UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ **Annual report pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934**

For the fiscal year ended December 31, 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 1-12001

ALLEGHENY TECHNOLOGIES INCORPORATED

(Exact name of registrant as specified in its charter)

Delaware	**25-1792394**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification Number)**
1000 Six PPG Place, Pittsburgh, Pennsylvania	**15222-5479**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (412) 394-2800

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

Title of each class	**Name of each exchange on which registered**
Common Stock, $0.10 Par Value	**New York Stock Exchange**

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

Indicate by check mark whether the Registrant is 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, and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the Registrant has submitted electronically and posted on its corporate Website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐

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

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

Large accelerated filer	☒		Accelerated filer	☐
Non-accelerated filer	☐	(Do not check if a smaller reporting company)	Smaller reporting company	☐
			Emerging growth 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 new or 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 Exchange Act). Yes ☐ No ☒

On February 9, 2018, the Registrant had outstanding 125,661,001 shares of its Common Stock.

The aggregate market value of the Registrant's voting stock held by non-affiliates at June 30, 2017 was approximately $1.9 billion, based on the closing price per share of Common Stock on June 30, 2017 of $17.01 as reported on the New York Stock Exchange. Shares of Common Stock known by the Registrant to be beneficially owned by directors and officers of the Registrant subject to the reporting and other requirements of Section 16 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), are not included in the computation. The Registrant, however, has made no determination that such persons are "affiliates" within the meaning of Rule 12b-2 under the Exchange Act.

Documents Incorporated By Reference

Selected portions of the Proxy Statement for the Annual Meeting of Stockholders to be held on May 10, 2018 are incorporated by reference into Part III of this Report.

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PART I

Item 1. Business

The Company

Allegheny Technologies Incorporated is a Delaware corporation with its principal executive offices located at 1000 Six PPG Place, Pittsburgh, Pennsylvania 15222-5479, telephone number (412) 394-2800, Internet website address www.atimetals.com. References to "Allegheny Technologies," "ATI," the "Company," the "Registrant," "we," "our" and "us" and similar terms mean Allegheny Technologies Incorporated and its subsidiaries, unless the context otherwise requires.

Our Business

ATI is a global manufacturer of technically advanced specialty materials and complex components. Our largest market is aerospace & defense, representing approximately 50% of total sales, led by products for jet engines. Additionally, we have a strong presence in the oil & gas, electrical energy, medical, and automotive markets. In aggregate, these key markets represent about 80% of our revenue. ATI is a market leader in manufacturing differentiated products that require our unique manufacturing and precision machining capabilities as well as our innovative new product development competence. Our capabilities range from alloy development to final production of highly engineered finished components, as well as producing powders for use in next-generation jet engine forgings and 3D-printed aerospace products.

We operate in two business segments: High Performance Materials & Components (HPMC), and Flat Rolled Products (FRP). Over 75% of 2017 HPMC segment sales were to the aerospace and defense markets, and nearly half of HPMC's total sales are products for commercial jet engines. Increasing demand for commercial aerospace products has been the main source of sales and segment operating profit growth for HPMC over the last few years. This is expected to continue to drive HPMC and overall ATI results for the next several years due to the ongoing expansion in production of next generation jet engines and airplanes. Other key HPMC end markets include medical, oil & gas, and electrical energy. HPMC produces, converts and distributes a wide range of high performance materials, including a variety of products from differentiated alloys and super alloys, and metallic powders.

Our FRP segment serves a diverse group of end markets. The oil & gas market, including chemical and hydrocarbon processing, and the automotive market, collectively represent over 40% of 2017 sales. Other major end markets for FRP include aerospace & defense, food processing equipment and appliances, construction and mining, electronics and communication equipment and computers. FRP produces, converts and distributes nickel-based alloys, specialty alloys, titanium and titanium-based alloys, and stainless steel in a variety of product forms including plate, sheet, engineered strip, and Precision Rolled Strip products.

ATI's strategic vision is to be an aligned and integrated specialty materials and components company. Our strategies target the products and global growth markets that require and value ATI's technical and manufacturing capabilities. Through alloy development, internal growth efforts, and long-term supply agreements on current and next-generation jet engines and airframes, we are well positioned with a fully qualified asset base to meet the expected multi-year demand growth from the commercial aerospace market. Our HPMC segment's isothermal and hot-die forge press utilization continues to increase to meet aerospace demand growth, including new market share gains.

Strategic end use markets for our products include:

Aerospace & Defense . We are a world leader in the production of materials and components for both commercial and military jet engines and airframes supporting customer needs for initial build requirements and for spare parts.

Aerospace & defense applications also require nickel-based alloys and superalloys and specialty alloys such as ours. Nickel-based alloys and superalloys remain extremely strong at high temperatures and resist degradation under extreme conditions. Typical aerospace applications for nickel-based alloys and superalloys and advanced metallic powders include jet engine shafts, discs, blades, vanes, rings and casings. The next generation and future-generation jet engines use new generations of nickel-based superalloys and advanced metallic powder alloys in large part due to increased fuel efficiency requirements that require hotter-burning engines. Our specialty alloys are used in the manufacture of aircraft landing gear and structural components, as well as jet engine components.

Products and components made from titanium and titanium-based alloys, such as jet engine components including blades, vanes, discs, and casings, and airframe components such as structural members, landing gears, hydraulic systems, and fasteners, are critical in aerospace and defense applications. These materials and components possess an extraordinary combination of properties that help to increase jet engine fuel efficiency and product longevity, including superior strength-to-weight ratio, elevated temperature resistance, low coefficient of thermal expansion, and extreme corrosion resistance.

In addition to our specialty materials, we are a global industry leader in isothermal and hot-die forging technologies for advanced aerospace components. We produce highly sophisticated components that have differing mechanical properties across a single product unit and are highly-resistant to fatigue and temperature effect. Our precision forgings are used for jet engine components, structural components for aircraft, helicopters, launch vehicles, and other demanding applications. ATI provides a full range of post-production inspection and machining with the certified quality needed to meet demanding application requirements. ATI has the technology, equipment, and know-how to cast titanium parts in some of the largest and most complex sizes and shapes currently being manufactured for aerospace applications, and our advanced manufacturing capabilities offer OEMs the freedom to design components with intricate geometries, cored passageways, cast-in features, and sculpted surfaces.

We continuously seek to develop and manufacture innovative new alloys to better serve the needs of the aerospace and defense market. For example, ATI 718Plus® nickel-based superalloy, Rene 65 near-powder superalloy, and our powder alloys have won significant share in the current and next-generation jet engines. ATI's metallic powder technology delivers alloy compositions and refined microstructures that offer increased performance and longer useful lives in high-temperature aerospace environments as well as improving the efficiency of jet engines. Our metallic powder products deliver the most uniform grain structure achievable in near-net shapes. We continue to increase our production capacity for advanced metallic powders for use in next-generation aerospace products, including additive manufacturing applications. Our nickel-based powder alloy expansion in North Carolina was completed in 2017 and is expected to be commercially qualified in early 2018. We recently announced plans for a titanium powder expansion to be located on the same site, as well as the Net Gen Alloys joint venture with GE Aviation to further develop a meltless titanium manufacturing process to be located on our existing Richburg, SC site.

Oil & Gas. The environments in which oil & gas can be found in commercial quantities have become more challenging, involving deep offshore wells, high pressure and high temperature conditions in sour wells and unconventional sources, such as shale oil & gas, and oil sands. These challenging offshore environments are located further off the continental shelf, including locations in arctic and tropical waters, than previously-sourced locations. They are often more than one mile below the water's surface, and up to two miles below the ocean floor. We enable our customer's success in these applications by developing and producing specialty materials for equipment that can operate for up to 30 years in these difficult environments.

Both of our business segments produce specialty materials that are critical to the oil & gas industry. Our specialty materials, including nickel-based alloys, stainless and duplex alloys, and other specialty alloys, have the strength and corrosion-resistant properties necessary for these challenging operating conditions.

Our Datalloy2® and DatalloyHP™ specialty stainless materials are used for non-magnetic drill collar applications that enable advanced directional and horizontal drilling techniques. We have developed a family of duplex alloys, including ATI 2003® and ATI 2102®, for use in subsea and deepwater oil and gas applications. Several of our strip, plate and cast products meet NORSOK qualification standards, which are developed by the Norwegian petroleum industry and are intended to identify materials used in oil and gas applications that are safe and cost-effective.

Electrical Energy . Our specialty materials are widely used in the global electrical power generation and distribution industries. We believe energy needs and environmental policies and the electrification of developing countries will continue to drive demand for our specialty materials and products for use in this industry over the long term.

For electrical power generation, our specialty materials, including corrosion-resistant alloys (CRAs), are used in coal, nuclear, and natural gas applications. In coal-fired plants, our CRAs are used for pipe, tube, and heat exchanger applications in water systems in addition to pollution control scrubbers. Our CRAs are also used in water systems, fuel cladding components, and process equipment for nuclear power plants. For nuclear power plants, we are an industry pioneer in producing nuclear reactor fuel cladding and structural components utilizing zirconium and hafnium alloys. We are a technology leader for large diameter components used in natural gas land-based turbines for power generation. For alternative energy generation, our alloys are used for solar, fuel cell and geothermal applications.

Medical . ATI’s advanced specialty materials are used in medical device products that enhance the quality of people’s lives around the world.

Our specialty alloys are used for replacement knees, hips and other prosthetic devices. The use of our alloys in these replacement devices offer the potential of longer product lifespans versus previous implant generations.

Our biocompatible nickel-titanium shape memory alloy is used for stents to support collapsed or clogged blood vessels. Reduced in diameter for insertion, these stents expand post-implant to the original tube-like shape due to the metal’s superelasticity. In addition, our ultra fine diameter (0.002 inch/0.051 mm) titanium wire is used for screens to prevent blood clots from entering critical areas of the body.

Manufacturers of magnetic resonance imaging (MRI) devices rely on our niobium superconducting wire to help produce electromagnetic fields that allow physicians to safely scan the body’s soft tissue.

Automotive. For automobiles, ATI specialty materials are used for powertrain and structural parts, exhaust systems and emission control parts, gaskets, air bag inflator housings, windshield wipers and blades, fuel systems, fasteners, hose clamps, gaskets and other components. Stainless steel is also used on exterior trim for its bright appearance and for internal components for its corrosion resistance.

ATI’s advanced nickel-based alloys and specialty alloys in flat-rolled products are used primarily in engine and exhaust applications for the automotive market. We expect global demand to grow for our high-value precision and engineered strip for automotive applications such as gaskets, hose clamps, and turbo chargers. Our Hot-Rolling and Processing Facility (HRPF) provides the capability to produce high-value alloys in wider and longer product forms. As automotive engine operating temperatures rise due to the increasing use of turbochargers to improve fuel efficiency, we believe our expertise in heat-resistant aerospace alloys will enable us to expand our share of this market, improving our high-value product mix.

Business Segments

Our two business segments accounted for the following percentages of total revenues of $3.53 billion , $3.13 billion , and $3.72 billion for the years ended December 31, 2017 , 2016 , and 2015 , respectively.

