including the Boeing V-22 (Osprey) tilt rotor aircraft, Lockheed Martin F-35 (joint strike fighter or JSF), Airbus A400M military transport, and Sikorsky Black Hawk. No one program accounts for more than 12% of our revenues in this market. The sales that we obtain from these programs will depend upon which are funded and the extent of such funding. Space applications for advanced composites include solid rocket booster cases, fairings and payload doors for launch vehicles, and satellite buss and solar arrays for military and commercial satellites.

Another trend providing positive growth for Hexcel is the further penetration of composites in helicopter blades. Numerous new helicopter programs in development, as well as upgrade or retrofit programs, have an increased untilization of Composite Materials products such as carbon fiber, prepregs, and honeycomb core to improve blade performance. In addition, our Engineered Products segment provides specialty value added services such as machining, sub-assembly, and even full blade manufacturing.

Contracts for military and some commercial programs may contain provisions applicable to both U.S. government contracts and subcontracts. For example, a prime contractor may flow down a “termination for convenience” clause to materials suppliers such as Hexcel. According to the terms of a contract, we may be subject to U.S. government Federal Acquisition Regulations, the Department of Defense Federal Acquisition Regulations Supplement, and associated procurement regulations.

Industrial

The revenue from this market includes wind turbine blades, automotive, a wide variety of recreational products and other industrial applications. A number of these applications represent emerging opportunities for our products. In developing new applications, we seek those opportunities where advanced composites technology offers significant benefits to the end user, often applications that demand high engineering performance. Within the Industrial markets, wind energy comprises the largest submarket and our primary customer is Vestas Wind Systems A/S. The Industrial markets also include sales to major end user sub-markets, in order of size based on our 2017 sales: general industrial applications (including those sold through distributors), transportation (e.g., automobiles, mass transit and high-speed rail, and marine applications) and recreational equipment (e.g., skis and snowboards, bicycles and hockey sticks). Our participation in Industrial applications complements our commercial and military aerospace businesses, and in many instances, technology or products now used in aerospace were started in Industrial. We are committed to pursuing the utilization of advanced structural material technology where it can generate significant value and we can maintain a sustainable competitive advantage.

Further discussion of our markets, including certain risks, uncertainties and other factors with respect to “forward-looking statements” about those markets, is contained under the captions “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and “Risk Factors”.

Backlog

In recent years, our customers have demanded shorter order lead times and “just-in-time” delivery performance. While we have many multi-year contracts with our major aerospace customers and our largest Industrial customer, most of these contracts specify the proportion of the customers’ requirements that will be supplied by us and the terms under which the sales will occur, not the specific quantities to be procured or the specific dates for delivery. Our Industrial customers have always desired to order their requirements on as short a lead-time as possible. As a result, twelve-month order backlog is not a meaningful trend indicator for us. As noted above, our Commercial Aerospace sales to Airbus and Boeing and their subcontractors accounted for 64% of our total 2017 sales, and their airplane backlog is nearly nine years based on 2017 deliveries.

Raw Materials and Production Activities

Our manufacturing operations are in many cases vertically integrated. We produce and internally use carbon fibers, industrial fabrics, composite materials and composite structures as well as sell these materials to third-party customers for their use in the manufacture of their products.

We manufacture high performance carbon fiber from polyacrylonitrile precursor (“PAN”). The primary raw material for PAN is acrylonitrile. All of the PAN we produce is for internal carbon fiber production. We consume more than 80% by value of the carbon fiber we produce and sell the remainder of our output to third-party customers. However, as one of the world’s largest consumers of high performance carbon fiber, we also purchase significant quantities of carbon fiber from external sources for our own use. The sources of carbon fiber we can use in any product or application are generally dictated by customer qualifications or certifications. Otherwise, we select a carbon fiber based on performance, price and availability. With the increasing demand for carbon fiber, particularly in aerospace applications, in recent years we have significantly increased our PAN and carbon fiber capacity to serve the growing needs of our customers and our own downstream products. After a new production line starts operating, it can take up to a year to be certified for aerospace qualifications. However, these lines can start supplying carbon fiber for many industrial applications within a shorter time period.

We purchase glass yarn from a number of suppliers in the United States, Europe and Asia. We also purchase aramid and high strength fibers which are produced by only a few companies, and during periods of high demand, can be in short supply. In addition, epoxy and other specialty resins, aramid paper and aluminum specialty foils are used in the manufacture of composite products. A number of these products have only one or two sources qualified for use, so an interruption in their supply could disrupt our ability to meet our customer requirements. When entering into multi-year contracts with aerospace customers, we attempt to get back-to-back commitments from key raw material suppliers.

Our manufacturing activities are primarily based on “make-to-order”, or “demand pull” based on customer schedules, and to a lesser extent, “make-to-forecast” production requirements. We coordinate closely with key suppliers in an effort to avoid raw material shortages and excess inventories. However, many of the key raw materials we consume are available from relatively few sources, and in many cases the cost of product qualification makes it impractical to develop multiple sources of supply. The lack of availability of these materials could under certain circumstances have a material adverse effect on our consolidated results of operations.

Research and Technology; Patents and Know-How

Research and Technology (“R&T”) departments support our businesses worldwide. Through R&T activities, we maintain expertise in precursor and carbon fiber, chemical and polymer formulation and curatives, fabric forming and textile architectures, advanced composite structures, process engineering, application development, analysis and testing of composite materials, computational design, and other scientific disciplines related to our worldwide business base.

Our products rely primarily on our expertise in materials science, textiles, process engineering and polymer chemistry. Consistent with market demand, we have been placing more emphasis on higher performing products and cost effective production processes while seeking to improve the consistency of our products and our capital efficiency. Towards this end, we have entered into formal and informal alliances, as well as licensing and teaming arrangements, with several customers, suppliers, external agencies and laboratories. We believe that we possess unique capabilities to design, develop, manufacture and qualify composite materials and structures, including trade secrets and extensive internal knowledge gained from decades of experience. We have more than 1,540 patents and pending applications worldwide, and have granted technology licenses and patent rights to several third parties primarily in connection with joint ventures and joint development programs. It is our policy to actively enforce our proprietary rights. We believe that the patents and know-how rights currently owned or licensed by Hexcel are adequate for the conduct of our business. We do not believe that our business would be materially affected by the expiration of any single patent or series of related patents, or by the termination of any single license agreement or series of related license agreements.

We spent $49.4 million, $46.9 million and $44.3 million for R&T in 2017, 2016 and 2015, respectively. Our spending, on a constant currency basis, in 2017 was more than 6% higher than 2016 and in 2016 was about 10% higher than 2015. Our spending on a quarter to quarter basis fluctuates depending upon the amount of new product development and qualification activities, particularly in relation to commercial aircraft applications, that are in progress. These expenditures are expensed as incurred.

Environmental Matters

We are subject to federal, state, local and foreign laws and regulations designed to protect the environment and to regulate the discharge of materials into the environment. We believe that our policies, practices, and procedures are properly designed to prevent unreasonable risk of environmental damage and associated financial liability. To date, environmental control regulations have not had a significant adverse effect on our overall operations.

Our aggregate environmental related accruals at December 31, 2017 and 2016 were $2.8 million and $3.2 million, respectively. As of December 31, 2017 and December 31, 2016, $0.9 million and $1.4 million, respectively, were included in “Other current accrued liabilities”, with the remainder included in “Other non-current liabilities”. As related to certain of our environmental matters, our accruals were estimated at the low end of a range of possible outcomes since there was no better point within the range. If we had

accrued, for those sites where we are able to estimate our liability, at the high end of the range of possible outcomes, our accruals would have been $16 million higher at December 31, 2017 and 2016. Environmental remediation spending charged directly to our reserve balance for 2017, 2016 and 2015, was $0.5 million, $0.9 million and $2.6 million, respectively. In addition, our operating costs relating to environmental compliance were $9.9 million, $10.1 million and $10.7 million for 2017, 2016, and 2015, respectively, and were charged directly to expense. Capital expenditures for environmental matters approximated $8.4 million, $13.2 million and $7.1 million for 2017, 2016 and 2015 respectively.

These accruals can change significantly from period to period due to such factors as additional information on the nature or extent of contamination, the methods of remediation required, changes in the apportionment of costs among responsible parties and other actions by governmental agencies or private parties, as well as the impact, if any, of Hexcel being named in a new matter. A discussion of environmental matters is contained in Item 3, “Legal Proceedings,” and in Note 13 to the accompanying consolidated financial statements included in this Annual Report on Form 10-K.

Sales and Marketing

A staff of salaried marketing managers, product managers and sales personnel, sell and market our products directly to customers worldwide. We also use independent distributors and manufacturer representatives for certain products, markets and regions. In addition, we operate various sales representation offices in the Americas, Europe, Asia Pacific, Russia and Africa.

Competition

In the production and sale of advanced composites, we compete with a number of U.S. and international companies on a worldwide basis. The broad markets for composites are highly competitive, and we have focused on both specific submarkets and specialty products within markets. In addition to competing directly with companies offering similar products, we compete with producers of substitute composites such as structural foam, infusion technology, wood and metal. Depending upon the material and markets, relevant competitive factors include approvals, database of usage, technology, product performance, delivery, service, price, customer preference for sole sourcing and customer preferred processes.

Employees

As of December 31, 2017, we employed 6,259 full-time employees and contract workers, 3,368 in the United States and 2,891 in other countries. Of the 6,259 full-time employees, approximately 17% were represented by collective bargaining agreements. We believe that our relations with employees and unions are good. The number of full-time employees and contract workers as of December 31, 2016 and 2015 was 6,155 and 5,897, respectively.

Other Information

Our internet website is www.hexcel.com. We make available, free of charge through our website, our Form 10-Ks, 10-Qs and 8-Ks, and any amendments to these forms, as soon as reasonably practicable after filing with the Securities and Exchange Commission.

ITEM 1A. Risk Factors

An investment in our common stock or debt securities involves risks and uncertainties. You should consider the following risk factors carefully, in addition to the other information contained in this Annual Report on Form 10-K, before deciding to purchase any of our securities.

The markets in which we operate can be cyclical, and downturns in them may adversely affect the results of our operations.

Some of the markets in which we operate have been, to varying degrees, cyclical and have experienced downturns. A downturn in these markets could occur at any time as a result of events that are industry specific or macroeconomic and in the event of a downturn; we have no way of knowing if, when and to what extent there might be a recovery. Any deterioration in any of the cyclical markets we serve could adversely affect our financial performance and operating results.

At December 31, 2017, Airbus and Boeing had a combined backlog of 13,129 aircraft or nearly nine years of production at 2017 delivery rates. To the extent any significant deferrals, cancellations or reduction in demand results in decreased aircraft build rates, it would reduce net sales for our Commercial Aerospace products and as a result reduce our operating income. Approximately 72% of our net sales for 2017 were derived from sales to the Commercial Aerospace industry, which includes 89% from Airbus and Boeing aircraft and 11% from regional and business aircraft. Reductions in demand for commercial aircraft or a delay in deliveries could

result from many factors, including delays in the startup or ramp-up of new programs, changes in the propensity for the general public to travel by air (including as a result of terrorist events and any subsequent military response), a significant change in the cost of aviation fuel, a change in technology resulting in the use of alternative materials, consolidation and liquidation of airlines, availability of funding for new aircraft purchases or leases, inventory corrections or disruptions throughout the supply chain and slower macroeconomic growth.

Our content on the A350 is approximately $4.8 million per plane and it is our largest program. We expect sales of approximately $575 million per year when Airbus reaches its projected buildrates of 120 per year. Both Airbus and Boeing have experienced various delays in the start and ramp up of several aircraft programs, including the A380, B787, B747-8, A400M, and A350. In the past, these have delayed our expected growth or our effective utilization of capacity installed for such growth. Future delays in these or other major new customer programs could similarly impact our results.

In addition, our customers continue to emphasize the need for cost reduction or other improvements in contract terms throughout the supply chain. In response to these pressures, we may be required to accept increased risk or face the prospects of margin compression on some products in the future. Where possible, we seek to offset or mitigate the impact of such pressures through productivity and performance improvements, index clauses, currency hedging and other actions.

A significant decline in business with Airbus, Boeing, Vestas, or other large customers could materially impact our business, operating results, prospects and financial condition.

We have concentrated customers in the Commercial Aerospace and wind energy markets. In the Commercial Aerospace market, approximately 89%, and in the Space & Defense market, approximately 31%, of our 2017 net sales were made to Airbus and Boeing and their related subcontractors. For the years ended December 31, 2017 and December 31, 2016, approximately 44% and 41% of our total consolidated net sales, respectively, were to Airbus, and its related subcontractors and approximately 25% and 28% of our total consolidated net sales were to Boeing and its related subcontractors, respectively. In the wind energy market, our primary customer is Vestas. Significant changes in the demand for our customers' end products, program delays, the share of their requirements that is awarded to us or changes in the design or materials used to construct their products could result in a significant loss of business with these customers. The loss of, or significant reduction in, purchases by Airbus, Boeing or Vestas or any of our other large customers could materially impair our business, operating results, prospects and financial condition. The level of purchases by our customers is often affected by events beyond their control, including general economic conditions, demand for their products, disruptions in deliveries, business disruptions, strikes and other factors.

A decrease in supply, interruptions at key facilities or an increase in cost of raw materials could result in a material decline in our profitability.

Our profitability depends largely on the price and continuity of supply of raw materials, which may be supplied through a sole source or a limited number of sources. We purchase large volumes of raw materials, such as epoxy and phenolic resins, carbon fiber, fiberglass yarn, aluminum foil and aramid paper. Any restrictions on the supply, or an increase in the cost, of our raw materials could significantly reduce our profit margins. Efforts to mitigate restrictions on the supply or price increases of these raw materials by long-term purchase agreements, productivity improvements or by passing cost increases to our customers may not be successful.

The occurrence of material operational problems, including but not limited to failure of, or interruption to, key equipment or natural disasters, or inability to install, staff and qualify necessary capacity, achievement of planned manufacturing improvements, or inability to meet customer specifications, may have a material adverse effect on the productivity and profitability of a particular manufacturing facility. With respect to certain facilities, such events could

have a material effect on our company as a whole.

Reductions in space and defense spending could result in a decline in our net sales.

Space and defense production that has occurred in recent years may not be sustained, individual programs important to Hexcel may be cancelled, production may not continue to grow and the increased demand for composite-intensive programs may not continue. In addition, the production of military aircraft depends upon defense budgets and the related demand for defense and related equipment. Approximately 17% of our net sales in 2017 were to the Space & Defense market of which about 87% were related to military programs in the United States and other countries.

We have substantial international operations subject to uncertainties which could affect our operating results.

We believe that revenue from sales outside the U.S. will continue to account for a material portion of our total revenue for the foreseeable future. In 2017, 52% of our production and 59% of our customer sales occurred outside of the United States. Additionally, we have invested significant resources in our international operations and we intend to continue to make such investments in the

future. Our international operations are subject to numerous risks, including: (a) general economic and political conditions in the countries where we operate may have an adverse effect on our operations in those countries or not be favorable to our growth strategy; (b) the difficulty of enforcing agreements and collecting receivables through some foreign legal systems; (c) foreign customers may have longer payment cycles than customers in the U.S.; (d) cost of compliance with international trade laws of all of the countries in which we do business, including export control laws, relating to sales and purchases of goods and equipment and transfers of technology; (e) tax rates may vary and foreign earnings may be subject to withholding requirements or the imposition of tariffs, exchange controls or other restrictions; (f) governments may adopt regulations or take other actions that would have a direct or indirect adverse impact on our business and market opportunities; and (g) the potential difficulty in enforcing our intellectual property rights in some foreign countries, and the potential for the intellectual property rights of others to affect our ability to sell product in certain markets. Any one of these could adversely affect our financial condition and results of operations.

In addition, fluctuations in currency exchange rates may influence the profitability and cash flows of our business. For example, our European operations sell a portion of the products they produce in U.S. dollars, yet the labor, overhead costs and portions of material costs incurred in the manufacture of those products are primarily denominated in Euros, British pound sterling or U.S. dollars. As a result, the local currency margins of goods manufactured with costs denominated in local currency, yet sold in U.S. dollars, will vary with fluctuations in currency exchange rates, reducing when the U.S. dollar weakens against the Euro and British pound sterling. In addition, the reported U.S. dollar value of the local currency financial statements of our foreign subsidiaries will vary with fluctuations in currency exchange rates. While we enter into currency exchange and hedge agreements from time to time to mitigate these types of fluctuations, we cannot remove all fluctuations or hedge all exposures, and our earnings are impacted by changes in currency exchange rates.

We currently do not have political risk insurance in the countries in which we conduct business. While we carefully consider these risks when evaluating our international operations, we cannot provide assurance that we will not be materially adversely affected as a result of such risks.

We could be adversely affected by environmental and safety requirements.

Our operations require the handling, use, storage and disposal of certain regulated materials and wastes. As a result, we are subject to various laws and regulations pertaining to pollution and protection of the environment, health and safety. These requirements govern, among other things, emissions to air, discharge to waters and the generation, handling, storage, treatment and disposal of waste and remediation of contaminated sites. We have made, and will continue to make, capital and other expenditures in order to comply with these laws and regulations. These laws and regulations are complex, change frequently and could become more stringent in the future.

We have been named as a “potentially responsible party” under the U.S. Superfund law or similar state laws at several sites requiring clean up. These laws generally impose liability for costs to investigate and remediate contamination without regard to fault. Under certain circumstances liability may be joint and several, resulting in one responsible party being held responsible for the entire obligation. Liability may also include damages to natural resources. We have incurred and likely will continue to incur expenses to investigate and clean up certain of our existing and former facilities, for which we believe we have adequate reserves. The ongoing operation of our manufacturing plants also entails environmental risks, and we may incur material costs or liabilities in the future which could adversely affect us. Although most of our properties have been the subject of environmental site assessments, there can be no assurance that all potential instances of soil and groundwater contamination have been identified, even at those sites where assessments have been conducted. Accordingly, we may discover previously unknown environmental conditions and the cost of remediating such conditions may be material. See “Legal Proceedings” below and Note 13 to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K.

In addition, we may be required to comply with evolving environmental, health and safety laws, regulations or requirements that may be adopted or imposed in the future or to address newly discovered information or conditions that require a response. In particular, climate change is receiving increased attention worldwide, which has led to significant legislative and regulatory efforts to limit greenhouse gas emissions. The U.S. Congress has considered climate change-related legislation and may retake the issue in the near future. Specific policy measures could include cap and trade provisions or a carbon tax. The European Union has instituted the Greenhouse Gas Emission Trading System (EU-ETS). Our manufacturing plants use energy, including electricity and natural gas, and some of our plants may in the future emit amounts of greenhouse gas that could be affected by these legislative and regulatory efforts. Potential consequences could include increased energy, transportation and raw material costs and may require the Company to make additional investments in its facilities and equipment or limit our ability to grow.

Acquisitions, divestitures, mergers, business combinations or joint ventures by the Company may entail certain operational and financial risks.

Over the past several years we have completed several strategic acquisitions of complementary manufacturing companies, Formax (UK) Limited, Structil SA and Oxford Performance Materials aerospace and defense business, as well as strategic investments in companies such as Carbon Conversions Incorporated. We expect to continue to explore complementary acquisitions, investments and joint ventures and may also pursue divestures of business lines that do not fit with our core strategy. We may also engage in further vertical integration. From time to time, we have evaluated, and we expect that we will continue to evaluate, possible acquisition, investment, joint venture and/or divestiture transactions. At any given time we may be engaged in discussions or negotiations with respect to these types of activities or may have entered into non-binding letters of intent. However, we may face competition for attractive targets and may not be able to source appropriate acquisition targets at prices acceptable to us, if at all. In addition, these types of transactions may require significant liquidity, which may not be available on terms favorable to us, or at all. There can be no assurance that we will realize the intended benefits from such transactions or that such transactions will not present risks that could result in increased expenditures and could materially adversely affect our revenues and profitability.

Our forward-looking statements and projections may turn out to be inaccurate.

This Form 10-K includes forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These statements relate to analyses and other information that are based on forecasts of future results and estimates of amounts not yet determinable. These statements also relate to future prospects, developments and business strategies. These forward-looking statements are identified by their use of terms and phrases such as “anticipate”, “believe”, “could”, “estimate”, “expect”, “intend”, “may”, “plan”, “predict”, “project”, “should”, “would”, “will” and phrases, including references to assumptions. Such statements are based on current expectations, are inherently uncertain, and are subject to changing assumptions.

Such forward-looking statements include, but are not limited to: (a) the estimates and expectations based on aircraft production rates made publicly available by Airbus, Boeing and others; (b) the revenues we may generate from an aircraft model or program; (c) the impact of the possible push-out in deliveries of the Airbus and Boeing backlog and the impact of delays in the startup or ramp-up of new aircraft programs or the final Hexcel composite material content once the design and material selection has been completed; (d) expectations of composite content on new commercial aircraft programs and our share of those requirements; (e) expectations of growth in revenues from space and defense applications, including whether certain programs might be curtailed or discontinued; (f) expectations regarding growth in sales for wind energy, recreation, automotive and other industrial applications; (g) expectations regarding working capital trends and expenditures; (h) expectations as to the level of capital expenditures and when we will complete the construction and qualification of capacity expansions; (i) our ability to maintain and improve margins in light of the ramp-up of capacity and new facilities and the current economic environment; (j) the outcome of legal matters; (k) our projections regarding the realizability of net operating loss and tax credit carryforwards; and (l) the impact of various market risks, including fluctuations in interest rates, currency exchange rates, environmental regulations and tax codes, fluctuations in commodity prices, and fluctuations in the market price of our common stock, the impact of work stoppages or other labor disruptions and the impact of the above factors on our expectations of 2018 financial results and beyond. In addition, actual results may differ materially from the results anticipated in the forward looking statements due to a variety of factors, including but not limited to changing market conditions, increased competition, product mix, inability to achieve planned manufacturing improvements or to meet customer specifications, cost reductions and capacity additions, and conditions in the financial markets.

Such forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause actual results to be materially different. Such factors include, but are not limited to, the following: changes in general

economic and business conditions; changes in current pricing and cost levels; changes in political, social and economic conditions and local regulations; foreign currency fluctuations; changes in aerospace delivery rates; reductions in sales to any significant customers, particularly Airbus, Boeing or Vestas; changes in sales mix; changes in government defense procurement budgets; changes in military aerospace programs technology; industry capacity; competition; disruptions of established supply channels, particularly where raw materials are obtained from a single or limited number of sources and cannot be substituted by unqualified alternatives; manufacturing capacity constraints; uncertainty regarding the likely exit of the U.K. from the European Union; and unforeseen vulnerability of our network and systems to interruptions or failures.

If one or more of these risks or uncertainties materialize, or if underlying assumptions prove incorrect, actual results may vary materially from those expected, estimated or projected. In addition to other factors that affect our operating results and financial position, neither past financial performance nor our expectations should be considered reliable indicators of future performance. Investors should not use historical trends to anticipate results or trends in future periods. Further, the price of our publicly traded securities are subject to volatility. Any of the factors discussed above could have an adverse impact on the price of our securities. In addition, failure of sales or income in any quarter to meet the investment community’s expectations, as well as broader market trends,

can have an adverse impact on the price of our securities. We do not undertake an obligation to update our forward-looking statements or risk factors to reflect future events or circumstances.