	2017	2016	2015
High Performance Materials & Components	**59%**	62%	53%
Flat Rolled Products	**41%**	38%	47%

Information with respect to our business segments is presented below and in Note 15 of the notes to the consolidated financial statements.

High Performance Materials & Components Segment

Our HPMC segment produces, converts and distributes a wide range of high performance materials for several major end markets, including aerospace & defense (jet engines and airframes), oil & gas, electrical energy, and medical. 76% of the HPMC segment’s 2017 revenues were derived from the aerospace & defense market. Demand for our products is driven primarily by the commercial aerospace cycle. Large aircraft and jet engines are manufactured by a small number of companies, such as The Boeing Company, Airbus S.A.S. (an Airbus Group company), Bombardier Aerospace (a division of Bombardier Inc.), and Embraer (Empresa Brasileira de Aeronáutica S.A.) for airframes, and GE Aviation (a division of General Electric Company), Rolls-Royce plc, Pratt & Whitney (a division of United Technologies Corporation), Snecma (SAFRAN Group), and various joint ventures that manufacture jet engines. These companies, and their suppliers, form a substantial part of our customer base in this business segment. The loss of one or more of our customers in the aerospace & defense market could have a material adverse effect on ATI’s results of operations and financial condition. In 2017, we signed strategic long-term agreements that are expected to drive HPMC’s growth trajectory for the next several years, including one with Pratt & Whitney to supply isothermally forged components and metallic powders for use in their next-generation jet engines.

Our high performance products are manufactured from a wide range of high performance materials, and components, and advanced metallic powder alloys made from titanium and titanium-based alloys, nickel-based alloys and superalloys, and a variety of other specialty metals. These materials are made in a variety of product forms that include precision forgings, castings, machined parts and others. We are integrated across these alloy systems in melt, forging, finishing, investment casting, and machining processes. Most of the products in this segment are sold directly to end-use customers, and a significant portion of our HPMC segment products are sold under multi-year agreements.

Principal competitors in the HPMC segment include: Berkshire Hathaway Inc., for nickel-based alloys and superalloys and specialty steel alloys, titanium and titanium-based alloys, precision forgings and investment castings through its acquisition of Precision Castparts Corporation and subsidiaries; Arconic Inc., for titanium and titanium-based alloys and precision forgings through its acquisitions of RTI International Metals, Inc. and Firth Rixson; Carpenter Technology Corporation for nickel-based alloys and superalloys and specialty steel alloys; VSMPO-AVISMA for titanium and titanium-based alloys; and Aubert & Duval for precision forgings.

Flat Rolled Products Segment

Our FRP segment produces, converts and distributes stainless steel, nickel-based alloys, specialty alloys, and titanium and titanium-based alloys, in a variety of product forms including plate, sheet, engineered strip, and Precision Rolled Strip ® products. The major end markets for our flat-rolled products are oil & gas, automotive, aerospace & defense, food processing equipment and appliances, construction & mining, electronics, communication equipment and computers. The operations in this segment include ATI Flat Rolled Products and the Chinese joint venture company known as Shanghai STAL Precision Stainless Steel Company Limited (STAL), in which we hold a 60% interest. Segment results also include our 50% interest in the industrial titanium joint venture known as Uniti LLC.

Stainless steel, nickel-based alloys and titanium sheet products are used in a wide variety of industrial and consumer applications. In 2017 , approximately 65% of our stainless sheet products by volume were sold to independent service centers, which have slitting, cutting or other processing facilities, with the remainder sold directly to end-use customers.

Engineered strip and Precision Rolled Strip products, which are under 0.015 inches thick, are used by customers to fabricate a variety of products primarily in the automotive, construction, and electronics markets. In 2017 , approximately 90% of these products by volume were sold directly to end-use customers or through our own distribution network, with the remainder sold to independent service centers.

Stainless steel, nickel-based alloy and titanium plate products are primarily used in aerospace, defense, and corrosion and industrial markets. In 2017 , approximately one-half of our plate products by volume were sold to independent service centers, with the remainder sold directly to end-use customers.

Competition in the Flat Rolled Products segment includes domestic stainless steel competitors North American Stainless, Outokumpu Stainless USA, LLC, and AK Steel Corporation, as well as imports from numerous foreign producers, including Aperam, based in Europe. Competitors for nickel-based alloys and superalloys and specialty steel alloys include Haynes International and VDM Metals GmbH.

In 2017, we took important steps toward improving the capacity utilization of our HRPF, most notably with the announced Allegheny & Tsingshan Stainless joint venture to manufacture 60” wide stainless sheet, which is expected to be formed during the first quarter of 2018.

Significant global overcapacity for stainless steel flat-rolled products has intensified the price competition in this segment over the last several years. Some of our foreign competitors are either directly or indirectly subsidized by governments. In 1999, the United States imposed anti-dumping and countervailing duties on unfairly low-priced and subsidized imports of stainless steel sheet and strip in coils and stainless steel plate in coils from companies in ten foreign countries. The anti-dumping and countervailing duty orders were reviewed in 2011 by the U.S. Department of Commerce and the U.S. International Trade Commission to determine whether the orders should remain in place for another five years. The agencies decided that eight such orders against five countries would continue in effect. In July 2016, the U.S. Department of Commerce and the U.S. International Trade Commission initiated a third review of the eight orders. The four orders covering imports of stainless steel plate in coils from three countries were continued for an additional five years in December 2016. In October 2017, the U.S. Department of Commerce published a notice continuing for an additional five years for orders covering imports of stainless steel sheet and strip in coils from three countries.

Additionally, in February 2016, ATI and the three domestic stainless steel competitors filed antidumping and countervailing duty petitions concurrently with the U.S. Department of Commerce and the U.S International Trade Commission, charging that unfairly traded imports of stainless steel sheet and strip from the People’s Republic of China are causing material injury to the domestic stainless steel industry. In February 2017, the U.S. Department of Commerce issued its final determinations, calculating antidumping duties ranging from 64% and 77% percent and countervailing duties ranging from 76% and 191%. These duties are generally applied in combination. The U.S. International Trade Commission reached a unanimous affirmative determination in early March 2017. The antidumping duties and subsidy margins are expected to act as a significant deterrent to the illegal dumping of Chinese government-subsidized imports of stainless steel sheet and strip into the U.S. market. We continue to monitor imports from foreign producers for appropriate action.

Raw Materials and Supplies

Substantially all raw materials and supplies required in the manufacture of our products are available from more than one supplier, and the sources and availability of raw materials essential to our businesses are currently adequate. The principal raw materials we use in the production of our specialty materials are scrap (including iron-, nickel-, chromium-, titanium-, and molybdenum-bearing scrap), nickel, titanium sponge, zirconium sand and sponge, ferrochromium, ferrosilicon, molybdenum and molybdenum alloys, manganese and manganese alloys, cobalt, niobium, vanadium and other alloying materials.

Purchase prices of certain principal raw materials have been volatile. As a result, our operating results may be subject to significant fluctuation, particularly in the Flat Rolled Products segment. We use raw material surcharge and index mechanisms to offset the impact of changes in raw material costs; however, competitive factors in the marketplace may limit our ability to institute such mechanisms. There can be a delay between the change in the price of raw materials and the impact of such mechanisms. For example, in 2017 we used approximately 100 million pounds of nickel; therefore a hypothetical change of a $1.00 per pound increase in nickel prices would result in increased costs of approximately $100 million. We also used approximately 400 million pounds of ferrous scrap in the production of our flat-rolled products; a hypothetical change of a $0.01 per pound increase would result in increased costs of approximately $4 million. While we enter into raw materials futures contracts from time-to-time to hedge exposure to price fluctuations, such as for nickel, we cannot be certain that our hedge position adequately reduces exposure. We believe that we have adequate controls to monitor these contracts, but we may not be able to accurately assess exposure to price volatility in the markets for critical raw materials.

In 2016, we indefinitely idled our Rowley, UT titanium sponge production facility. Over the last several years, significant global capacity has been added to produce titanium sponge, which is a key raw material used to produce ATI’s titanium products. In addition, demand for industrial-grade titanium products from global markets continues to be weak. As a result of these factors, titanium sponge, including aerospace quality sponge, can be purchased from qualified global producers under long-term supply agreements at prices below ATI’s production costs at its Rowley, UT facility. ATI has entered into long-term cost competitive supply agreements with several producers of premium-grade and standard-grade titanium sponge. The lower cost titanium sponge purchased under these supply agreements replaces the titanium sponge produced at the Rowley facility.

Other raw materials, such as nickel, cobalt, and ferrochromium, are available to us and our specialty materials industry competitors primarily from foreign sources. Some of these foreign sources are located in countries that may be subject to unstable political and economic conditions, which could disrupt supplies or affect the price of these materials.

We purchase our nickel requirements principally from producers in Australia, Canada, Norway, Russia, and the Dominican Republic. Zirconium raw materials are primarily purchased from the United States and China. Cobalt is purchased primarily from producers in Canada. More than 80% of the world’s reserves of ferrochromium are located in South Africa, Zimbabwe, Albania, and Kazakhstan. Niobium is purchased principally from producers in Brazil, and our titanium sponge comes from sources in Kazakhstan and Japan.

Export Sales and Foreign Operations

International sales represented approximately 41% of our total annual sales in 2017 and 2016 , and 42% of our total sales in 2015 . These figures include direct export sales by our U.S.-based operations to customers in foreign countries, which accounted for approximately 31% of our total sales in 2017 and 2016 , and 33% of our total sales in 2015 . Our overseas sales, marketing and distribution efforts are aided by our international marketing and distribution offices, ATI Europe, ATI Europe Distribution, and ATI Asia, or by independent representatives at various locations throughout the world. We believe that at least 50% of ATI’s 2017 sales were driven by global markets when we consider exports of our customers. Sales by geographic area in 2017 , and as a percentage of total sales, were as follows:

(In millions)		
United States	$ 2,070.6	59%
Europe	767.9	21%
Asia	457.8	13%
Canada	99.8	3%
South America, Middle East and other	129.0	4%
Total sales	$ 3,525.1	100%

Our HPMC segment has manufacturing capabilities for melting, remelting, forging and finishing nickel-based alloys and specialty alloys in the United Kingdom, and manufacturing capabilities for precision forging and machining in Poland, primarily serving the aerospace, construction & mining and transportation markets. Within our FRP segment, our STAL joint venture in the People’s Republic of China produces Precision Rolled Strip products, which enables us to offer these products more effectively to markets in China and other Asian countries. Our Uniti LLC joint venture allows us to offer titanium products to global industrial markets more effectively.

Backlog, Seasonality and Cyclicality

Our backlog of confirmed orders was approximately $2.1 billion at December 31, 2017 and $1.7 billion at December 31, 2016 . We expect that approximately 90% of confirmed orders on hand at December 31, 2017 will be filled during the year ending December 31, 2018 . Our HPMC's segment backlog of confirmed orders was approximately $1.9 billion at December 31, 2017 and $1.6 billion at December 31, 2016 . We expect that approximately 90% of the confirmed orders on hand at December 31, 2017 for this segment will be filled during the year ending December 31, 2018 . Our FRP's segment backlog of confirmed orders was approximately $0.2 billion at December 31, 2017 and $0.1 billion at December 31, 2016 . We expect that all of the confirmed orders on hand at December 31, 2017 for this segment will be filled during the year ending December 31, 2018 .