ITEM 1B. Unresolved Staff Comments

None.

ITEM 2. Properties

We own and lease manufacturing facilities and sales offices located throughout the United States and in other countries, as noted below. The corporate offices and principal corporate support activities are located in leased facilities in Stamford, Connecticut. Our research and technology administration and principal laboratories are located in Dublin, California; Duxford, England; Les Avenières, France; Salt Lake City, Utah and Decatur, Alabama.

The following table lists our manufacturing facilities by geographic location, related segment, and principal products manufactured. This table does not include manufacturing facilities owned by our joint venture.

Manufacturing Facilities

Facility Location	Segment	Principal Products
United States:		
Burlington, Washington	Engineered Products	Engineered Honeycomb Parts
Casa Grande, Arizona	Composite Materials	Honeycomb and Honeycomb Parts
Decatur, Alabama	Composite Materials	PAN Precursor (used to produce Carbon Fibers)
Kent, Washington	Engineered Products	Composite structures
Pottsville, Pennsylvania	Engineered Products	Engineered Honeycomb Parts
Salt Lake City, Utah	Composite Materials	Carbon Fibers; Prepregs
Seguin, Texas	Composite Materials	Industrial Fabrics; Specialty Reinforcements
South Windsor, CT	Engineered Products	3D printed parts
Windsor, Colorado	Composite Materials	Prepregs
International:		
Casablanca, Morocco	Engineered Products	Engineered Honeycomb Parts
Dagneux, France	Composite Materials	Prepregs
Duxford, England	Composite Materials	Prepregs; Adhesives; Honeycomb and Honeycomb Parts
Illescas, Spain	Composite Materials	Carbon Fibers
Leicester, England	Composite Materials	Lightweight Multiaxials Fabrics
Les Avenières, France	Composite Materials	Industrial Fabrics; Specialty Reinforcements
Nantes, France	Composite Materials	Prepregs
Neumarkt, Austria	Composite Materials	Prepregs
Parla, Spain	Composite Materials	Prepregs
Roussillon, France	Composite Materials	PAN Precursor and Carbon Fibers
Stade, Germany	Composite Materials	Prepregs
Tianjin, China	Composite Materials	Prepregs
Vert-le-Petit, France	Composite Materials	Pultruded profiles; Prepregs and Adhesives
Welkenraedt, Belgium	Engineered Products	Engineered Honeycomb Parts

The Roussillon facility is currently under construction and should be operational, with qualifications completed in 2018. We lease the land and buildings in Nantes, France, South Windsor, CT and Tianjin, China; and the land on which the Burlington, Washington facility is located. We also lease portions of the facilities located in Casa Grande, Arizona, Pottsville, Pennsylvania, Kent, Washington and Leicester, England. We own all other remaining facilities. For further information, refer to “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and to Note 6 to the accompanying consolidated financial statements of this Annual Report on Form 10-K.

ITEM 3. Legal Proceedings

We are involved in litigation, investigations and claims arising out of the normal conduct of our business, including those relating to commercial transactions, environmental, employment and health and safety matters. We estimate and accrue our liabilities resulting from such matters based on a variety of factors, including the stage of the proceeding; potential settlement value; assessments by internal and external counsel; and assessments by environmental engineers and consultants of potential environmental liabilities and remediation costs. Such estimates are not discounted to reflect the time value of money due to the uncertainty in estimating the timing of the expenditures, which may extend over several years.

While it is impossible to ascertain the ultimate legal and financial liability with respect to certain contingent liabilities and claims, we believe, based upon our examination of currently available information, our experience to date, and advice from legal counsel, that the individual and aggregate liabilities resulting from the ultimate resolution of these contingent matters, after taking into

consideration our existing insurance coverage and amounts already provided for, will not have a material adverse impact on our consolidated results of operations, financial position or cash flows.

Environmental Matters

We are subject to various U.S. and international federal, state and local environmental, and health and safety laws and regulations. We are also subject to liabilities arising under the Federal Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA" or "Superfund"), the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, and similar state and international laws and regulations that impose responsibility for the control, remediation and abatement of air, water and soil pollutants and the manufacturing, storage, handling and disposal of hazardous substances and waste.

We have been named as a potentially responsible party ("PRP") with respect to several hazardous waste disposal sites that we do not own or control, which are included on, or proposed to be included on, the Superfund National Priority List of the U.S. Environmental Protection Agency ("EPA") or on equivalent lists of various state governments. Because CERCLA allows for joint and several liability in certain circumstances, we could be responsible for all remediation costs at such sites, even if we are one of many PRPs. We believe, based on the amount and nature of our waste, and the number of other financially viable PRPs, that our liability in connection with such matters will not be material.

Lower Passaic River Study Area

Hexcel and a group of approximately 51 other PRPs comprise the Lower Passaic Cooperating Parties Group (the "CPG"). Hexcel and the CPG are subject to a May 2007 Administrative Order on Consent ("AOC") to perform a Remedial Investigation/Feasibility Study ("RI/FS") of environmental conditions in the Lower Passaic River watershed. We were included in the CPG based on our operations at our former manufacturing site in Lodi, New Jersey.

In March 2016, the EPA issued a Record of Decision ("ROD") setting forth the EPA's selected remedy for the lower eight miles of the river. The ROD calls for capping and dredging of the lower eight miles of the Passaic River, with the placement of an engineered cap over the entire eight miles, at an expected cost ranging from $0.97 billion to $2.07 billion, according to the EPA. Because the EPA has not yet selected a remedy for the upper nine miles of the Lower Passaic River, this estimate range does not include any costs related to a future remedy for the upper portion of the river. Now that it has issued the final ROD, the EPA will seek to hold some combination of the PRPs liable to perform the work selected through the ROD. At this point, we have not yet determined our allocable share of performing the selected remedy. However, based on a review of the Company's position, and as no point within the range is a more probable outcome than any other point, the Company has determined that its accrual is sufficient at this time. The total accrued liability related to this matter was $2.0 million at December 31, 2017 and $2.1 million at December 31, 2016. Despite the issuance of the final ROD, there continue to be many uncertainties associated with the selected remedy and the Company's allocable share of the remediation and the amount of insurance coverage. Given those uncertainties, the amounts accrued may not be indicative of the amounts for which the Company is ultimately responsible and will be refined as events in the remediation process develop.

Omega Chemical Corporation Superfund Site, Whittier, California

We are a PRP at a former chemical waste site in Whittier, California. The PRPs at Omega have established a PRP Group, the "Omega PRP Group", and are currently investigating and remediating soil and groundwater at the site pursuant to a Consent Decree with the EPA. The Omega PRP Group has attributed approximately 1.07% of the waste tonnage sent to the site to Hexcel. In addition to the Omega site specifically, the EPA is investigating the scope of regional groundwater contamination in the vicinity of the Omega site and issued a Record of Decision; the Omega PRP Group members have been served notice by the EPA as PRPs who will be required to be involved in the

remediation of the regional groundwater contamination in that vicinity as well. As a member of the Omega PRP Group, Hexcel will incur costs associated with the investigation and remediation of the Omega site and the regional groundwater remedy, although our ultimate liability, if any, in connection with this matter cannot be determined at this time. The total accrued liability relating to potential liability for both the Omega site and regional groundwater remedies was $0.6 million at both December 31, 2017 and December 31, 2016.

Environmental remediation reserve activity for the three years ended December 31, 2017 was as follows:

	For the year ended December 31,		
(In millions)	2017	2016	2015
Beginning remediation accrual balance	$ 3.2	$ 2.9	$ 5.0
Current period expenses	0.1	1.2	0.5
Cash expenditures	(0.5)	(0.9)	(2.6)
Ending remediation accrual balance	$ 2.8	$ 3.2	$ 2.9
Capital expenditures for environmental matters	$ 8.4	$ 13.2	$ 7.1

Environmental Summary

Our estimate of liability as a PRP and our remaining costs associated with our responsibility to remediate the Lower Passaic River in New Jersey and other sites are accrued in the consolidated balance sheets. As of December 31, 2017 and 2016, our aggregate environmental related accruals were $2.8 million and $3.2 million, respectively. As of December 31, 2017 and 2016, $0.9 million and $1.4 million, respectively, were included in current other accrued liabilities, with the remainder included in other non-current liabilities. As related to certain environmental matters, the accruals were estimated at the low end of a range of possible outcomes since no amount within the range is a better estimate than any other amount. If we had accrued, for those sites where we are able to estimate our liability, at the high end of the range of possible outcomes, our accrual would have been $16 million higher at December 31, 2017 and 2016.

These accruals can change significantly from period to period due to such factors as additional information on the nature or extent of contamination, the methods of remediation required, changes in the apportionment of costs among responsible parties and other actions by governmental agencies or private parties, or the impact, if any, of being named in a new matter.

Environmental remediation spending charged directly to our reserve balance was $0.5 million and $0.9 million for the years ended December 31, 2017 and 2016, respectively. In addition, our operating costs relating to environmental compliance charged directly to expense were $9.9 million and $10.1 million for the years ended December 31, 2017 and 2016.

ITEM 4. Mine Safety Disclosure

Not applicable.

PART II

ITEM 5. Market for Registrant's Common Equity and Related Stockholder Matters

Hexcel common stock is traded on the New York Stock Exchange under the symbol HXL. The range of high and low sales prices of our common stock on the New York Stock Exchange is contained in Note 20 to the accompanying consolidated financial statements of this Annual Report on Form 10-K and is incorporated herein by reference.

On January 24, 2018, the Board of Directors declared a $0.125 quarterly dividend. The dividend will be payable to stockholders of record as of February 6, 2018, with a payment date of February 13, 2018. The Company announced a program to repurchase common stock of $300 million in 2017. During 2017, 2016 and 2015 the Company repurchased a total of $150 million, $111 million and $146 million of shares, respectively. There was $243 million remaining under the authorized 2017 share repurchase program at December 31, 2017.

On January 31, 2018, there were 609 holders of record of our common stock.

The following chart provides information regarding repurchases of Hexcel common stock:

Period	(a) Total Number of Shares (or Units) Purchased		(b) Average Price Paid per Share (or Unit)	(c) Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs	(d) Maximum Number (or Approximate Dollar Value) of Shares (or Units) that May Yet Be Purchased Under the Plans or Programs
October 1 — October 31, 2017	63,800		$ 61.90	63,800	$ 266,795,705
November 1 — November 30, 2017	239,100		$ 61.12	239,100	$ 252,182,817
December 1 — December 31, 2017	157,550		$ 61.41	157,550	$ 242,507,775
Total	460,450	(1)	$ 61.33	460,450	$ 242,507,775

(1)

On February 9, 2017, our Board authorized us to repurchase an additional $300 million of our outstanding common stock, of which $242.5 million was still available at December 31, 2017.

ITEM 6. Selected Financial Data

The information required by Item 6 is contained on page 25 of this Annual Report on Form 10-K under the caption "Selected Financial Data" and is incorporated herein by reference.

ITEM 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The information required by Item 7 is contained on pages 26 to 33 of this Annual Report on Form 10-K under "Management's Discussion and Analysis of Financial Condition and Results of Operations" and is incorporated herein by reference.

ITEM 7A. Quantitative and Qualitative Disclosures about Market Risk

The information required by Item 7A is contained under the heading "Market Risks" on pages 35 to 37 of this Annual Report on Form 10-K and is incorporated herein by reference.

ITEM 8. Financial Statements and Supplementary Data

The information required by Item 8 is contained on pages 44 to 78 of this Annual Report on Form 10-K under "Consolidated Financial Statements and Supplementary Data" and is incorporated herein by reference. The Reports of Independent Registered Public Accounting Firms are contained on page 41 to 43 of this Annual Report on Form 10-K under the caption "Reports of Independent Registered Public Accounting Firms" and is incorporated herein by reference.

ITEM 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

ITEM 9A. Controls and Procedures

Our Chief Executive Officer and Chief Financial Officer have evaluated our disclosure controls and procedures as of December 31, 2017 and have concluded that these disclosure controls and procedures are effective to ensure that information required to be disclosed by us in the reports that we file or submit under the Securities Exchange Act of 1934 is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. These disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by us in the reports we file or submit is accumulated and communicated to management, including the Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Our Chief Executive Officer and Chief Financial Officer have concluded that there have not been any changes in our internal control over financial reporting during the fourth quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management's report on our internal control over financial reporting is contained on page 40 of this Annual Report on Form 10-K and is incorporated herein by reference.

ITEM 9B. Other Information

None.

PART III

ITEM 10. Directors, Executive Officers and Corporate Governance

The information required by Item 10 will be contained in our definitive proxy statement for the 2018 Annual Meeting of Stockholders, which will be filed with the Securities and Exchange Commission within 120 days after the close of the fiscal year ended December 31, 2017. Such information is incorporated herein by reference.

ITEM 11. Executive Compensation

The information required by Item 11 will be contained in our definitive proxy statement for the 2018 Annual Meeting of Stockholders, which will be filed with the Securities and Exchange Commission within 120 days after the close of the fiscal year ended December 31, 2017. Such information is incorporated herein by reference.

ITEM 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by Item 12 will be contained in our definitive proxy statement for the 2018 Annual Meeting of Stockholders, which will be filed with the Securities and Exchange Commission within 120 days after the close of the fiscal year ended December 31, 2017. Such information is incorporated herein by reference.

ITEM 13. Certain Relationships and Related Transactions, and Director Independence

The information required by Item 13 will be contained in our definitive proxy statement for the 2018 Annual Meeting of Stockholders, which will be filed with the Securities and Exchange Commission within 120 days after the close of the fiscal year ended December 31, 2017. Such information is incorporated herein by reference.

ITEM 14. Principal Accountant Fees and Services

The information required by Item 14 will be contained in our definitive proxy statement for the 2018 Annual Meeting of Stockholders, which will be filed with the Securities and Exchange Commission within 120 days after the close of the fiscal year ended December 31, 2017. Such information is incorporated herein by reference.

PART IV

ITEM 15. Exhibits and Financial Statement Schedules

(a) Financial Statements, Financial Statement Schedules and Exhibits

(1) Financial Statements:

Reports of Independent Registered Public Accounting Firms

Consolidated Balance Sheets as of December 31, 2017 and 2016

Consolidated Statements of Operations for each of the three years ended December 31, 2017, 2016, and 2015

Consolidated Statements of Comprehensive Income for each of the three years ended December 31, 2017, 2016 and 2015

Consolidated Statements of Stockholders' Equity for each of the three years ended December 31, 2017, 2016 and 2015

Consolidated Statements of Cash Flows for each of the three years ended December 31, 2017, 2016 and 2015

Notes to the Consolidated Financial Statements

(2) Financial Statement Schedule for the three years ended December 31, 2017, 2016 and 2015:

Schedule II — Valuation and Qualifying Accounts

All other schedules are omitted because they are not applicable or the required information is shown in the financial statements or the notes thereto.

(3) Exhibits:

The following list of exhibits includes exhibits submitted with this Form 10-K as filed with the SEC and those incorporated by reference to other filings.

Exhibit No.	Description
3.1	Restated Certificate of Incorporation of Hexcel Corporation (incorporated herein by reference to Exhibit 1 to the Company's Registration Statement on Form 8-A dated July 9, 1996, Registration No. 1-08472).

3.2	Certificate of Amendment of the Restated Certificate of Incorporation of Hexcel Corporation (incorporated herein by reference to Exhibit 3.2 to the Company's Annual Report on Form 10-K/A for the fiscal year ended December 31, 2002, filed on March 31, 2003).
3.3	Amended and Restated Bylaws of Hexcel Corporation (incorporated by reference to Exhibit 3 to the Company's Current Report on Form 8-K dated September 23, 2014).
4.1	Form of Indenture between Hexcel Corporation and U.S. Bank National Association (incorporated by reference to Exhibit 4.1 to the Company's Registration Statement on Form S-3 dated October 21, 2014, Registration No. 333-199500)
4.2	Indenture, dated as of August 3, 2015, between Hexcel Corporation and U.S. Bank National Association, as Trustee (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K dated August 3, 2015).
4.3	First Supplemental Indenture, dated as of August 3, 2015, between Hexcel Corporation and U.S. Bank National Association, as Trustee (incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K dated August 3, 2015).
4.4	Form of Note for 4.700% Senior Notes due 2025 (incorporated by reference to Exhibit 4.3 to the Company's Current Report on Form 8-K dated August 3, 2015).
4.5	Form of Note for 3.950% Senior Notes due 2027 (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K dated February 16, 2017).

10.1 Credit Agreement, dated as of June 9, 2016, by and among Hexcel Corporation, Hexcel Holdings Luxembourg S.à.r.l., and the financial institutions from time to time party thereto, Citizens Bank, National Association, as administrative agent for the lenders, Citizens Bank, National Association, Merrill Lynch, Pierce, Fenner & Smith Incorporated and Wells Fargo Securities, LLC, as joint book managers and joint lead arrangers, Bank of America, N.A. and Wells Fargo Bank,

National Association, as syndication agents, and Sumitomo Mitsui Banking Corporation, SunTrust Bank, TD Bank, N.A. and U.S. Bank, National Association, as documentation agents (incorporated by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K dated June 14, 2016).

10.2* Hexcel Corporation 2013 Incentive Stock Plan (incorporated herein by reference to Exhibit 4.4 to the Company's Registration Statement on Form S-8, Registration No. 333-188292, filed on May 2, 2013).

10.3* Hexcel Corporation 2003 Incentive Stock Plan, as amended and restated as of May 7, 2009 (incorporated herein by reference to Exhibit 10.4(d) to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2009).

10.4* Hexcel Corporation Management Incentive Compensation Plan, as Amended and Restated on December 8, 2016 (incorporated herein by reference to Exhibit 10.6 to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2016).

10.5* Form of Employee Option Agreement (2014 - 2017) (incorporated herein by reference to Exhibit 10.8 to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2016).

10.6* Form of Employee Option Agreement (2012 and 2013) (incorporated herein by reference to Exhibit 10.11 to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2011).

10.7* Form of Restricted Stock Unit Agreement (2014 - 2017 (incorporated herein by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K dated January 27, 2014).

10.8* Form of Performance Based Award Agreement (2017) (incorporated by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K dated January 30, 2017).

10.9* Form of Performance Based Award Agreement (2015 and 2016) (incorporated by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K dated January 26, 2015).

10.10* Hexcel Corporation Nonqualified Deferred Compensation Plan, Effective as of January 1, 2005, Amended and Restated as of December 31, 2008 (incorporated herein by reference to Exhibit 99.14 to The Company's Current Report on Form 8-K dated January 7, 2009).

10.11* Offer of Employment between Hexcel Corporation and Nick L. Stanage dated July 22, 2013 (incorporated herein by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2013).

10.12* Supplemental Executive Retirement Agreement dated October 28, 2009, between Nick L. Stanage and Hexcel Corporation (incorporated herein by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K dated October 28, 2009).

10.13* Hexcel Corporation Executive Severance Policy (incorporated herein by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2013).

10.14* Executive Severance Agreement between Hexcel Corporation and Patrick Winterlich, dated October 2, 2017 (incorporated herein by reference to Exhibit 99.1 to the Company's Current report on Form 8-k dated October 6, 2017).

10.15* Executive Severance Agreement between Hexcel Corporation and Gail E. Lehman, dated October 2, 2017 (incorporated herein by reference to Exhibit 99.1 to the Company's Current report on Form 8-k dated October 6, 2017).

10.16* Executive Severance Agreement between Hexcel Corporation and Michael Canario, dated October 2, 2017 (incorporated herein by reference to Exhibit 99.1 to the Company's Current report on Form 8-k dated October 6, 2017).

10.17* Executive Severance Agreement between Hexcel Corporation and Timothy Swords, dated October 2, 2017 (incorporated herein by reference to Exhibit 99.1 to the Company's Current report on Form 8-k dated October 6, 2017).

10.18* Amended and Restated Executive Severance Agreement between Hexcel Corporation and Robert G. Hennemuth, dated December 31, 2008 (incorporated herein by reference to Exhibit 99.6 to the Company's Current Report on Form 8-K dated January 7, 2009).

10.19* Amended and Restated Executive Deferred Compensation Agreement between Hexcel Corporation and Robert G. Hennemuth, dated December 31, 2007 (incorporated herein by reference to Exhibit 99.4 to the Company's Current Report on Form 8-K dated January 7, 2008).

10.20*	Director Compensation Program, as adopted on May 4, 2017.
10.21*	Form of Restricted Stock Unit Agreement for Non-Employee Directors (2014-2017).
10.22*	Hexcel Corporation 2016 Employee Stock Purchase Plan (incorporated herein by reference to Annex B to the Company's Proxy Statement dated March 17, 2016).
21	Subsidiaries of the Company.
23.1	Consent of Ernst & Young LLP.
23.2	Consent of PricewaterhouseCoopers LLP.
24	Power of Attorney (included on signature page).
31.1	Certification of Chief Executive Officer, Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Chief Financial Officer, Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32	Certification of Chief Executive Officer and Chief Financial Officer Pursuant to 18 U.S.C.

	Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101	The following materials from the Hexcel Corporation Annual Report on Form 10-K for the year ended December 31, 2017, formatted in Extensible Business Reporting Language (XBRL): (i) the Consolidated Statements of Operations, (ii) Consolidated Statements of Comprehensive Income (iii), Consolidated Balance Sheets, (iv) Consolidated Statements of Cash Flows, and (v) related notes.

* Indicates management contract or compensatory plan or arrangement.

SIGNATURES

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

	Hexcel Corporation
February 7, 2018	/s/ NICK L. STANAGE
(Date)	Nick L. Stanage
	Chairman of the Board of Directors,
	Chief Executive Officer and President

KNOWN TO ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints each of Nick L. Stanage, Patrick Winterlich and Gail Lehman, individually, his attorney-in-fact, with the power of substitution, for him in any and all capacities, to sign any amendments to this report, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that each said attorney-in-fact, or his substitute or substitutes, may do or cause to be done by virtue hereof.