Generally, our sales and operations are not seasonal. However, demand for our products is cyclical over longer periods because specialty materials customers operate in cyclical industries and are subject to changes in general economic conditions and other factors both external and internal to those industries.

Research, Development and Technical Services

We believe that our research and development capabilities give ATI an advantage in developing new products and manufacturing processes that contribute to the long-term profitable growth potential of our businesses. We conduct research and development at our various operating locations both for our own account and, on a limited basis, for customers on a contract basis. Research and development expenditures for the years ended December 31, 2017 , 2016 , and 2015 included the following:

(In millions)	**2017**	2016	2015
Company-Funded:			
High Performance Materials & Components	$ 9.3	$ 10.9	$ 10.0
Flat Rolled Products	2.7	3.6	4.0
Corporate	1.3	0.2	0.2
	13.3	14.7	14.2
Customer-Funded:			
High Performance Materials & Components	1.4	2.2	1.5
Total Research and Development	$ 14.7	$ 16.9	$ 15.7

Our research, development and technical service activities are closely interrelated and are directed toward development of new products, improvement of existing products, cost reduction, process improvement and control, quality assurance and control, development of new manufacturing methods, and improvement of existing manufacturing methods.

We own hundreds of United States patents, many of which are also filed under the patent laws of other nations. Although these patents, as well as our numerous trademarks, technical information, license agreements, and other intellectual property, have been and are expected to be of value, we believe that the loss of any single such item or technically related group of such items would not materially affect the conduct of our business.

Environmental, Health and Safety Matters

We are subject to various domestic and international environmental laws and regulations that govern the discharge of pollutants and disposal of wastes, and which may require that we investigate and remediate the effects of the release or disposal of materials at sites associated with past and present operations. We could incur substantial cleanup costs, fines, civil or criminal sanctions, third party property damage or personal injury claims as a result of violations or liabilities under these laws or non-compliance with environmental permits required at our facilities. We are currently involved in the investigation and remediation of a number of our current and former sites as well as third party sites.

We consider environmental compliance to be an integral part of our operations. We have a comprehensive environmental management and reporting program that focuses on compliance with applicable federal, state, regional and local environmental laws and regulations. Each operating company has an environmental management system that includes mechanisms for regularly evaluating environmental compliance and managing changes in business operations while assessing environmental impact.

Our *Corporate Guidelines for Business Conduct and Ethics* address compliance with environmental laws as well as employment and workplace safety laws, and also describe our commitment to equal opportunity and fair treatment of employees. We continued to focus on safety across ATI’s operations during 2017 . Our 2017 OSHA Total Recordable Incident Rate was 2.36 and our Lost Time Case Rate was 0.54, which we believe to be competitive with world-class performance for our industry.

Employees

We have approximately 8,600 full-time employees, of which approximately 15% are located outside the United States. Approximately 40% of our workforce is covered by various collective bargaining agreements (CBAs), predominantly with the United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied & Industrial Service Workers International Union, AFL-CIO, CLC (USW). CBA’s with the USW that cover approximately 600 employees expired in 2017, and operations continue at these facilities while negotiations with the USW are ongoing. In addition, the Company has CBAs with approximately 300 full-time employees that expire in 2018.

Available Information

Our Internet website address is www.atimetals.com. Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as well as proxy and information statements and other information that we file, are available free of charge through our Internet website as soon as reasonably practicable after we electronically file such material with, or furnish such material to, the United States Securities and Exchange Commission (“SEC”). Our Internet website and the content contained therein or connected thereto are not intended to be incorporated into this Annual Report on Form 10-K. You may read and copy materials we file with the SEC at the SEC’s Public Reference Room at 100 F Street, NE, Washington, DC 20549. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains an Internet website at www.sec.gov, which contains reports, proxy and information statements and other information that we file electronically with the SEC.

Item 1A. Risk Factors

There are inherent risks and uncertainties associated with our business that could adversely affect our operating performance and financial condition. Set forth below are descriptions of those risks and uncertainties that we currently believe to be material, but the risks and uncertainties described are not the only risks and uncertainties that could affect our business. See the discussion under “Forward-Looking Statements” in Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations, in this Annual Report on Form 10-K.

Cyclical Demand for Products. The cyclical nature of the industries in which our customers operate causes demand for our products to be cyclical, creating potential uncertainty regarding future profitability. Various changes in general economic conditions may affect the industries in which our customers operate. These changes could include decreases in the rate of consumption or use of our customers’ products due to economic downturns. Other factors that may cause fluctuation in our customers’ positions are changes in market demand, lower overall pricing due to domestic and international overcapacity, currency fluctuations, lower priced imports and increases in use or decreases in prices of substitute materials. As a result of these factors, our profitability has been and may in the future be subject to significant fluctuation.

Risks Associated with the Commercial Aerospace Industry. A significant portion of the sales of our HPMC segment represents products sold to customers in the commercial aerospace industry. Fulfilling contractual arrangements to provide various products to customers in this industry often involves meeting highly exacting performance requirements and product specifications, and our failure to meet those requirements and specifications on a timely and cost efficient basis could have a material adverse effect on our results of operations, business and financial condition. The commercial aerospace industry has historically been cyclical due to factors both external and internal to the airline industry. These factors include general economic conditions, airline profitability, consumer demand for air travel, varying fuel and labor costs, execution of projected build rates, price competition, and international and domestic political conditions such as military conflict and the threat of terrorism. The length and degree of cyclical fluctuation are influenced by these factors and therefore are difficult to predict with certainty. Demand for our products, particularly those produced in our HPMC segment, is subject to these cyclical trends. Although the commercial aerospace industry is currently experiencing a period of production expansion related to the introduction of next-generation engines and aircraft, we cannot provide any assurance as to the ultimate magnitude or duration of this trend or its impact on our business. A downturn in the commercial aerospace industry has had, and may in the future have, an adverse effect on the prices at which we are able to sell our products, and our results of operations, business and financial condition could be materially adversely affected.

Risks Associated with the Oil & Gas Industry. The oil and gas industry, which historically has been a significant end market for both our HPMC and FRP segments, is highly cyclical and subject to volatility as a result of worldwide economic activity and associated demand for oil and natural gas, anticipated future prices for oil and natural gas, fluctuation in the level of drilling activity, changes in applicable regulation, global geopolitical conditions and numerous other factors. Demand for our products are likewise subject to these trends. In recent years, our business has been negatively impacted by the downturn and slow recovery in the oil and gas industry. While we believe that conditions in this end market are improving, and we are beginning to see positive impacts on our business as a result, we expect that it will remain a highly cyclical industry and future downturns could have an adverse effect on the prices at which we are able to sell our products, and our results of operations, business and financial condition could be materially adversely affected.

Volatility of Raw Material Costs. Most of our inventory is valued utilizing the last-in, first-out (LIFO) costing methodology. Inventory of our non-U.S. operations is valued using average cost or first-in, first-out (FIFO) methods. Under the LIFO inventory valuation method, changes in the cost of raw materials and production activities are recognized in cost of sales in the current period even though these material and other costs may have been incurred at significantly different values due to the length of time of our production cycle. In a period of rising prices, cost of sales expense recognized under LIFO is generally higher than the cash costs incurred to acquire the inventory sold. Conversely, in a period of declining raw material prices, cost of sales recognized under LIFO is generally lower than cash costs incurred to acquire the inventory sold. Generally, over time based on overall inflationary trends in raw materials, labor and overhead costs, the use of the LIFO inventory valuation method will result in a LIFO inventory valuation reserve, as the higher current period costs are included in cost of sales and the balance sheet carrying value of inventory is reduced.

The prices for many of the raw materials we use have been extremely volatile during the past several years. Since we value most of our inventory utilizing the LIFO inventory costing methodology, a fall in raw material costs results in a benefit to operating results by reducing cost of sales and increasing the inventory carrying value, while conversely, a rise in raw material costs has a negative effect on our operating results by increasing cost of sales while lowering the carrying value of inventory.

Due primarily to persistent raw material deflation in prior years, we are in an unusual situation of having a LIFO inventory balance that exceeds replacement cost. In cases where inventory at FIFO cost is lower than the LIFO carrying value, a write-down of the inventory to market may be required, subject to a lower of cost or market evaluation. In applying the lower of cost or market principle, market means current replacement cost, subject to a ceiling (market value shall not exceed net realizable value) and a floor (market shall not be less than net realizable value reduced by an allowance for a normal profit margin). We evaluate product lines on a quarterly basis to identify inventory values that exceed estimated net realizable value. The calculation of a resulting reserve, if any, is recognized as an expense in the period that the need for the reserve is identified.

Due to the long lead times required to manufacture many of our products, volatility in raw material prices exposes us to cash costs that may not be fully recovered through surcharge and index pricing mechanisms.

Product Pricing. From time-to-time, reduced demand, intense competition and excess manufacturing capacity have resulted in reduced prices, excluding raw material surcharges, for many of our products. These factors have had and may have an adverse impact on our revenues, operating results and financial condition.

Although inflationary trends in recent years have been moderate, during most of the same period, certain critical raw material costs, such as nickel, titanium sponge, chromium, and molybdenum and scrap containing iron, nickel, titanium, chromium, and molybdenum have been volatile. While we have been able to mitigate some of the adverse impact of volatile raw material costs through raw material surcharges or indices to customers, rapid changes in raw material costs causes volatility in, and may adversely affect, our results of operations.

We change prices on certain of our products from time-to-time. The ability to implement price increases is dependent on market conditions, economic factors, raw material costs and availability, competitive factors, operating costs and other factors, some of which are beyond our control. The benefits of any price increases may be delayed due to long manufacturing lead times and the terms of existing contracts.

Goodwill or Long-Lived Asset Impairments. We have various long-lived assets that are subject to impairment testing. We review the recoverability of goodwill annually, or more frequently whenever significant events or changes in circumstances indicate that the recorded goodwill of a reporting unit may be below that reporting unit's fair value. Our businesses operate in highly cyclical industries, such as commercial aerospace and oil & gas, and as such, our estimates of future cash flows, market demand, the cost of capital, and forecasted growth rates and other factors may fluctuate, which may lead to changes in estimated fair value and, therefore, impairment charges in future periods. For the 2017 annual goodwill impairment evaluation, both of our reporting units with goodwill had fair values that were significantly in excess of carrying value. Additionally, we have a significant amount of property, plant and equipment and acquired intangible assets that may be subject to impairment testing, depending on factors such as market conditions, the demand for our products, and facility utilization levels. Any determination requiring the impairment of a significant portion of goodwill or other long-lived assets has had, and may in the future have, a negative impact on our financial condition and results of operations.