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

Signature	Title	Date
/s/ NICK L. STANAGE (Nick L. Stanage)	Chairman of the Board of Directors, Chief Executive Officer and President (Principal Executive Officer)	February 7, 2018
/s/ PATRICK WINTERLICH (Patrick Winterlich)	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	February 7, 2018
/s/ KIMBERLY HENDRICKS (Kimberly Hendricks)	Senior Vice President, Corporate Controller and Chief Accounting Officer (Principal Accounting Officer)	February 7, 2018
/s/ JOEL S. BECKMAN (Joel S. Beckman)	Director	February 7, 2018
/s/ LYNN BRUBAKER (Lynn Brubaker)	Director	February 7, 2018
/s/ JEFFREY C. CAMPBELL (Jeffrey C. Campbell)	Director	February 7, 2018
/s/ CYNTHIA EGNOTOVICH (Cynthia Egnotovich)	Director	February 7, 2018

/s/ W. KIM FOSTER (W. Kim Foster)	Director	February 7, 2018
/s/ THOMAS A. GENDRON (Thomas A. Gendron)	Director	February 7, 2018
/s/ JEFFREY A. GRAVES (Jeffrey A. Graves)	Director	February 7, 2018
/s/ GUY HACHEY (Guy Hachey)	Director	February 7, 2018
/s/ DAVID L. PUGH (David L. Pugh)	Director	February 7, 2018

Selected Financial Data

The following table summarizes selected financial data as of and for the five years ended December 31:

(In millions, except per share data)	2017	2016	2015	2014	2013
Results of Operations:					
Net sales	$ 1,973.3	$ 2,004.3	$ 1,861.2	$ 1,855.5	$ 1,678.2
Cost of sales	1,421.5	1,439.7	1,328.4	1,346.7	1,224.2
Gross margin	551.8	564.6	532.8	508.8	454.0
Selling, general and administrative expenses	151.8	157.6	156.1	149.1	141.4
Research and technology expenses	49.4	46.9	44.3	47.9	41.7
Other expense (income), net	—	—	—	6.0	—
Operating income	350.6	360.1	332.4	305.8	270.9
Interest expense, net	27.4	22.1	14.2	8.0	7.3
Non-operating expense, net	—	0.4	—	0.5	1.0
Income before income taxes and equity in earnings	323.2	337.6	318.2	297.3	262.6
Provision for income taxes	42.5	90.3	83.0	89.3	76.0
Income before equity in earnings	280.7	247.3	235.2	208.0	186.6
Equity in earnings from affiliated companies	3.3	2.5	2.0	1.4	1.3
Net income	$ 284.0	$ 249.8	$ 237.2	$ 209.4	$187.9
Basic net income per common share	$ 3.13	$ 2.69	$ 2.48	$ 2.16	$ 1.88
Diluted net income per common share	$ 3.09	$ 2.65	$ 2.44	$ 2.12	$ 1.84
Weighted-average shares outstanding:					
Basic	90.6	92.8	95.8	96.8	100.0
Diluted	91.9	94.2	97.2	98.7	102.1
Financial Position:					
Total assets	$ 2,780.9	$ 2,400.6	$ 2,187.4	$ 2,036.4	$ 1,836.1
Working capital	$ 394.6	$ 335.1	$341.2	$371.1	$387.7
Long-term notes payable and capital lease obligations	$805.6	$684.4	$576.5	$ 415.0	$ 292.0
Dividends per share of common stock	$ 0.47	$0.44	$ 0.40	$—	$—
Stockholders' equity	$ 1,495.1	$ 1,244.9	$ 1,179.6	$ 1,149.9	$ 1,160.4
Other Data:					
Depreciation	$ 104.5	$93.3	$76.4	$71.2	$59.3
Accrual basis capital expenditures	$284.4	$320.2	$ 289.0	$270.2	$206.5
Shares outstanding at year-end, less treasury stock	89.6	91.4	93.5	95.5	98.9

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

Business Overview

	Year Ended December 31,		
(In millions, except per share data)	2017	2016	2015
Net sales	$ 1,973.3	$ 2,004.3	$ 1,861.2
Gross margin %	28.0 %	28.2 %	28.6 %
Operating income	$350.6	$ 360.1	$332.4
Operating income %	17.8 %	18.0 %	17.9 %
Interest expense, net	$27.4	$ 22.1	$14.2
Non-operating expense	$—	$ 0.4	$—
Provision for income taxes	$ 42.5	$ 90.3	$ 83.0
Equity in earnings from investments in affiliated companies	$ 3.3	$ 2.5	$ 2.0
Net income	$ 284.0	$ 249.8	$ 237.2
Diluted net income per common share	$ 3.09	$2.65	$ 2.44

Reconciliations to adjusted income, adjusted diluted net income per share and free cash flow are provided below:

	Year Ended December 31,					
	2017		2016		2015	
(In millions)	Net Income	Tax Rate %	Net Income	Tax Rate %	Net Income	Tax Rate %
GAAP net income	$284.0	13.2	$249.8	26.8	$237.2	26.1
Non-operating expense, net of tax (1)	—		0.3		—	
Discrete tax benefits (2)	(15.6)	4.8	(6.6)	1.8	(11.6)	3.6
New tax law (3)	$(22.1)	6.8	$		$	
Adjusted net income (Non-GAAP)	$246.3	24.8	$243.5	28.6	$225.6	29.7
Adjusted diluted net income per share (Non-GAAP)	$2.68		$2.58		$2.32	

	Year Ended December 31,		
(In millions)	2017	2016	2015
Net cash provided by operating activities	$428.7	$401.4	$ 301.0
Less: Capital expenditures	(278.1)	(327.9)	(305.3)
Free cash flow (Non-GAAP)	$150.6	$73.5	$ (4.3)

(1)

Non-operating expense, net of tax, in 2016 was primarily for the accelerated amortization of deferred financing costs related to repaying the term loan and refinancing our revolving credit facility in June 2016.

(2) The year ended December 31, 2017, 2016 and 2015 included benefits of $15.6 million, $6.6 million and $11.6 million, respectively, primarily related to the release of reserves for uncertain tax positions.

(3) The three year ended December 31, 2017, includes a $22.1 million benefit related to the U.S. Tax Cuts and Jobs Act.

The Company uses non-GAAP financial measures, including sales and expenses measured in constant dollars (prior year sales and expenses measured at current year exchange rates); net income and earnings per share adjusted for items included in non-operating expenses; the effective tax rate adjusted for certain out of period items; and free cash flow. Management believes these non-GAAP measurements are meaningful to investors because they provide a view of Hexcel with respect to ongoing operating results and comparisons to prior periods. These adjustments represent significant charges or credits that are important to an understanding of Hexcel's overall operating results in the periods presented. Such non-GAAP measurements are not determined in accordance with generally accepted accounting principles and should not be viewed as an alternative to GAAP measures of performance.

Business Trends

The Company had total sales in 2017 of $1.97 billion, a 1.5% decrease as compared to 2016. Foreign exchange rates did not have a significant impact on sales in 2017 compared to 2016. Our Commercial Aerospace sales decreased 1.4%, Space & Defense sales increased 6.8% and our Industrial sales were down 13.2% from 2016. The Commercial Aerospace market represents 72% of our sales, followed by Space & Defense at 17% and Industrial at 11%.

- In 2017, our Commercial Aerospace sales decreased by 1.4%. Sales to Airbus and Boeing and their subcontractors, which comprised 89% of our Commercial Aerospace sales, were down about 1% as a decline in certain wide body sales more than offset the growth of the A350 and the new narrow bodies. Sales for the Airbus and Boeing legacy aircraft declined almost 20% driven by declines in legacy wide-body production. Almost all of our Commercial Aerospace sales are for new aircraft production as we have only nominal aftermarket sales.
- Airbus and Boeing combined deliveries in 2017 were a record 1,481 aircraft, compared to the previous record of 1,436 aircraft in 2016. The demand for new commercial aircraft is principally driven by two factors. The first is airline passenger traffic (measured by revenue passenger miles) and the second is the replacement rate for existing aircraft. The International Air Transport Association (IATA) estimates 2017 revenue passenger miles were 7.6% higher than 2016. Combined orders for Airbus and Boeing in 2017 were 2,021 planes, compared to 1,399 orders for 2016. Backlog at the end of 2017 increased to a record 13,129 planes, or nearly nine years of backlog at the 2017 delivery pace. Based on Airbus and Boeing announced projections, 2018 deliveries are estimated to be just above 2017.
- Overall the Commercial Aerospace industry continues to utilize a greater proportion of advanced composite materials with each new generation of aircraft. Hexcel has been awarded a contract to supply carbon fiber composite materials for the major primary structures for the A350 and has total content of about $4.8 million per plane. The A350 has about 53% composite content by weight. As of December 31, 2017, Airbus has 712 orders in backlog for the A350, which had its first customer delivery in December 2014. The B787 has more than 50% composite content by weight, including composite wings and fuselage, compared to the 11% composite content used in the construction of its B777 aircraft and 6% for the B767 the aircraft it is primarily replacing. The B787 entered into service in 2011and Hexcel averages about $1.4 million of content per plane. As of December 31, 2017, Boeing had a backlog of 658 orders for its B787 aircraft. Both Airbus and Boeing have announced new versions of their narrowbody planes that have new engines. Airbus's A320neo had its first customer delivery in January 2016, with 161 planes delivered in 2017 and 5,222 orders in backlog at December 31, 2017. Hexcel's content on the A320neo is approximately $450,000 per plane or about 50% higher than the prior derivative of the A320. Boeing's B737 MAX entered service in 2017 with 74 planes delivered and 4,223 planes in backlog at December 31, 2017. Hexcel's content on the B737 MAX is approximately $400,000 per aircraft or about 33% higher than the B737. In 2014, Airbus announced a new version of its A330, the A330neo, which will have new engines, and Boeing announced the B777X, a new version of the B777 with composite wings and new engines. Our content on the A330neo is estimated at $1.05 million as compared to $900,000 for the A330. Our content on the B777X is expected to be higher than the $1 million per shipset for the B777. Our sales on these new programs represent an increasing percent of our Commercial Aerospace sales.
- Other commercial aerospace includes regional business and other commercial aircraft sales, which account for 11% of Commercial Aerospace sales, were down about 4% compared to 2016, primarily from lower business jet sales.
- Our Space & Defense sales were up about 6.8% from 2016. The increase was driven largely by strong sales for the F-35 Joint Strike Fighter, V-22 Osprey and Black Hawk helicopters. Rotorcraft accounted for about 50% of our Space & Defense sales, with more than 87% coming from military programs. New or retrofit rotorcraft programs have an increased reliance on composite materials. In addition, our Engineered Products segment provides specialty value added services such as machining, sub-assembly, and even full blade manufacturing. We are on a wide range of helicopter, military aircraft and space programs, including the V-22 (Osprey) tilt rotor aircraft, F-35 (joint strike fighter or JSF), A400M military transport, and Black Hawk. No one program accounts for more than 12% of our revenues in this market.

- Our Industrial sales were down 13.2% from 2016. Industrial sales include wind energy, recreation, transportation and general industrial applications, with wind energy the largest submarket in Industrial. More than 70% of our Industrial sales are outside of the U.S. The wind energy submarket sales were down about 30% compared to 2016 reflecting a challenging year as expected. We expect wind energy sales in 2018 to exceed the 2016 levels as various legacy blades with lower composite content transition to longer, higher efficiency blades with higher composite content. The rest of Industrial sales were up about 10%, in constant currency, driven by growth in other industrial and automotive submarkets.

Results of Operations

We have two reportable segments: Composite Materials and Engineered Products. Although these segments provide customers with different products and services, they often overlap within three end business markets: Commercial Aerospace, Space & Defense and Industrial. Therefore, we also find it meaningful to evaluate the sales of our segments through the three end business markets.

Further discussion and additional financial information about our segments may be found in Note 16 to the accompanying consolidated financial statements of this Annual Report on Form 10-K.

Net Sales: Consolidated net sales of $1,973.3 million for 2017 were $31.0 million, or 1.5%, lower than the $2,004.3 million of net sales for 2016. The sales decline in 2017 was the result of reductions in some legacy wide body aircraft sales partially offset by A350 sales and sales related to the ramp up of the new narrow body programs. Consolidated net sales in 2016 increased 7.7% from the $1,861.2 million of sales in 2015. The sales increase in 2016 reflects increased volume in Commercial Aerospace driven by new aircraft programs and increased build rates, led by the ramp up of the A350 and the A320neo. Had the same U.S. dollar, British Pound sterling and Euro exchange rates applied in 2016 as in 2017 ("constant currency"), consolidated net sales for 2017 would have been 1.6% lower than 2016. In constant currency, consolidated net sales for 2016 would have been 7.9%, higher than 2015 net sales.