Risks Associated with Strategic Capital Projects. From time-to-time, we undertake strategic capital projects in order to enhance, expand and/or upgrade our facilities and operational capabilities. For instance, over the last several years we have undertaken major expansions of our titanium and premium-melt nickel-based alloy, superalloy and specialty alloy production capabilities, and finished product commissioning of a new advanced hot-rolling and processing facility. Our ability to achieve the anticipated increased revenues or otherwise realize acceptable returns on these investments or other strategic capital projects that we may undertake is subject to a number of risks, many of which are beyond our control, including a variety of market, operational, permitting, and labor-related factors. In addition, the cost to implement any given strategic capital project ultimately may prove to be greater than originally anticipated. If we are not able to achieve the anticipated results from the implementation of any of our strategic capital projects, or if we incur unanticipated implementation costs or delays, our results of operations and financial position may be materially adversely affected.

Dependence on Critical Raw Materials Subject to Price and Availability Fluctuations. We rely to a substantial extent on third parties to supply certain raw materials that are critical to the manufacture of our products. Purchase prices and availability of these critical raw materials are subject to volatility. At any given time, we may be unable to obtain an adequate supply of these critical raw materials on a timely basis, on price and other terms acceptable to us, or at all.

If suppliers increase the price of critical raw materials, we may not have alternative sources of supply. In addition, to the extent that we have quoted prices to customers and accepted customer orders for products prior to purchasing necessary raw materials, or have existing contracts, we may be unable to raise the price of products to cover all or part of the increased cost of the raw materials.

The manufacture of some of our products is a complex process and requires long lead times. As a result, we may experience delays or shortages in the supply of raw materials. If unable to obtain adequate and timely deliveries of required raw materials, we may be unable to timely manufacture sufficient quantities of products. This could cause us to lose sales, incur additional costs, delay new product introductions, or suffer harm to our reputation.

We acquire certain important raw materials that we use to produce specialty materials, including nickel, zirconium, niobium, chromium, cobalt, and titanium sponge, from foreign sources. Some of these sources operate in countries that may be subject to unstable political and economic conditions. These conditions may disrupt supplies or affect the prices of these materials.

Availability of Energy Resources. We rely upon third parties for our supply of energy resources consumed in the manufacture of our products. The prices for and availability of electricity, natural gas, oil and other energy resources are subject to volatile market conditions. These market conditions often are affected by political and economic factors beyond our control. Disruptions in the supply of energy resources could temporarily impair our ability to manufacture products for customers. Further, increases in energy costs, or changes in costs relative to energy costs paid by competitors, has and may continue to adversely affect our profitability. To the extent that these uncertainties cause suppliers and customers to be more cost sensitive, increased energy prices may have an adverse effect on our results of operations and financial condition.

Risks Associated with Environmental Matters. We are subject to various domestic and international environmental laws and regulations that govern the discharge of pollutants and disposal of wastes, and which may require that we investigate and remediate the effects of the release or disposal of materials at sites associated with past and present operations. We could incur substantial cleanup costs, fines and civil or criminal sanctions, third party property damage or personal injury claims as a result of violations or liabilities under these laws or non-compliance with environmental permits required at our facilities. We are currently involved in the investigation and remediation of a number of our current and former sites as well as third party sites. We also could be subject to future laws and regulations that govern greenhouse gas emissions and various matters related to climate change and other air emissions, which could increase our operating costs.

With respect to proceedings brought under the federal Superfund laws, or similar state statutes, we have been identified as a potentially responsible party (PRP) at approximately 40 of such sites, excluding those at which we believe we have no future liability. Our involvement is limited or de minimis at approximately 21 of these sites, and the potential loss exposure with respect to 12 individual sites is not considered to be material.

We are a party to various cost-sharing arrangements with other PRPs at many of the sites. The terms of the cost-sharing arrangements are subject to non-disclosure agreements as confidential information. Nevertheless, the cost-sharing arrangements generally require all PRPs to post financial assurance of the performance of the obligations or to pre-pay into an escrow or trust account their share of anticipated site-related costs. In addition, the Federal government, through various agencies, is a party to several such arrangements.

We believe that we operate our businesses in compliance in all material respects with applicable environmental laws and regulations. However, from time-to-time, we are a party to lawsuits and other proceedings involving alleged violations of, or liabilities arising from, environmental laws. When our liability is probable and we can reasonably estimate our costs, we record environmental liabilities in our financial statements. In many cases, we are not able to determine whether we are liable or if liability is probable or to reasonably estimate the loss or range of loss. Estimates of our liability remain subject to additional uncertainties, including the nature and extent of site contamination, available remediation alternatives, the extent of corrective actions that may be required, and the participation number and financial condition of other PRPs, as well as the extent of their responsibility for the remediation. We intend to adjust our accruals to reflect new information as appropriate. Future adjustments could have a material adverse effect on our results of operations in a given period, but we cannot reliably predict the amounts of such future adjustments. At December 31, 2017 , our reserves for environmental matters totaled approximately $12 million . Based on currently available information, we do not believe that there is a reasonable possibility that a loss exceeding the amount already accrued for any of the sites with which we are currently associated (either individually or in the aggregate) will be an amount that would be material to a decision to buy or sell our securities. Future developments, administrative actions or liabilities relating to environmental matters, however, could have a material adverse effect on our financial condition or results of operations.

Risks Associated with Current or Future Litigation and Claims. A number of lawsuits, claims and proceedings have been or may be asserted against us relating to the conduct of our currently and formerly owned businesses, including those pertaining to product liability, patent infringement, commercial disputes, government contracting, employment matters, employee and retiree benefits, taxes, environmental matters, health and safety and occupational disease, and stockholder and corporate governance matters. Due to the uncertainties of litigation, we can give no assurance that we will prevail on all claims made against us in the lawsuits that we currently face or that additional claims will not be made against us in the future. While the outcome of litigation cannot be predicted with certainty, and some of these lawsuits, claims or proceedings may be determined adversely to us, we do not believe that the disposition of any such pending matters is likely to have a material adverse effect on our financial condition or liquidity, although the resolution in any reporting period of one or more of these matters could have a material adverse effect on our results of operations for that period. Also, we can give no assurance that any other claims brought in the future will not have a material effect on our financial condition, liquidity or results of operations.

Labor Matters. We have approximately 8,600 full-time employees, of which approximately 15% are located outside the United States. Approximately 40% of our workforce is covered by various collective bargaining agreements (CBAs), predominantly with the USW. At various times, our CBAs expire and are subject to renegotiation. CBA's with the USW that cover approximately 600 employees expired in 2017, and operations continue at these facilities while negotiations with the USW are ongoing. In addition, the Company has CBAs with approximately 300 full-time employees that expire in 2018. Generally, collective bargaining agreements that expire may be terminated after notice by the union. After termination, the union may authorize a strike. A labor dispute, which could lead to a strike, lockout, or other work stoppage by the employees covered by one or more of the collective bargaining agreements, could have a material adverse effect on production at one or more of our facilities and, depending upon the length of such dispute or work stoppage, on our operating results. There can be no assurance that we will succeed in concluding collective bargaining agreements to replace those that expire.

Export Sales. We believe that export sales will continue to account for a significant percentage of our future revenues. Risks associated with export sales include: political and economic instability, including weak conditions in the world's economies; accounts receivable collection; export controls; changes in legal and regulatory requirements; policy changes affecting the markets for our products; changes in tax laws and tariffs; trade duties; and exchange rate fluctuations (which may affect sales to international customers and the value of profits earned on export sales when converted into dollars). Any of these factors could materially adversely affect our results for the period in which they occur.

Risks Associated with Indebtedness. Our substantial indebtedness could adversely affect our business, financial condition or results of operations and prevent us from fulfilling our obligations under our outstanding indebtedness. As of December 31, 2017, our total consolidated indebtedness was approximately $1.5 billion. This substantial level of indebtedness increases the risk that we may be unable to generate enough cash to pay amounts due in respect of our indebtedness. Our substantial indebtedness could have important consequences to our stockholders and significant effects on our business. For example, it could:

- make it more difficult for us to satisfy our obligations with respect to our outstanding indebtedness;
- increase our vulnerability to general adverse economic and industry conditions;
- require us to dedicate a substantial portion of our cash flow from operations to payments on our indebtedness, thereby reducing the availability of our cash flow to fund working capital, capital expenditures, our strategic growth initiatives and development efforts and other general corporate purposes;
- limit our flexibility in planning for, or reacting to, changes in our business and the industry in which we operate;
- restrict us from taking advantage of business opportunities;
- place us at a competitive disadvantage compared to our competitors that have less indebtedness; and

- limit our ability to borrow additional funds for working capital, capital expenditures, acquisitions, debt service requirements, execution of our business strategy or other general corporate purposes.

In addition, the agreements that govern our current indebtedness contain, and the agreements that may govern any future indebtedness that we may incur may contain, financial and other restrictive covenants that could limit our ability to engage in activities that may be in our long-term best interests. Our failure to comply with those covenants could result in an event of default that, if not cured or waived, could result in the acceleration of all of our debt.

Risks Associated with Retirement Benefits. At December 31, 2017 , our U.S. qualified defined benefit pension plan (ATI Pension Plan) was approximately 76% funded as calculated in accordance with U.S. generally accepted accounting principles. Based upon current regulations and actuarial studies, we expect to make approximately a $40 million cash contribution to the ATI Pension Plan in 2018, and we currently expect to have average annual funding requirements of approximately $85 million for the next few years thereafter, using an expected 7.75% rate of return on pension plan assets. However, these estimates are subject to significant uncertainty, including potential changes to mortality tables with revised longevity estimates, and the performance of our pension trust assets. Depending on the timing and amount, a requirement that we fund the ATI Pension Plan could have a material adverse effect on our results of operations and financial condition.

Risks Associated with Acquisition and Disposition Strategies. We intend to continue to strategically position our businesses in order to improve our ability to compete. Strategies we employ to accomplish this may include seeking new or expanding existing specialty market niches for our products, expanding our global presence, acquiring businesses complementary to existing strengths, and continually evaluating the performance and strategic fit of our existing business units. From time-to-time, management holds discussions with management of other companies to explore acquisitions, joint ventures, and other business combination opportunities as well as possible business unit dispositions. As a result, the relative makeup of the businesses comprising our Company is subject to change. Acquisitions, joint ventures, and other business combinations involve various inherent risks, such as: assessing accurately the value, strengths, weaknesses, contingent and other liabilities and potential profitability of acquisition or other transaction candidates; the potential loss of key personnel of an acquired business; our ability to achieve identified financial and operating synergies, growth or other benefits anticipated to result from an acquisition or other transaction; and unanticipated changes in business and economic conditions affecting an acquisition or other transaction. International acquisitions and other transactions could be affected by export controls, exchange rate fluctuations, domestic and foreign political conditions, changes in tax laws and a deterioration in domestic and foreign economic conditions.

Risks Associated with Information Technology. Information technology infrastructure is critical to supporting business objectives; failure of our information technology infrastructure to operate effectively could adversely affect our business. We depend heavily on information technology infrastructure to achieve our business objectives. If a problem occurs that impairs this infrastructure, the resulting disruption could impede our ability to record or process orders, manufacture and ship in a timely manner, or otherwise carry on business in the normal course. Any such events could cause us to lose customers or revenue and could require us to incur significant expense to remediate.

As we integrate, implement and deploy new information technology processes and information infrastructure across our operations, we could experience disruptions in our business that could have an adverse effect on our business, financial condition, results of operations and cash flow.