Composite Materials: Net sales of $1,597.1 million for 2017 decreased $12.9 million from 2016 driven by a decline in Industrial sales partially offset by a 7.8% increase in Space & Defense sales. The decline in Industrial sales was the result of 2017 being a transition year for wind energy blades, as discussed previously. The growth in in Space & Defense sales.was driven largely by strong sales for the F-35 Strike Fighter, V-22 Osprey and Black Hawk helicopter programs. Net sales of $1,610.0 million for 2016 increased $151.3 million from the $1,458.7 million for 2015 driven by an increase in Commercial Aerospace sales as a result of new programs, primarily the A350 and the A320neo. Space & Defense sales were 3.1% lower than 2015 and Industrial sales increased 8.0%. The increase in Industrial sales was driven by the Formax (UK) Limited ("Formax") acquisition partially offset by weakness in recreation and other industrial submarkets.

Engineered Products: Net sales of $376.2 million for 2017 decreased $18.1 million from 2016. Net sales of $394.3 million for 2016 decreased $8.2 million from the $402.5 million for 2015 driven by a more than 10% decrease in Space & Defense sales. The decrease in 2017 was largely related to the decline in legacy wide body sales. The decline in Space & Defense sales in 2016 was driven by lower commercial rotorcraft sales. There are not significant sales to the Industrial market from this segment.

The following table summarizes net sales to third-party customers by segment and end market in 2017, 2016 and 2015:

(In millions)	Commercial Aerospace	Space & Defense	Industrial	Total
2017 Net Sales				
Composite Materials	$ 1,101.1	$276.5	$219.5	$ 1,597.1
Engineered Products	308.7	67.2	0.3	376.2
Total	$ 1,409.8	$ 343.7	$ 219.8	$ 1,973.3
	72 %	17 %	11 %	100 %
2016 Net Sales				
Composite Materials	$ 1,100.5	$256.4	$253.1	$ 1,610.0
Engineered Products	328.8	65.3	0.2	394.3
Total	$ 1,429.3	$ 321.7	$ 253.3	$ 2,004.3
	71 %	16 %	13 %	100 %
2015 Net Sales				
Composite Materials	$959.7	$264.6	$234.4	$ 1,458.7
Engineered Products	326.2	72.7	3.6	402.5
Total	$ 1,285.9	$ 337.3	$ 238.0	$ 1,861.2

69 %	18 %	13 %	100 %	

Commercial Aerospace: Net sales to the Commercial Aerospace market decreased $19.5 million or 1.4% to $1,409.8 million for 2017 as compared to net sales of $1,429.3 million for 2016; 2016 net sales increased by $143.4 million as compared to net sales of $1,285.9 million for 2015. In constant currency, net sales to the Commercial Aerospace market decreased $21.4 million or 1.5% in 2017 and increased $145.3 million or 11.3% in 2016 compared to 2015.

In 2017, sales for Airbus and Boeing legacy aircraft declined almost 20% driven by declines in certain wide body programs, which was partially offset by an increase in narrow body programs. Sales for Airbus and Boeing programs, in 2016, were up 11% with new program sales (A350, B787, A320neo and B737 MAX) increasing more than 40% and legacy aircraft related sales decreasing 8%, driven by declines in legacy wide-body production and the transition from legacy narrowbodies to new programs (A320neo and B737MAX). Sales for the regional and business aircraft market were down slightly for the full year as compared to 2015.

Space & Defense: Net sales of $343.7 million were $22.0 million higher than 2016; net sales of $321.7 million in 2016 decreased $15.6 million from 2015. The increase in 2017 was driven largely by strong sales for the F-35 Strike Fighter, V-22 Osprey and Black

Hawk helicopter programs. The decline in 2016 sales was driven by lower commercial rotorcraft sales. For all of Space & Defense sales, our top 10 programs accounted for about 59% of total Space & Defense sales. In 2017, rotorcraft accounted for just above 50% of Space & Defense sales, with about 87% coming from military sales. Hexcel participates in a wide range of programs, in the U.S., Europe and Asia, including rotorcraft, transport, fixed wing and satellite programs.

Industrial: Net sales of $219.8 million for 2017 decreased by $33.5 million, or 13.2%, compared to 2016; net sales of $253.3 in 2016 increased by $15.3 million or 6% from 2015. The wind energy submarket sales were down about 30% compared to 2016 reflecting a challenging year as expected. We expect wind energy sales in 2018 to exceed the 2016 levels as various legacy blades with lower composite content transition to longer, higher efficiency blades with higher composite content. The rest of Industrial sales were up about 10%, in constant currency, driven by growth in other industrial and automotive submarkets. Industrial sales include wind energy, recreation, transportation and general industrial applications, with wind energy being the largest submarket of the total Industrial sales. More than 70% of our Industrial sales are outside of the U.S. In 2016, the rest of Industrial sales were up about 20% in constant currency as the benefit from the Formax acquisition was partially offset by weakness in recreation and other industrial submarkets.

Gross Margin: Gross margin for 2017 was $551.8 million or 28.0% of net sales as compared to $564.6 million or 28.2% of net sales in 2016. Exchange rates had about a 30 basis point favorable impact on 2017 gross margin and a nominal impact on gross margin percentages in 2016. The 2017 gross margin reflected strong operating performance across the company while offsetting about $10 million in costs related to the startup and training for the greenfield sites in France and Morocco. Gross margin for 2015 was $532.8 million, or 28.6% of net sales.

Selling, General and Administrative (“SG&A”) Expenses: SG&A expenses were $151.8 million or 7.7% of net sales for 2017, $157.6 million or 7.9% of net sales for 2016 and $156.1 million or 8.4% of net sales for 2015. The decline across all three years was the result of maintaining tight control of discretionary spend.

Research and Technology (“R&T”) Expenses: R&T expenses for 2017 were $49.4 million or 2.5% of net sales, in 2016 were $46.9 million or 2.3% of net sales and $44.3 million or 2.4% of net sales in 2015. On a constant currency basis, the expenses in 2017 were more than 6% above 2016. We continued to invest in new products and technology to support our growth and productivity initiatives.

Operating Income: Operating income for 2017 was $350.6 million compared with operating income of $360.1 million for 2016, and $332.4 million for 2015. Operating income as a percent of sales was 17.8%, 18.0% and 17.9% in 2017, 2016, and 2015, respectively.

Almost all of the Company’s sales and costs are either in U.S. dollars, Euros or British Pound sterling, with approximately one-quarter of our sales in Euros or British Pound sterling. In addition, much of our European Commercial Aerospace business has sales denominated in dollars and costs denominated in all three currencies. The net impact is that as the dollar strengthens against the Euro and the British Pound sterling, sales will decrease while operating income will increase. We have an active hedging program to minimize the impact on operating income, but our operating income as a percentage of net sales is affected. Foreign exchange had approximately a 40 basis point favorable impact on both 2017 and 2016 operating margins.

Operating income for the Composite Materials segment decreased $8.9 million to $359.4 million from $368.3 million in 2016. Operating income for Composite Materials was $336.2 million in 2015. In 2017, strong operating performance was partially offset by about $10 million in costs related to the startup and training for the greenfield sites in France and Morocco. The overall decline in 2017 operating income was primarily related to lower volume as certain legacy wide body production has declined. The growth in 2016 operating income for the Composite Materials

segment was driven primarily by higher commercial aerospace sales volume. Operating income for the year ended December 31, 2017 for the Engineered Products segment decreased $1.3 million to $48.7 million. Operating income for the Engineered Products segment in 2016 decreased by $5.8 million compared with 2015 to $50.0 million. The decline in profitability in 2016 was driven by the decline in sales, primarily rotorcraft. Also, there is a learning curve in this segment for new programs as they either start-up or ramp-up, so margins in Engineered Products will be unfavorably impacted as we transition through programs and work our way up the learning curve in making new parts and structures. Operating income margins for Engineered Products will be less than Composite Materials as it is not nearly as capital intensive. Accordingly, operating income margins in the 12% –14% range for Engineered Products will produce very good returns on invested capital.

We did not allocate corporate net operating expenses of $57.5 million, $58.2 million and $59.6 million to segments in 2017, 2016, and 2015, respectively.

Interest Expense: Interest expense was $27.4 million for 2017, $22.1 million for 2016 and $14.2 million for 2015. Interest expense increased in both periods due to a higher average interest rate on debt outstanding as a result of the Company issuing, in

February 2017 and in August 2015, Senior Unsecured Notes. In addition, debt continued to increase as we completed $150 million of share buybacks, invested $76 million in business acquisitions and paid a total of $43 million of dividends in 2017.

Non-operating Expense: As a result of the refinancing of the Senior Credit Facility in 2016, we accelerated the unamortized deferred financing costs related to the previous borrowings, incurring a cost of $0.4 million ($0.3 million after tax).

Provision for Income Taxes: Our 2017, 2016 and 2015 tax provision was $42.5 million, $90.3 million and $83.0 million for an effective tax rate of 13.2%, 26.8% and 26.1%, respectively. The 2017 effective tax rate included a $22.1 million benefit related to the U.S. Tax Cuts and Jobs Act enacted in 2017. The 2017 effective tax rate also included $15.6 million of benefits primarily related to the release of a valuation allowance in a foreign jurisdiction and the release of reserves for certain tax positions. The 2016 and 2015 effective tax rates also included benefits of $6.6 million and a $11.6 million primarily related to the release of reserves for uncertain tax positions as well as other benefits recorded during the year, respectively. Excluding the impact of these discrete items, the 2017, 2016 and 2015 effective tax rates were 24.8%, 30.0% and 30.9%, respectively. We believe the adjusted effective tax rate, which is a non-GAAP measure, is meaningful since it provides insight to the tax rate of ongoing operations.

Equity in Earnings from Affiliated Companies: Equity in earnings represents our portion of the earnings from our joint venture in Malaysia.

Net Income: Net income was $284.0 million or $3.09 per diluted share for the year ended December 31, 2017 compared to $249.8 million, or $2.65 per diluted share, for the year ended December 31, 2016 and $237.2 million, or $2.44 per diluted common share for 2015. Net income and diluted earnings per share benefitted from the new U.S. Tax law in 2017 by $22.1 million or $0.24 per diluted share. The three years also benefited from the other discrete tax benefits of $15.6 million, $6.6 million and $11.6 million. Good cost control led to the growth in earnings in 2017. Strong sales volume, particularly in the Commercial Aerospace market, coupled with good cost control led the growth in earnings in 2016 and 2015. Also see the table on page 26 for a reconciliation of GAAP net income from continuing operations to our adjusted “Non-GAAP” measure.

Significant Customers

Approximately 44%, 41% and 35% of our 2017, 2016 and 2015 net sales, respectively, were to Airbus and its subcontractors. Of the 44% of overall sales to Airbus and its subcontractors in 2017, 40% related to Commercial Aerospace market applications and 4% related to Space & Defense market applications. Approximately 25%, 28% and 31% of our 2017, 2016 and 2015 net sales, respectively, were to Boeing and related subcontractors. Of the 25% of overall sales to Boeing and its subcontractors in 2017, 23% related to Commercial Aerospace market applications and 2% related to Space & Defense market applications.

Financial Condition

In 2017, we ended the year with total debt, net of cash, of $749.8 million and generated $428.7 million operating cash resulting in $150.6 million of free cash flow (cash provided by operating activities less cash paid for capital expenditures). For 2018, we expect our capital spending to be in the range of $170 million to $190 million as we expand capacity in line with our outlook, resulting in additional positive free cash flow. We expect our typical use of cash in the first half of 2018, which will be funded by our available borrowings under our Senior Unsecured Revolving Facility (the “Facility”).

We have a portfolio of derivatives related to currencies and interest rates. We monitor our counterparties and we only use those rated A- or better.

Liquidity

Our cash on hand at December 31, 2017 was $60.1 million and we had $650.0 million borrowings available under our credit facility. Our total debt as of December 31, 2017 was $809.9 million, an increase of $121.2 million from the December 31, 2016 balance. The increase in debt primarily reflects $150 million of stock repurchases, $43 million of dividend payments and $76 million of business acquisitions, partially offset by the free cash flow generated.

The level of available borrowing capacity fluctuates during the course of the year due to factors including capital expenditures, share repurchases and dividend payments, interest and variable compensation payments, changes to working capital, as well as timing of receipts and disbursements within the normal course of business.

In February 2017, the Company issued $400 million in aggregate principal amount of 3.95% Senior Unsecured Notes due in 2027. In August 2015, the Company issued $300 million in aggregate principal amount of 4.7% Senior Unsecured Notes due in 2025. The interest rate on these senior notes may be increased by 0.25% each time a credit rating applicable to the notes is downgraded. The

maximum rate is 5.95% and 6.7%, respectively. The effective interest rates at December 31, 2017 were 4.1% and 4.8%. The net proceeds of these issuances were initially used to repay, in part, our Facility, as well as for general purposes including share repurchases.

Short-term liquidity requirements consist primarily of normal recurring operating expenses and working capital needs, capital expenditures, dividend payments and debt service requirements. We expect to meet our short-term liquidity requirements through net cash from operating activities, cash on hand and, if necessary, our revolving credit facility. As of December 31, 2017, long-term liquidity requirements consist primarily of obligations under our long-term debt obligations. We do not have any significant required debt repayments until June 2021 when the Facility expires.

Credit Facilities: The Company has a $700 million Facility, which expires in June 2021. The interest rate for this Facility at year-end was LIBOR +1.25%. The interest rate ranges from LIBOR +0.875% to a maximum of LIBOR +1.875%, depending upon the Company's leverage ratio. At December 31, 2017, total borrowings under the Facility were $50 million. The Facility permits us to issue letters of credit up to an aggregate amount of $40 million. Outstanding letters of credit reduce the amount available for borrowing under our revolving loan. As of December 31, 2017, we had no letters of credit outstanding under the Facility resulting in undrawn availability under the Facility as of December 31, 2017 of $650.0 million.

The Facility contains financial and other covenants, including, but not limited to, restrictions on the incurrence of debt and the granting of liens, as well as the maintenance of an interest coverage ratio and a leverage ratio. In accordance with the terms of the Facility, we are required to maintain a minimum interest coverage ratio of 3.50 (based on the ratio of EBITDA, as defined in the credit agreement, to interest expense) and may not exceed a maximum leverage ratio of 3.50 (based on the ratio of total debt to EBITDA) throughout the term of the Facility. In addition, the Facility contains other terms and conditions such as customary representations and warranties, additional covenants and customary events of default. The conditions and covenants related to the senior notes are less restrictive than those of our Facility. As of December 31, 2017, we were in compliance with all debt covenants and expect to remain in compliance.

In June 2016, we also entered into a €60 million ($67.4 million) term loan ("Euro loan"). The loan has two tranches of which the first tranche for €25 million, has a rate of +1.2% Euribor and a final maturity date of June 30, 2023. The second tranche for €35 million has a rate of Euribor +1.25% and a final maturity date of June 30, 2024. There is a zero percent floor on the Euribor. The loans are payable in annual installments, the first began on June 30, 2017 and the second tranche will begin on June 30, 2019. We had $67.6 million (€56.4 million) outstanding under this loan at December 31, 2017.

We have a $10.0 million borrowing facility for working capital needs of our Chinese entity with no outstanding balance at December 31, 2017. These funds can only be used locally and, accordingly, we do not include this facility in our borrowing capacity disclosures. The facility is guaranteed by Hexcel Corporation but is uncommitted and can be cancelled at any time.

Operating Activities: We generated $428.7 million in cash from operating activities during 2017, an increase of $27.3 million from 2016 primarily reflecting an improvement in accounts receivable through strong cash collections . Cash generated from operating activities during 2016 was $401.4 million, a increase of $100.4 million from 2015 reflecting higher earnings and lower working capital usage.

Investing Activities: Cash used for investing activities, primarily for capital expenditures, was $354.1 million in 2017 compared to $366.5 million in 2016 and $305.3 million in 2015. 2017 includes $76 million primarily for the acquisition of the Structil and OPM aerospace and defense businesses, as discussed below. 2016 also includes $30 million of investments in affiliates and $8.6 million for the Formax acquisition as discussed below.

In 2017, we acquired Structil SA (“Structil”) to enhance our technology portfolio with adhesive, prepreg and pultrusion technologies. We also acquired an additional interest in Oxford Performance Materials (“OPM”), and purchased assets related to their Commercial Aerospace and Space & Defense applications business. We also made an additional investment in Carbon Conversions Incorporated (“CCI”). CCI is a leader in carbon fiber recycling and repurposing. We account for this investment in CCI using the cost method.

In 2016, we spent $30 million on investments including an interest in Oxford Performance Materials (“OPM”). We issued an 8% convertible secured promissory note to Luminati Aerospace LLC (“Luminati”). Luminati is an aerospace technology company focusing on research, development, testing, and manufacturing of next generation solar-electric unmanned aerial vehicles (“UAV”), or UAVs. The note matures in 2023 and the principal and interest are convertible into Luminati stock. The note will convert upon Luminati achieving certain milestones or at Hexcel’s discretion. We also made an initial investment in CCI.

In January 2016, the Company acquired the remaining 50% ownership of Formax (UK) Limited ("Formax"). The Company previously acquired a 50% interest in the privately-owned company in December 2014. Located in Leicester, U.K., Formax is a leading manufacturer of composite reinforcements, specializing in the production of lightweight carbon multi-axials and highly engineered glass fiber and aramid fiber fabrics.

The Company is coming to the end of a major program to expand capacity over a multi-year period, primarily for the manufacture of carbon fiber and prepregs to support aerospace growth. These capital projects require large expenditures and long lead times, some taking more than two years to complete. This program includes construction of a $250 million facility in Roussillon, France that is expected to be completed and qualified in 2018. The majority of the $322 million in construction in progress as of December 31, 2017 represents spending on expansion projects primarily at our Roussillon, France; Salt Lake City, Utah; and Duxford England facilities. We expect a majority of these projects to be placed in service during 2018.

Financing Activities: Financing activities were a use of cash of $58.3 million in 2017 as compared to $46.8 million in 2016 and $10.9 million in 2015. In 2017, we issued $400 million of Unsecured Senior Notes of which $315 million was used to repay the Facility. In 2016, we had borrowings, net of repayments, from our Facility of $85 million. In 2015, we had Facility repayments, net of borrowings, of $135.0 million. We also had $33 million and $26 million of borrowings net of repayments from our Euro loan in 2017 and 2016. We paid $43 million, $40 million and $38 million in dividends in 2017, 2016 and 2015.

In February 2017, the Company issued $400 million aggregate principal amount of 3.95% Senior Unsecured Notes due in 2027. In August 2015, the Company issued $300 million aggregate principal amount of 4.7% Senior Unsecured Notes due in 2025. The interest rate on these senior notes may be increased by 0.25% each time a credit rating applicable to the notes is downgraded. The maximum rate is 5.95% and 6.7%, respectively. The net proceeds were initially used to repay, in part, our Facility. The Company also repurchased stock as described below.

In February 2017, our Board authorized the repurchase of an additional $300 million of the Company's stock ("2017 Repurchase Plan"). In October 2015, our Board authorized the repurchase of $250 million of the Company's stock ("2015 Repurchase Plan"). During 2017, 2016 and 2015, the Company spent $150.3 million, $111.1 million and $146.1 million to repurchase common stock. This included $100 million to complete a 2014 repurchase plan and $250 million to complete the 2015 Repurchase Plan. At December 31, 2017, we have $243 million remaining under the 2017 Repurchase Plan.

Financial Obligations and Commitments: We had $4.3 million of current debt maturities as of December 31, 2017. The next significant scheduled debt maturity will not occur until 2021, the year the Facility matures. In addition, certain sales and administrative offices, data processing equipment and manufacturing equipment and facilities are leased under operating leases.

Total letters of credit issued and outstanding were $1.8 million as of December 31, 2017.

The following table summarizes the scheduled maturities as of December 31, 2017 of financial obligations and expiration dates of commitments for the years ended 2017 through 2021 and thereafter.

(In millions)	2018	-	-	-	-
Outstanding at December 31, 2012	862,500	$ 11.92	5.5	$ 7,499	
Exercisable at December 31, 2012	817,502	$ 11.91	5.3	$ 7,147	

The weighted-average grant-date fair value of options granted during the years ended December 31, 2011 and 2010, were $7.28 and 7.65 per share, respectively. No options were granted in 2012. The following table summarizes stock option activity for the periods noted.

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	Amount		Weighted-Average Exercise Price
Outstanding at January 1, 2010	325,000	$	12.31
Granted	402,500	$	11.51
Expired or canceled	-	$	-
Exercised	-	$	-
Outstanding at December 31, 2010	727,500	$	11.86
Granted	135,000	$	12.23
Expired or canceled	-	$	-
Exercised	-		-
Outstanding at December 31, 2011	862,500	$	11.92
Granted	-	$	-
Expired or canceled	-		-
Exercised	-		-
Outstanding at December 31, 2012	862,500(a)	$	11.92
Options exercisable at December 31, 2012	817,502	$	11.91
Weighted-average years of remaining contractual life of options outstanding at December 31, 2012	5.5		

(a) Exercise prices vary from $9.88 to $18.99, and expiration dates vary from May 2015 to December 2021.

Stock Awards to Directors, Officers, Consultants and Employees

The Company has granted stock awards pursuant to its 2007 Management Equity Incentive Plan, 2009 Equity Incentive Plan and Outside Director Compensation Plan.

Under the 2007 Management Equity Incentive Plan 250,000 shares were issued. A 150,000-share award was issued that vested in three equal installments on January 1, 2008, January 1, 2009 and January 1, 2010. Of the remaining 100,000 shares reserved under the 2007 Management Equity Incentive Plan, 10,000 were issued as options as described above, and 90,000 were issued as shares that vested in May 2009 consistent with the terms of the agreements pursuant to which those executives provided services to the Company.

Of the total 850,000 shares reserved under the 2009 Equity Incentive Plan, 115,000 restricted shares of common stock were granted on January 14, 2010, and 140,000 restricted shares of common stock were granted on January 10, 2011, consistent with the terms of the agreements pursuant to which those executives provide services to the Company and which contemplate that such executives will participate in the Company's long-term incentive plans. The recipients of these restricted shares have a contractual agreement not to sell any of these shares for a period of three years following the effective date. Of the remaining 595,000 shares reserved under the 2009 Equity Incentive Plan, 22,782 shares of common stock were issued to directors, 537,500 were issued as options as described above and 34,718 are available for future distribution.

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Under the Outside Director Compensation Plan, 72,782 shares have been awarded for the plan years ended June 30, 2006, through June 30, 2012. Of the 72,782 shares awarded, 13,795 shares were awarded for service during the plan year ended June 30, 2012, became effective on that date and vested on January 31, 2013.

The accompanying consolidated statements include approximately $99,000, $1,130,000 and $1,388,000 of stock-based compensation expense related to stock awards in the years ended December 31, 2012, 2011 and 2010, respectively.