Cyber Security Threats. Increased global information technology threats, security requirements, vulnerabilities, and a rise in sophisticated and targeted international computer crime pose a risk to the security of our systems and networks and the confidentiality, availability and integrity of our data. We believe that ATI faces the threat of such cyber attacks due to the markets we serve, the products we manufacture, the locations of our operations, and global interest in our technology. Due to the evolving nature of cyber security threats, the scope and impact of any incident cannot be predicted. We continually work to safeguard our systems and mitigate potential risks. Despite our efforts to protect sensitive information and confidential and personal data, our facilities and systems and those of our third-party service providers may be vulnerable to security breaches. This could lead to disclosure, modification or destruction of proprietary and other key information, defective products, production downtimes, operational disruptions, and remediation costs, which in turn could adversely affect our reputation, competitiveness and results of operations.

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

Insurance. We have maintained various forms of insurance, including insurance covering claims related to our properties and risks associated with our operations. Our existing property and liability insurance coverages contain exclusions and limitations on coverage. From time-to-time, in connection with renewals of insurance, we have experienced additional exclusions and limitations on coverage, larger self-insured retentions and deductibles, and significantly higher premiums. As a result, in the future our insurance coverage may not cover claims to the extent that it has in the past and the costs that we incur to procure insurance may increase significantly, either of which could have an adverse effect on our results of operations.

Political and Social Turmoil. The war on terrorism as well as political and social turmoil could put pressure on economic conditions in the United States and worldwide. These political, social and economic conditions could make it difficult for us, our suppliers, and our customers to forecast accurately and plan future business activities, and could adversely affect the financial condition of our suppliers and customers and affect customer decisions as to the amount and timing of purchases from us. As a result, our business, financial condition and results of operations could be materially adversely affected.

Risks Associated with Government Contracts . Some of our operating units perform contractual work directly or indirectly for the U.S. Government, which requires compliance with laws and regulations relating to the performance of Government contracts. Various claims (whether based on U.S. Government or Company audits and investigations or otherwise) could be asserted against us related to our U.S. Government contract work. Depending on the circumstances and the outcome, such proceedings could result in fines, penalties, compensatory and treble damages or the cancellation or suspension of payments under one or more U.S. Government contracts. Under government regulations, a company, or one or more of its operating divisions or units, can also be suspended or debarred from government contracts based on the results of investigations.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our principal domestic facilities for our HPMC segment include melting operations and production facilities that perform processing and finishing operations. Domestic melting operations are located in Monroe and Bakers, NC, and Lockport, NY (vacuum induction melting, vacuum arc re-melt, electro-slag re-melt, plasma melting), Richland, WA (electron beam melting), and Albany, OR (vacuum arc re-melt). Production of high performance materials, most of which are in long product form, takes place at our domestic facilities in Monroe and Bakers, NC, Lockport, NY, Richburg, SC, Albany, OR, and Oakdale, PA. Our production of zirconium and related specialty alloys takes place at facilities located in Millersburg, OR and Huntsville, AL. Our production of highly engineered forgings, castings, and machined components takes place at facilities in Cudahy and Coon Valley, WI, East Hartford, CT, Albany, OR, Irvine, CA, Portland, IN, Lebanon, KY, Billerica, MA, and Salem, OR.

Our principal domestic locations for melting stainless steel and other flat-rolled specialty materials are located in Brackenridge and Latrobe, PA. Hot-rolling is performed at our domestic facilities in Brackenridge and Washington, PA. Finishing of our flat-rolled products takes place at our domestic facilities located in Brackenridge, Vandergrift, Washington, Rochester, Monaca, and Zelienople, PA, and in Waterbury, CT, New Bedford, MA, Louisville, OH, and Bridgeview, IL.

Substantially all of our properties are owned, and three of our properties are subject to mortgages or similar encumbrances securing borrowings under certain industrial development authority financings.

We also own or lease facilities in a number of foreign countries, including France, Germany, the United Kingdom, Poland, and the People's Republic of China. We own and/or lease and operate facilities for melting and re-melting, machining and bar mill operations, laboratories and offices located in Sheffield, England. We own highly engineered forging and machining operations in Stalowa Wola, Poland. Through our STAL joint venture, we operate facilities for finishing Precision Rolled Strip products in the Xin-Zhuang Industrial Zone, Shanghai, China.

Our executive offices, located in PPG Place in Pittsburgh, PA, are leased.

Although our facilities vary in terms of age and condition, we believe that they have been well maintained and are in sufficient condition for us to carry on our activities.

Item 3. Legal Proceedings

From time-to-time, we become involved in various lawsuits, claims and proceedings relating to the conduct of our current and formerly owned businesses, including those pertaining to product liability, patent infringement, commercial, government contracting, employment, employee and retiree benefits, taxes, environmental, health and safety and occupational disease, and stockholder and corporate governance matters. While we cannot predict the outcome of any lawsuit, claim or proceeding, our management believes that the disposition of any pending matters is not likely to have a material adverse effect on our financial condition or liquidity. The resolution in any reporting period of one or more of these matters, including those described above, however, could have a material adverse effect on our results of operations for that period.

Information relating to legal proceedings is included in Note 20. Commitments and Contingencies of the Notes to Consolidated Financial Statements and incorporated herein by reference.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for the Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Common Stock Prices

Our common stock is traded on the New York Stock Exchange (symbol ATI). At February 1, 2018, there were 3,320 record holders of Allegheny Technologies Incorporated common stock. We paid no cash dividends during 2017. We paid a quarterly cash dividend of $0.08 per share of common stock outstanding for the first three quarters of 2016 . Effective with the fourth quarter of 2016 , our Board of Directors decided to suspend the quarterly dividend. The payment of dividends and the amount of such dividends depends upon matters deemed relevant by our Board of Directors, such as our results of operations, financial condition, cash requirements, future prospects, any limitations imposed by law, credit agreements or senior securities, and other factors deemed relevant and appropriate. Our Asset Based Lending (ABL) Revolving Credit Facility restricts our ability to pay dividends in certain circumstances. For more information on the restrictions under our ABL facility, see Item 7. “Management’s Discussion and Analysis of Financial Condition and Results of Operations - Financial Condition and Liquidity - Dividends.”

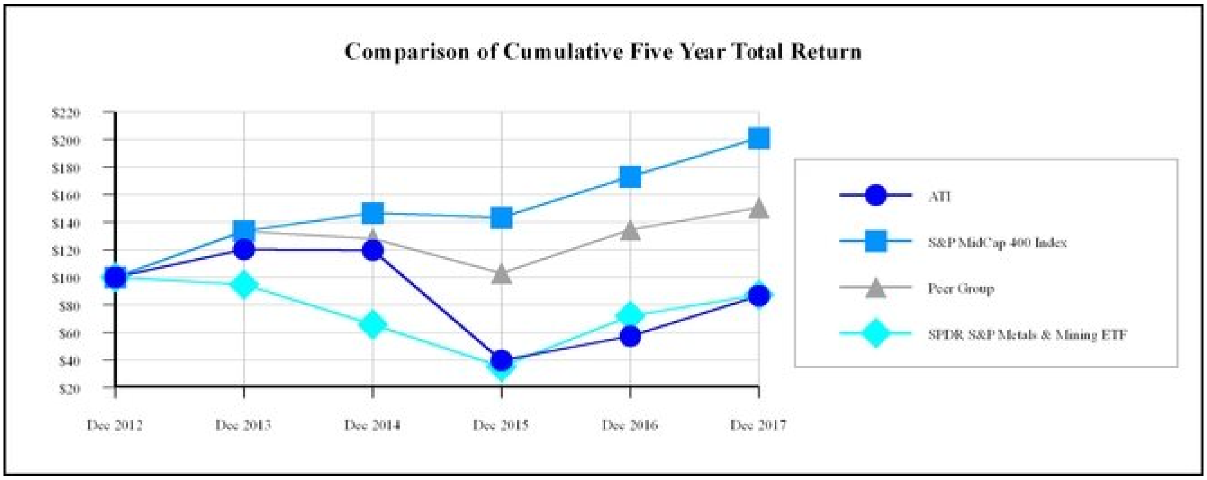
The ranges of high and low sales prices for shares of our common stock for the quarterly periods ended on the dates indicated were as follows:

2017	March 31	June 30	September 30	December 31
High	$ 23.69	$ 20.11	$ 24.00	$ 26.59
Low	$ 15.61	$ 14.54	$ 16.51	$ 21.01

2016	March 31	June 30	September 30	December 31
High	$ 18.38	$ 18.03	$ 18.67	$ 19.20
Low	$ 7.08	$ 10.93	$ 12.27	$ 13.15

Cumulative Total Stockholder Return

The graph set forth below shows the cumulative total stockholder return (i.e., price change plus reinvestment of dividends) on our common stock from December 31, 2012 through December 31, 2017 , as compared to the S&P MidCap 400 Index and a Peer Group of companies. We have included the SPDR S&P Metals and Mining Index ETF because our stock price trading and volatility trends with the performance of that index. We believe that the Peer Group of companies, which is defined below, is representative of companies in our industry that have served similar markets during the applicable periods. The total stockholder return for the Peer Group is weighted according to the respective issuer’s stock market capitalization at the beginning of each period. The graph assumes that $100 was invested on December 31, 2012. The stock performance information included in this graph is based on historical results and is not necessarily indicative of future stock price performance.



Company / Index	Dec 2012	Dec 2013	Dec 2014	Dec 2015	Dec 2016	Dec 2017
ATI	**100.00**	120.20	119.45	39.74	57.18	86.65
S&P MidCap 400 Index	**100.00**	133.50	146.54	143.35	173.08	201.20
Peer Group	**100.00**	133.12	128.19	103.05	134.68	150.55
SPDR S&P Metals & Mining ETF	**100.00**	94.62	70.70	34.98	72.07	87.33
Source: Standard & Poor's						

Peer Group companies for the cumulative five year total return period ended December 31, 2017 were as follows:

AK Steel Holding Corporation	Materion Corp	Steel Dynamics, Inc.
Alcoa Inc.	Nucor Corp.	The Timken Company
Carpenter Technology Corporation	Precision Castparts Corp.	Timken Steel Corporation
Castle (A M) & Co.	Reliance Steel & Aluminum Co.	United States Steel Corporation
Commercial Metals Company	RTI International Metals, Inc.	Universal Stainless & Alloy Products, Inc.
Kennametal Inc.	Schnitzer Steel Industries, Inc.	Worthington Industries, Inc.

Alcoa Inc. was included in the total stockholder return Peer Group through October 31, 2016 when it was separated into Alcoa Corp and Arconic Inc. Castle (A M) & Co. was included through August 31, 2017 when it was delisted. Precision Castparts Corp. was included through January 29, 2016 when it was acquired by Berkshire Hathaway Inc. RTI International Metals Inc. was included through July 22, 2015 when it was acquired by Alcoa Inc. Effective in 2014, The Timken Company spun off its steel business into a new public company, Timken Steel Corporation, which was included in the total stockholder return Peer Group starting on June 19, 2014 when it began trading.