A summary of stock awards activity under the plans during the years ended December 31, 2012 and 2011 is presented below:

	Shares	Weighted-Average Grant-date Fair Value ($000's)
Nonvested at December 31, 2010	9,582	$ 116
Granted	151,304	951
Forfeited or canceled	-	-
Vested	(151,466)	(951)
Nonvested at December 31, 2011	9,420	102
Granted	13,795	99
Forfeited or canceled	-	-
Vested	(9,420)	(102)
Nonvested at December 31, 2012	13,795	$ 99

As of December 31, 2012, the total unrecognized compensation cost related to unvested share-based awards under the plans totaled $50,000, and is expected to be recognized over a weighted-average period of one year.

Stock Purchase Warrants Issued to Non-Employees

The Company accounts for equity securities issued to non-employees in accordance with the provisions of ASC 718 and ASC 505.

On November 30, 2011, the Company raised $6 million with a private placement of 666,667 shares of Common Stock at a price of $9 per share. For every three (3) shares of Common Stock issued, the Company issued one (1) Common Stock purchase warrant entitling the holder to purchase, commencing 90 days from the date of the issuance and prior to December 8, 2014, one (1) share of Common Stock at an exercise price of $13 per share.

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On October 30, 2012, the Company increased the capacity of its existing Term Loan facility with an additional $5 million facility. Concurrently with the funding of the facility, the Company issued warrants to the lenders to purchase an aggregate of 250,000 shares of its common stock. These warrants have an exercise price of $10 per share and must be exercised not later than two years from the date of issuance.

As of December 31, 2012, 472,222 warrants remain outstanding.

NOTE 11 – SEGMENT INFORMATION

The primary business of the Company is to acquire and develop land and water resources. As a result, the Company's financial results are reported in a single segment.

NOTE 12 – COMMITMENTS AND CONTINGENCIES

The Company leases equipment and office facilities under operating leases that expire through January 2016. Aggregate rental expense under all operating leases was approximately $343,000, $338,000 and $371,000 in the years ended December 31, 2012, 2011 and 2010, respectively. At December 31, 2012, the future minimum rental commitments under existing non-cancelable operating leases are as follows:

12 Months Ending December 31	$ 000's
2013	219
2014	187
2015	176
	$ 582

In the normal course of its agricultural operations, the Company handles, stores, transports and dispenses products identified as hazardous materials. Regulatory agencies periodically conduct inspections and, currently, there are no pending claims with respect to hazardous materials.

The Company entered into a Services and Exclusivity Agreement with Layne Christensen Company ("Layne") on November 2, 2009. The agreement provides that the Company will contract exclusively with Layne for certain water related services, including drilling of boreholes, drilling of monitoring wells, completion of test wells, completion of production wells, and completion of aquifer, storage and recovery wells. In exchange for the Services and Exclusivity Agreement, Layne has agreed to forego $923,000 for work performed. This amount continues to be recorded as an other long-term liability as of December 31, 2012, and will be credited toward future work performed during the construction phase of the Water Project.

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In November 2008, the Company entered into an agreement with the law firm of Brownstein Hyatt Farber Schreck LLP ("Brownstein") to provide legal and advisory services. The primary services being provided are advising the Company as to Water Project design and implementation, permit approvals, environmental compliance, negotiation and drafting of agreements related to the Water Project. Under the agreement, the Company had a potential obligation to pay an amount of up to 1% of the net present value of the Water Project with the fee payable in cash and/or stock. This fee would have been payable upon receipt of all environmental approvals and permits and the completion of binding agreements for at least 51% of the Water Project's annual capacity. Interim payments of $1.5 million, to be credited to the final total, would have been made upon the achievement of certain specified milestones. An interim payment amount of $500 thousand was earned in June 2009 in consideration for the legal and advisory services previously provided. No further milestones have been met as of December 31, 2012. On January 9, 2013, the agreement with Brownstein was revised as to certain incentive compensation provisions (see Note 15, "Subsequent Events"). This arrangement may be terminated by either party upon 60 days notice, with any compensation earned but unpaid prior to termination payable following termination.

Pursuant to cost sharing agreements that have been entered into by participants in the Company's Water Project, $750 thousand in funds have offset costs incurred in the environmental analysis of the Water Project. These funds may either be reimbursed or credited to participants participation in the Water Project and, accordingly, are fully reflected as deferred revenue as of December 31, 2012.

Third parties have the ability in California to file litigation challenging the approval of a project. The Company is currently named as a real party in interest in eight lawsuits related to the Water Project approvals granted last year by the Santa Margarita Water District and County of San Bernardino in accordance with the California Environmental Quality Act ("CEQA"). The cases seek various forms of relief, but are primarily focused on causing a reconsideration of the environmental documents and limitation of the Project approvals. The cases are expected to proceed to administrative trial later this year. The Company cannot predict the outcome of any of the proceedings. In the opinion of management, the ultimate outcome of each proceeding, individually and in the aggregate, will not have a material adverse impact on the Company's financial position, results of operations or cash flows.

NOTE 13 – QUARTERLY FINANCIAL INFORMATION (UNAUDITED)

(in thousands except per share data)

	Quarter Ended			
	March 31, 2012	June 30, 2012	September 30, 2012	December 31, 2012
Revenues	$ 31	$ 6	$ 287	$ 38
Gross profit	31	4	(6)	(188)
Operating loss	(2,885)	(2,986)	(3,068)	(4,129)
Net loss	(4,448)	(4,584)	(4,736)	(5,806)
Basic and diluted net loss per common share	$ (0.29)	$ (0.30)	$ (0.31)	$ (0.38)

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	Quarter Ended			
	March 31, 2011	June 30, 2011	September 30, 2011	December 31, 2011
Revenues	$ 457	$ 40	$ 121	$ 401
Gross profit	25	22	(145)	(324)
Operating loss	(3,029)	(2,288)	(2,704)	(3,213)
Net loss	(4,254)	(3,728)	(4,105)	(4,750)
Basic and diluted net loss per common share	$ (0.31)	$ (0.27)	$ (0.29)	$ (0.33)

NOTE 14 – FAIR VALUE MEASUREMENTS

The following table presents information about our assets and liabilities that are measured at fair value on a recurring basis as of December 31, 2012 and 2011, and indicate the fair value hierarchy of the valuation techniques we utilized to determine such fair value. In general, fair values determined by Level 1 inputs utilize quoted prices (unadjusted) in active markets for identical assets or liabilities. We consider a security that trades at least weekly to have an active market. Fair values determined by Level 2 inputs utilize data points that are observable, such as quoted prices, interest rates and yield curves. Fair value determined by Level 3 inputs are unobservable data points for the asset or liability, and include situations where there is little, if any, market activity for the asset or liability.

	Investments at Fair Value as of December 31, 2012			
(in thousands)	Level 1	Level 2	Level 3	Total
Certificates of Deposit	$ 250	$ -	$ -	$ 250
Total investments at fair value	$ 250	$ -	$ -	$ 250

	Investments at Fair Value as of December 31, 2011			
(in thousands)	Level 1	Level 2	Level 3	Total
Certificates of Deposit	$ 6,500	$ -	$ -	$ 6,500
Total investments at fair value	$ 6,500	$ -	$ -	$ 6,500

NOTE 15 – SUBSEQUENT EVENTS

On January 9, 2013, Cadiz revised its existing agreement with the Brownstein. Under this agreement, Brownstein provides certain legal and advisory services to the Company, including the services of Mr. Scott Slater, the Company's Chief Executive Officer. As previously disclosed, the Company had agreed to pay to Brownstein an amount of up to 1% of the net present value of the Water Project as incentive compensation in consideration of the services provided by Brownstein under the original agreement.

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The revised agreement replaces the net present-value-based incentive compensation provisions of the original agreement with an agreement to issue up to a total of 400,000 shares of the Company's common stock, with 100,000 shares earned upon the achievement of each of four enumerated milestones as follows:

i. 100,000 shares earned upon the execution of the revised agreement;

ii. 100,000 shares earned upon receipt by the Company of a final judicial order dismissing all legal challenges to the Final Environmental Impact Report for the Project;
iii. 100,000 shares earned upon the signing of binding agreements for more than 51% of the Project's annual capacity; and

iv. 100,000 shares earned upon the commencement of construction of all of the major facilities contemplated in the Final Environmental Impact Report necessary for the completion and delivery of the Project.

All shares earned upon achievement of any of the four milestones will be payable three years from the date earned. The agreement also provides for base cash compensation payments to Brownstein of $25,000 per month.

On March 5, 2013, the Company completed arrangements with its senior lenders to refinance the Company's existing $66 million corporate term debt. The new agreement establishes two separate debt instruments, a $30 million senior secured mortgage loan due in three years, and a new $53.5 million convertible bond due in five years, with no principal or interest payments due on either instrument until maturity. The new debt instruments will replace all existing term debt on the Company's balance sheet and provide $17.5 million in new working capital to fund the Company's current operations, including pre-construction activities related to the Project.

The major components of the refinancing include:

- A $30 million senior term loan secured by the underlying assets of the Company, including landholdings and infrastructure (the "Senior Secured Debt"). The instrument, which will be held entirely by existing Lenders, will accrue interest at 8% per annum and require no principal or interest payments before maturity on March 5, 2016. Prepayment would be mandatory following any asset sale or voluntarily at the Company's option, subject to a premium. The Senior Secured Debt will have a senior position to any other Company debt instrument.

- A $53.5 million convertible bond held by our existing Lenders and new investors (the "Bond"). The Bond will be convertible at any time into the Company's common stock at a price of $8.05 per share. Interest would accrue at 7% per annum, with no principal or interest payments required before maturity on March 5, 2018. This instrument will have a junior position to the Senior Secured Debt.

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- Approximately $17.5 million in new working capital provided as part of the Bond issuance to fund Company operations.

In September 2008, the Company entered into a lease agreement with the Arizona and California Railroad Company ("ACR"). Under the terms of the lease, the Company can use a portion of the railroad's right-of-way to construct and operate a water conveyance pipeline for a period up to 99 years. The lease agreement provides for an initial design term, a design term extension, and an additional term for the construction and operation of a water conveyance pipeline. The initial design term and design terms extension expired on March 6, 2013. Pursuant to the agreement, the Company made a payment in the amount of $3.3 million on March 6, 2013, to commence the construction and operation term of the agreement.

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Cadiz Inc.

Schedule 1 - Valuation and Qualifying Accounts

For the years ended December 31, 2012, 2011 and 2010 ($ in thousands)

Year ended December 31, 2012	Balance at Beginning of Period	Additions Charged to Costs and Expenses	Other Accounts	Deductions	Balance at End of Period
Deferred tax asset valuation allowance	$ 54,788	$ 5,253	$ -	$ -	$ 60,041
Year ended December 31, 2011					
Deferred tax asset valuation allowance	$ 50,312	$ 4,476	$ -	$ -	$ 54,788
Year ended December 31, 2010					
Deferred tax asset valuation allowance	$ 47,350	$ 2,962	$ -	$ -	$ 50,312

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SIGNATURES

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

CADIZ INC.

By: /s/ Scott Slater
Scott Slater,
Chief Executive Officer

Date: March 15, 2013

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

Name and Position	Date
/s/ Keith Brackpool Keith Brackpool, Chairman	March 15, 2013
/s/ Scott Slater Scott Slater, Chief Executive Officer, President and Director (Principal Executive Officer)	March 15, 2013
/s/ Timothy J. Shaheen Timothy J. Shaheen, Chief Financial Officer and Director (Principal Financial and Accounting Officer)	March 15, 2013
/s/ Geoffrey Grant Geoffrey Grant, Director	March 15, 2013
/s/ Winston H. Hickox Winston H. Hickox, Director	March 15, 2013
/s/ Murray H. Hutchison Murray H. Hutchison, Director	March 15, 2013
/s/ Raymond J. Pacini Raymond J. Pacini, Director	March 15, 2013
/s/ Stephen E. Courter Stephen E. Courter, Director	March 15, 2013

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