Item 6. Selected Financial Data

(In millions)

For the Years Ended December 31,	**2017**	2016	2015	2014	2013
Revenue by Market:					
Aerospace & Defense	**$ 1,718.1**	$ 1,590.4	$ 1,514.0	$ 1,446.3	$ 1,394.5
Oil & Gas	**418.2**	280.8	538.0	752.3	706.8
Automotive	**273.7**	232.8	293.8	414.4	348.3
Electrical Energy	**192.2**	232.6	368.1	430.2	459.4
Medical	**183.0**	195.8	220.7	211.0	207.7
Subtotal - Key Markets	**2,785.2**	2,532.4	2,934.6	3,254.2	3,116.7
Food Equipment & Appliances	**226.0**	172.2	217.3	248.8	251.7
Construction/Mining	**192.9**	160.6	226.3	295.6	287.5
Electronics/Communication/Computers	**151.6**	109.7	126.4	154.6	153.1
Transportation	**83.8**	77.6	129.5	172.1	136.3
Other	**85.6**	82.1	85.5	98.1	98.2
Total	**$ 3,525.1**	$ 3,134.6	$ 3,719.6	$ 4,223.4	$ 4,043.5

(In millions, except per share amounts)

For the Years Ended December 31,	**2017**	2016	2015	2014	2013
Results of Operations:					
Sales:					
High Performance Materials & Components	**$ 2,067.4**	$ 1,930.4	$ 1,985.9	$ 2,006.8	$ 1,944.8
Flat Rolled Products	**1,457.7**	1,204.2	1,733.7	2,216.6	2,098.7
Total Sales	**$ 3,525.1**	$ 3,134.6	$ 3,719.6	$ 4,223.4	$ 4,043.5
Segment operating profit (loss):					
High Performance Materials & Components	**$ 246.4**	$ 168.7	$ 157.1	$ 234.8	$ 159.6
Flat Rolled Products	**37.0**	(163.0)	(241.9)	(47.0)	(147.8)
Total segment operating profit (loss)	**$ 283.4**	$ 5.7	$ (84.8)	$ 187.8	$ 11.8
Income (loss) from continuing operations before income taxes	**$ (86.5)**	$ (734.0)	$ (478.0)	$ 1.5	$ (154.8)
Income tax benefit	**(6.8)**	(106.9)	(112.1)	(8.7)	(63.6)
Income (loss) from continuing operations	**(79.7)**	(627.1)	(365.9)	10.2	(91.2)
Income (loss) from discontinued operations, net of tax	**—**	—	—	(0.6)	252.8
Net income (loss)	**(79.7)**	(627.1)	(365.9)	9.6	161.6
Less: Net income attributable to noncontrolling interests	**12.2**	13.8	12.0	12.2	7.6
Net income (loss) attributable to ATI	**$ (91.9)**	$ (640.9)	$ (377.9)	$ (2.6)	$ 154.0
Basic net income (loss) per common share					
Continuing operations attributable to ATI per common share	**$ (0.83)**	$ (5.97)	$ (3.53)	$ (0.02)	$ (0.93)
Discontinued operations attributable to ATI per common share	**—**	—	—	(0.01)	2.37
Basic net income (loss) attributable to ATI per common share	**$ (0.83)**	$ (5.97)	$ (3.53)	$ (0.03)	$ 1.44
Diluted net income (loss) per common share					
Continuing operations attributable to ATI per common share	**$ (0.83)**	$ (5.97)	$ (3.53)	$ (0.02)	$ (0.93)
Discontinued operations attributable to ATI per common share	**—**	—	—	(0.01)	2.37
Diluted net income (loss) attributable to ATI per common share	**$ (0.83)**	$ (5.97)	$ (3.53)	$ (0.03)	$ 1.44

(In millions, except per share amounts and ratios)

As of and for the Years Ended December 31,	**2017**	2016	2015	2014	2013
Working capital	**$ 1,203.1**	$ 1,057.8	$ 1,181.1	$ 1,584.4	$ 1,743.3
Total assets	**5,185.4**	5,170.0	5,751.7	6,571.7	6,885.0
Long-term debt	**1,530.6**	1,771.9	1,491.8	1,498.2	1,513.9
Total debt	**1,540.7**	1,877.0	1,495.7	1,516.0	1,933.8
Cash and cash equivalents	**141.6**	229.6	149.8	269.5	1,026.8
Total ATI Stockholders' equity	**1,739.4**	1,355.2	2,082.8	2,598.4	2,894.2
Noncontrolling interests	**105.1**	89.6	101.6	110.9	100.5
Total Stockholders' equity	**1,844.5**	1,444.8	2,184.4	2,709.3	2,994.7
Ratio of earnings to fixed charges	—	—	—	—	—
Dividends declared per common share	**$ —**	$ 0.24	$ 0.62	$ 0.72	$ 0.72

The information presented in Selected Financial Data should be read in conjunction with the information provided in Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations, and in Item 8. Financial Statements and Supplementary Data.

Results of operations in 2017 include a $114.4 million pre-tax goodwill impairment charge, a $37.0 million pre-tax and net of tax debt extinguishment charge for the full redemption of the $350.0 million, 9.375% Senior Notes due 2019 (2019 Notes), and $4.1 million of tax benefits from the 2017 Tax Cuts and Jobs Act legislation. 2016 results include $538.5 million of pre-tax restructuring and other charges, primarily related to the indefinite idling of the Rowley, UT titanium sponge production facility. 2016 results also include $171.5 million in deferred tax valuation allowances which reduced the income tax benefit. Results of operations in 2015 include $131.5 million of pre-tax net realizable value inventory reserves, which are required to offset ATI's aggregate net debit LIFO inventory balance that exceeds current inventory replacement cost, $216.3 million of pre-tax goodwill impairment, restructuring and inventory revaluation charges, and $74.5 million of deferred tax valuation allowances, which reduced the income tax benefit. 2014 results from continuing operations include postretirement benefit curtailment and settlement gains of $25.5 million pre-tax. Results of operations in 2013 include $67.5 million of pre-tax restructuring charges, primarily related to asset impairments. Additionally, in 2013, we completed the sale of our tungsten materials business and after a strategic review, determined that we would exit our iron castings and fabricated components businesses. These three businesses are classified as discontinued operations. We received cash proceeds, net of transaction costs, of $600.9 million for the sale of the tungsten materials business, and recognized a $428.3 million pretax ($261.4 million after tax) gain which is reported in discontinued operations.

Total debt in 2017 reflects the redemption of all $350.0 million aggregate principal amount of our 2019 Notes. In 2016, we issued $287.5 million of 4.75% Convertible Senior Notes due 2022 (2022 Convertible Notes), and added a $100.0 million term loan to our asset based lending facility. A portion of the convertible note proceeds were used to make $250.0 million in contributions to the ATI Pension Plan in 2016 and 2017. In 2014, we repaid the remaining $397.5 million outstanding of our 4.25% Convertible Senior Notes due 2014. In 2013, we issued $500.0 million of 5.875% Senior Notes due in 2023 (currently bearing a 7.875% interest rate) (2023 Notes), the net proceeds of which were used for general corporate purposes.

Total ATI stockholders' equity in 2017 increased due to our issuance of 17 million shares of common stock at $24.00 per share before expenses in an underwritten registered public offering. This offering resulted in proceeds of $397.8 million, net of transaction costs, which were used to redeem all of ATI's outstanding 2019 Notes. Stockholders' equity changes include net increases (decreases) of $(42.7) million $(60.6) million, $(69.6) million, $(266.5) million, and $241.0 million for 2017, 2016, 2015, 2014 and 2013, respectively, related to remeasurements of ATI's retirement benefit obligations. In addition, ATI stockholders' equity for 2017 and 2016 included a $16.8 million increase and a $45.6 million decrease, respectively, from income tax valuation allowances on amounts recorded in other comprehensive income.

For purposes of determining the **ratio of earnings to fixed charges** , earnings include pre-tax income (loss) from continuing operations plus fixed charges (excluding capitalized interest). Fixed charges consist of interest on all indebtedness (including capitalized interest) plus that portion of operating lease rentals representative of the interest factor (deemed to be one-third of operating lease rentals). For the years ended December 31, 2017, 2016, 2015, 2014, and 2013 fixed charges exceeded earnings by $101.9 million, $750.2 million, $492.1 million, $7.1 million, and $192.8 million, respectively.

Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations

Certain statements contained in this Management’s Discussion and Analysis of Financial Condition and Results of Operations are forward-looking statements. Actual results or performance could differ materially from those encompassed within such forward-looking statements as a result of various factors, including those described below. Net income (loss) and net income (loss) per share amounts referenced below are attributable to Allegheny Technologies Incorporated and Subsidiaries.

ATI Overview

ATI is a global manufacturer of technically advanced specialty materials and complex components. Our largest market is aerospace & defense, representing approximately 50% of total sales, led by products for jet engines. Additionally, we have a strong presence in the oil & gas, electrical energy, medical, and automotive markets. In aggregate, these key markets represent about 80% of our revenue. ATI is a market leader in manufacturing differentiated products that require our unique manufacturing and precision machining capabilities as well as our innovative new product development competence. Our capabilities range from alloy development to final production of highly engineered finished components. We are a leader in producing powders for use in next-generation jet engine forgings and 3D-printed aerospace products.

We operate in two business segments: High Performance Materials & Components (HPMC), and Flat Rolled Products (FRP). Over 75% of 2017 HPMC business segment sales were to the aerospace and defense markets, and nearly half of HPMC’s total sales are products for commercial jet engines. Increasing demand for commercial aerospace products has been the main source of sales and segment operating profit growth for HPMC over the last few years, and is expected to continue to drive HPMC and overall ATI results for the next several years. Other key HPMC end markets include medical, oil & gas, and electrical energy. HPMC produces, converts and distributes a wide range of high performance materials, and components, and advanced metallic powder alloys made from titanium and titanium-based alloys, nickel-based alloys and superalloys, and a variety of other specialty metals. These materials are made in a variety of product forms that include precision forgings, castings, machined parts and others.

Our FRP segment serves a diverse group of end markets, with the oil & gas market, including chemical and hydrocarbon processing, and the automotive market collectively representing over 40% of 2017 sales. Other major end markets for FRP include food processing equipment and appliances, construction and mining, electronics, communication equipment and computers, and aerospace & defense. FRP produces, converts and distributes nickel-based alloys, specialty alloys, and titanium and titanium-based alloys, and stainless steel in a variety of product forms including plate, sheet, engineered strip, and Precision Rolled Strip products.

Overview of 2017 Financial Performance

Sales in 2017 increased 13%, to $3.53 billion, and gross profit margin increased 176%, to $449 million, compared to 2016. This marked our second year of more than doubling the prior year’s gross profit margin, demonstrating the benefits of prior restructuring actions, our ongoing focus on high-value products, and improved utilization of our manufacturing facilities. Total sales to our key end markets of aerospace & defense, oil & gas, electrical energy, medical, and automotive represented 79% of ATI’s 2017 sales. Sales to our largest end market, aerospace & defense, increased $128 million, or 8% over 2016, and represented 49% of our 2017 sales. International sales, including both U.S. exports and foreign sales from our foreign manufacturing operations, were $1.45 billion in 2017 and represented 41% of total sales.

We have substantially completed our restructuring actions, and there were no additional restructuring charges in 2017. Results for 2017 include a $114 million goodwill impairment charge for our titanium castings business, and a $37 million debt extinguishment charge for the early redemption of our 2019 Notes. Business segment operating profit, which excludes these charges, was $283 million in 2017, a substantial improvement over 2016, with stronger operating performance in our HPMC segment and a return to profitability in our FRP segment.

We recorded a $4.1 million tax benefit as a result of the U.S. federal tax law changes in December 2017, and we continue to maintain valuation allowances for U.S. federal and state deferred taxes. As a result of these factors and other tax attributes, our net-of-tax losses do not reflect the typical tax benefits that would apply to the pretax results.

A summary of our results is as follows:

(Dollars in millions, except per share amounts)	2017	2016	2015
Sales	$ 3,525.1	$ 3,134.6	$ 3,719.6
Gross profit	$ 449.0	$ 162.5	$ 60.3
Gross profit % of sales	12.7%	5.2%	1.6 %
Segment operating profit (loss)	$ 283.4	$ 5.7	$ (84.8)
Segment operating profit (loss) % of sales	8.0%	0.2%	(2.3)%
Restructuring, goodwill impairment and other charges	$ (151.4)	$ (538.5)	$ (216.3)
Loss before income taxes	$ (86.5)	$ (734.0)	$ (478.0)
Net loss attributable to ATI	$ (91.9)	$ (640.9)	$ (377.9)
Diluted net loss attributable to ATI per common share	$ (0.83)	$ (5.97)	$ (3.53)

2017 was a year of important milestones in our ongoing journey to deliver sustainable long-term profitable growth. In the HPMC segment, our next-generation, differentiated jet engine product mix continued to improve, with sales of these products up 35% compared to 2016, and our airframe titanium product shipments remained strong. Additionally, our FRP segment made significant progress in achieving sustainable profitability.

Our major strategic accomplishments during 2017 include:

- Signing strategic long-term agreements that are expected to drive our growth trajectory for the next several years, including a long-term agreement with Pratt & Whitney to supply isothermal forgings and powder alloys for next-generation jet engines.
- Taking important steps toward improving the capacity utilization of our FRP segment's HRPF, most notably with the announced Allegheny & Tsingshan Stainless joint venture to manufacture 60" wide stainless sheet, which is expected to be formed in the first quarter of 2018.
- Continuing to increase our capacity to produce advanced powder alloys for use in next-generation aerospace products, including additive manufacturing applications. Our nickel-based powder alloy expansion in North Carolina was completed and is expected to be commercially qualified in early 2018, and we recently announced plans for a titanium powder expansion to be located on the same site.
- Continuing to reposition ATI as a growth-oriented aerospace & defense company. 49% of ATI's 2017 sales were to the aerospace & defense market, led by an 11% increase in 2017 sales of products for commercial aerospace jet engines, including a 35% increase in product sales for next-generation engine applications. Through recent acquisitions, alloy development, internal growth strategies, and long-term supply agreements on current and next-generation aero-engines and airframes, we are well positioned with a fully qualified asset base to meet the expected multi-year growth in demand from the commercial aerospace market. Our HPMC segment's isothermal and hot-die forge press utilization continues to improve to meet aerospace demand growth, including new market share gains.
- De-levering the balance sheet in the fourth quarter 2017 through a common stock offering. In November 2017, we issued 17 million shares of common stock at $24.00 per share before expenses, and received proceeds of $397.8 million, net of transaction costs. Proceeds from the stock offering were used to redeem all $350 million aggregate principal amount of our 9.375% Senior Notes due 2019.
- Maintaining a solid liquidity position, with $142 million in cash on hand, and $305 million of available borrowing capacity under our domestic asset based lending (ABL) facility. In 2017, we extended the duration of ABL, including the $100 million ABL term loan, to 2022, and improved the funded position of the ATI Pension Plan, the Company's U.S. qualified defined benefit pension plan, with a $135 million cash contribution. As a result of the redemption of our 2019 Notes and these ABL actions, we have no significant debt maturities until 2021.
- Continuing to make capital investments to support our growth initiatives, with $123 million of capital expenditures in 2017, including the previously-mentioned nickel alloy powder expansion, and the ongoing construction of our third Precision Rolled Strip manufacturing facility at our STAL joint venture in China. We are at the end of a significant, multi-year period of capital expansions, and expect our capital expenditures to be well below depreciation expense for the next several years.

Outlook

We expect continued revenue growth and operating margin improvement in our HPMC segment resulting from ongoing aerospace market demand growth and improved asset utilization. We expect 2018 HPMC segment sales growth to increase by a high single digit percentage compared to 2017, including double-digit sales growth in sales to the commercial jet engine market. Our focus continues to be on operational execution, continuous improvement initiatives, and on meeting the aerospace production expansion requirements. In addition, we anticipate that the 2017 financial challenges experienced in our castings business and expenses associated with the start-up and qualification of our new nickel alloys powder facility will provide meaningful HPMC segment operating profit improvement opportunities in 2018.

We expect the FRP segment to build on the operational improvements and product mix benefits achieved in 2017 and to improve operating margins year over year, however quarterly results may be volatile due to out-of-phase raw material surcharge impacts, timing of large project orders, and competitive market conditions. We expect the production ramp-up of the planned Allegheny & Tsingshan Stainless joint venture to meaningfully benefit second half 2018 FRP results.

We expect 2018 to be another step in our continuing journey toward our goals of long-term profitable growth and consistently earning a premium to our cost of capital. Cash generation from operations will remain a key focus throughout 2018. We do not expect to pay any significant U.S. federal or state taxes in 2018 due to net operating loss carryforwards, and we intend to carefully balance our working capital and other cash needs with the pace of our capital expenditure requirements and other obligations. Following the common stock offering and redemption of our 2019 Notes, we expect 2018 interest expense to be lower by approximately $32 million versus 2017. Defined benefit pension and postretirement benefit plan expenses for 2018 are expected to be lower by approximately $19 million compared to 2017.

Results of Operations

Sales were $3.53 billion in 2017, $3.13 billion in 2016, and $3.72 billion in 2015. The 13% sales increase in 2017 includes a 21% increase in FRP sales, primarily due to higher sales to the oil & gas market, which increased over 50% from prior year levels, and stronger shipments of both high-value and standard products due to higher operating levels. HPMC sales increased 7% in 2017, including a 9% increase in sales to the aerospace and defense market, which comprises over 75% of the sales in this segment. The 16% decrease in total 2016 ATI sales compared to 2015 was primarily the result of 31% lower FRP sales, largely as a result of the idling of commodity stainless steel operations in January 2016 and our exit from the grain-oriented electrical steel (GOES) market in April 2016.

Segment operating profit was $283.4 million, or 8.0% of sales in 2017, compared to segment operating profit of $5.7 million, or 0.2% of sales, in 2016, and a segment operating loss of $84.8 million, or (2.3)% of sales, in 2015. Our measure of segment operating profit (loss), which we use to analyze the performance and results of our business segments, excludes income taxes, corporate expenses, net interest expense, closed operations expenses, the effects of LIFO inventory accounting and any related changes in net realizable value (NRV) inventory reserves, goodwill impairment charges, debt extinguishment charges and restructuring costs, if any. Total revenues and segment operating profit (loss) of our two business segments were as follows (in millions):

	2017		2016		2015	
	Revenue	Operating Profit	Revenue	Operating Profit (Loss)	Revenue	Operating Profit (Loss)
High Performance Materials & Components	$ 2,067.4	$ 246.4	$ 1,930.4	$ 168.7	$ 1,985.9	$ 157.1
Flat Rolled Products	1,457.7	37.0	1,204.2	(163.0)	1,733.7	(241.9)
Total ATI	$ 3,525.1	$ 283.4	$ 3,134.6	$ 5.7	$ 3,719.6	$ (84.8)

Business segment results in 2017 exclude a $114.4 million pre-tax goodwill impairment charge for our ATI Cast Products business, and a $37.0 million debt extinguishment charge for the early redemption of our 2019 Notes. Business segment results in 2016 exclude $538.5 million in pre-tax charges for significant restructuring actions involving HPMC titanium operations and right-sizing actions across the FRP business. These restructuring charges were comprised of $471.3 million of long-lived asset impairments, primarily for the indefinitely idled Rowley, UT titanium sponge production facility, $43.0 million of facility closure costs and related inventory revaluations, and $24.2 million of severance charges and other employee benefit costs. Business segment results in 2015 exclude $347.8 million of pre-tax charges, which included a $126.6 million charge for goodwill impairment, $54.5 million of long-lived asset impairment charges, $131.5 million of net realizable value (NRV) inventory reserve charges, a $25.4 million charge to revalue non-PQ titanium sponge inventory based on current market prices, and $9.8 million of charges for severance actions and idling costs.

Pre-tax results were losses of $86.5 million in 2017, $734.0 million in 2016 and $478.0 million in 2015. The 2017 net loss attributable to ATI was $91.9 million, or $(0.83) per share, compared to a 2016 net loss attributable to ATI of $640.9 million, or

$(5.97) per share, and a 2015 loss attributable to ATI of $377.9 million, or $(3.53) per share. We recorded a $4.1 million tax benefit in 2017 as a result of the U.S. federal tax law changes in December 2017, and we continue to maintain valuation allowances for U.S. federal and state deferred taxes. Results in 2016 and 2015 include $171.5 million and $74.5 million, respectively, of charges for income tax valuation allowances on deferred tax assets. As a result of these factors and other tax attributes, our net-of-tax losses for all periods do not reflect the typical tax benefits that would apply to the pretax results.

Comparative information for our overall revenues (in millions) by end market and their respective percentages of total revenues is as follows:

Market	2017		2016		2015	
Aerospace & Defense	$ 1,718.1	49%	$ 1,590.4	51%	$ 1,514.0	41%
Oil & Gas	418.2	12%	280.8	9%	538.0	14%
Automotive	273.7	8%	232.8	7%	293.8	8%
Electrical Energy	192.2	5%	232.6	7%	368.1	10%
Medical	183.0	5%	195.8	6%	220.7	6%
Subtotal - Key Markets	2,785.2	79%	2,532.4	80%	2,934.6	79%
Food Equipment & Appliances	226.0	6%	172.2	6%	217.3	6%
Construction/Mining	192.9	6%	160.6	5%	226.3	6%
Electronics/Computers/Communication	151.6	4%	109.7	4%	126.4	3%
Other	169.4	5%	159.7	5%	215.0	6%
Total	$ 3,525.1	100%	$ 3,134.6	100%	$ 3,719.6	100%

Comparative information for our major high-value and standard products based on their percentages of our total revenues is as follows:

For the Years Ended December 31,	2017	2016	2015
High-Value Products			
Nickel-based alloys and specialty alloys	28%	27%	28%
Precision forgings, castings and components	18%	18%	14%
Titanium and titanium-based alloys	17%	19%	17%
Precision and engineered strip	14%	13%	13%
Zirconium and related alloys	6%	8%	7%
Total High-Value Products, excluding GOES	83%	85%	79%
Grain-oriented electrical steel	—%	1%	4%
Total High-Value Products, including GOES	83%	86%	83%
Standard Products			
Stainless steel sheet	9%	7%	8%
Specialty stainless sheet	4%	4%	6%
Stainless steel plate and other	4%	3%	3%
Total Standard Products	17%	14%	17%
Grand Total	100%	100%	100%

Information with respect to our business segments is presented below.

High Performance Materials & Components

(In millions)	2017	% Change	2016	% Change	2015
Sales to external customers	$ 2,067.4	7%	$ 1,930.4	(3)%	$ 1,985.9
Segment operating profit	$ 246.4	46%	$ 168.7	7 %	$ 157.1
Segment operating profit as a percentage of sales	11.9%		8.7%		7.9%
International sales as a percentage of sales	47.0%		45.2%		43.1%

2017 Compared to 2016

Sales for the HPMC segment in 2017 increased 7%, to $2.07 billion. Sales to the aerospace & defense market, which is the largest end market for HPMC at 76% of total segment sales, were 9% higher. This was driven by an 11% increase in sales in 2017 to the commercial jet engine market, including a 35% improvement in our sales of next-generation jet engine products, compared to 2016. Construction and mining market sales were 40% higher, and sales to oil & gas market increased 37% in 2017, both from low prior year demand levels. Sales to the medical market declined 8% primarily due to increased competition in MRI end uses, and sales to the electrical energy market decreased 12%.

Comparative information for our HPMC segment revenues (in millions) by market, the respective percentages of overall segment revenues for the years ended 2017 and 2016, and the percentage change in revenues by market for 2017 is as follows:

Market	2017		2016		Change	
Aerospace & Defense:						
Jet Engines	$ 915.2	44%	$ 823.3	43%	$ 91.9	11 %
Airframes	385.2	19%	381.5	20%	3.7	1 %
Government Aerospace & Defense	268.5	13%	234.4	12%	34.1	15 %
Total Aerospace & Defense	1,568.9	76%	1,439.2	75%	129.7	9 %
Medical	170.4	8%	185.3	10%	(14.9)	(8)%
Electrical Energy	113.1	6%	129.1	7%	(16.0)	(12)%
Oil & Gas	63.9	3%	46.5	2%	17.4	37 %
Construction/Mining	51.3	2%	36.7	2%	14.6	40 %
Other	99.8	5%	93.6	4%	6.2	7 %
Total	$ 2,067.4	100%	$ 1,930.4	100%	$ 137.0	7 %

Over the past several years, we have entered into long-term agreements (LTAs) with certain of our customers for our specialty materials, in the form of mill products, powders, parts and components, to reduce their supply uncertainty, including several LTAs with aerospace market OEMs. These LTAs are expected to drive HPMC's growth trajectory for the next several years and are for the sale of ATI's specialty materials that are required for both next-generation and legacy aircraft platforms and jet engines. Our LTAs include a titanium products supply agreement for aircraft airframes and structural components with The Boeing Company (Boeing), which extends into the next decade. This LTA covers value-added titanium mill products and provides opportunity for greater use of ATI's next generation and advanced titanium alloys in both long product and flat-rolled product forms, including highly engineered titanium cast and forged products. The agreement includes both long-product forms that are manufactured within the HPMC segment, and a significant amount of plate products that are manufactured utilizing assets of both the HPMC and FRP segments. Revenues and profits associated with these titanium products covered by the Boeing long-term agreement are included primarily in the results for the HPMC segment. We also have LTAs with GE Aviation for the supply of premium titanium alloys, nickel-based alloys, and vacuum-melted specialty alloys products for commercial and military jet engine applications and with Snecma (Safran) for the supply of premium titanium alloys, nickel-based alloys, vacuum melted specialty alloys, and titanium investment castings for commercial and military jet engine applications. In addition, we have LTAs with Rolls-Royce plc for the supply of nickel-based superalloy disc-quality products and precision forgings and castings for commercial jet engine applications. In 2017, we entered into a new LTA with United Technologies Corporation to supply its Pratt & Whitney subsidiaries with isothermal forgings and powder alloys for next-generation jet engines, as well as for structural components for airframe applications. We also supply products to other important parts of the aviation market such as helicopters and rotary engine fixed wing aircraft.

The commercial aerospace market is transitioning to the next generation of single aisle and large twin aisle aircraft, and next-generation jet engines. New airframe designs contain a larger percentage of titanium alloys, and the jet engines that power them use newer nickel-based alloys and titanium-based alloys, in both cases for improved performance and more economical operating costs, compared to legacy airframe and engine designs. Boeing and Airbus have multi-year backlogs of orders for both legacy models and next-generation aircraft, and there are over 26,000 jet engines with firm orders (Aero Engine News, February 2018). Both Boeing and Airbus have implemented production increases, and announced additional production increases over the next several years, which is expected to positively impact the demand for titanium-based alloys, nickel-based alloys and superalloys for jet engine and airframe applications. Due to manufacturing cycle times, demand for our specialty materials leads the deliveries of new aircraft by approximately 6 to 12 months.

Our 2017 HPMC results reflect this demand growth, as the next-generation of aircraft and engines use significantly more of the products we make. Sales of differentiated nickel-based superalloy mill products increased 35% in 2017 compared to 2016.

Use of these newer materials, particularly for jet engine applications, is expected to continue to increase for several years, with strong growth expected in powder metal alloys, including increased usage of isothermal forging and additive manufacturing production processes.

Additionally, new entrants to the commercial jet aircraft market for single aisle and regional jets are expected to increase demand for titanium- and nickel-based alloys over the next few years. In addition, as our specialty materials are used in rotating components of jet engines, demand for our products for spare parts is impacted by aircraft flight activity and engine refurbishment requirements of U.S. and foreign aviation regulatory authorities. As the number of aircraft in service increases, the need for our materials associated with engine refurbishment is expected to increase.

Our HPMC segment produces, converts and distributes a wide range of high performance materials, including titanium and titanium-based alloys, nickel- and cobalt-based alloys and superalloys, zirconium and related alloys including hafnium and niobium, advanced powder alloys and other specialty materials, in long product forms such as ingot, billet, bar, rod, wire, shapes and rectangles, and seamless tubes, plus precision forgings, castings, components, and machined parts.

Precision forgings, castings and components sales increased 17% in 2017, reflecting improved commercial aerospace demand. Sales of nickel-based alloys increased 14% compared to 2016, while sales of titanium mill products were 6% lower in 2017. Comparative information for the segment’s major product categories, based on their percentages of 2017 and 2016 segment revenues is as follows:

For the Years Ended December 31,	2017	2016
High-Value Products		
Precision forgings, castings and components	32%	29%
Nickel-based alloys and specialty alloys	31%	29%
Titanium and titanium-based alloys	26%	29%
Zirconium and related alloys	11%	13%
Total High-Value Products	100%	100%

HPMC segment operating profit for 2017 increased 46% compared to 2016, to $ 246.4 million , or 12% of sales, reflecting higher productivity from increasing aerospace & defense sales, a richer mix of products for next-generation jet engines, which represented 39% of HPMC jet engine product sales in 2017, and the benefit of our 2016 titanium operations restructuring activities, including the Rowley, UT titanium sponge operations idling. Through the fourth quarter of 2017, where HPMC segment operating profit was 12.7% of sales, the HPMC segment has achieved six quarters of improvement in segment operating margin of 140 basis points or greater versus the prior year quarter. Segment results for 2016 included $5.3 million of non-recurring work stoppage and return to work costs for represented employees at two HPMC facilities.

HPMC segment results exclude the Rowley, UT titanium sponge operations beginning with the third quarter 2016. During 2016, we completed significant restructuring actions involving certain titanium manufacturing operations in the HPMC segment, which are excluded from segment results. These actions included the indefinite idling of the Rowley, UT titanium sponge production facility, as well as the closure of a small unprofitable titanium wire production facility in Frackville, PA, and the idling of certain titanium manufacturing operations in Albany, OR.

We anticipate significant industry demand growth for advanced powder materials required to satisfy expanding aerospace and defense market production requirements, and for emerging additive manufacturing of parts and components. To proactively meet this growing demand for complex powder alloy products, ATI designed and built an all-new nickel and super alloy powder production facility in North Carolina, which is in the final stages of industry and customer qualifications. HPMC 2017 results include $8 million of start-up costs for this facility. We recently announced an expansion of our titanium alloys powder production capabilities at the same North Carolina site, which is expected to be completed in early 2019. Additionally, in July 2017, we formed Next Gen Alloys, a joint venture with GE Aviation, for the development of a new meltless titanium alloy powder manufacturing process that eliminates the traditional melt step used prior to converting base material to powder form. The JV will construct a new R&D pilot production facility to focus on increasing the scale of this GE-developed manufacturing process.

Competition continues to be very strong across most key end markets, particularly within the aerospace & defense, oil & gas, and medical market supply chains. We believe that our HPMC segment is very well-positioned for profitable growth, especially in the next-generation jet engine platforms. Our HPMC segment is expected to continue sustained profitable growth, supported by long-term agreements that provide significant growth and share gains for ATI on next-generation airplanes and the jet engines that power them. We have sufficient available capacity for the forecasted growth in aerospace demand over the next several years, as well as the ability to meet higher demand for products to other key end markets such as oil & gas and electrical energy, when conditions for these markets improve.

2016 Compared to 2015

Sales for the HPMC segment in 2016 decreased 3%, to $1.93 billion, compared to 2015. Sales to the aerospace & defense market, which is the largest end market for HPMC at 75% of total segment sales in 2016, were 5% higher in 2016 compared to 2015, driven by a 16% increase in commercial jet engine sales. However, other HPMC end markets continued to have weak demand in 2016, with lower year-over-year sales. Sales to the oil & gas market declined 57% in 2016 compared to 2015, as the continuing impact of low oil prices led to reduced demand for products to this market throughout the year.

Comparative information for our HPMC segment revenues (in millions) by market, the respective percentages of overall segment revenues for the years ended 2016 and 2015, and the percentage change in revenues by market for 2016 is as follows:

Market	2016		2015		Change	
Aerospace & Defense:						
Jet Engines	$ 823.3	43%	$ 709.6	36%	$ 113.7	16 %
Airframes	367.8	19%	379.5	19%	(11.7)	(3)%
Government Aerospace & Defense	248.1	13%	276.8	14%	(28.7)	(10)%
Total Aerospace & Defense	1,439.2	75%	1,365.9	69%	73.3	5 %
Medical	185.3	10%	208.1	10%	(22.8)	(11)%
Electrical Energy	129.1	7%	135.8	7%	(6.7)	(5)%
Oil & Gas	46.5	2%	108.6	5%	(62.1)	(57)%
Construction/Mining	36.7	2%	46.7	2%	(10.0)	(21)%
Other	93.6	4%	120.8	7%	(27.2)	(23)%
Total	$ 1,930.4	100%	$ 1,985.9	100%	$ (55.5)	(3)%

Our 2016 HPMC results reflect the transition of the commercial aerospace market to the next generation of single aisle and large twin aisle aircraft, and next-generation jet engines, as the next-generation of aircraft and engines use significantly more of the products we make. Sales of differentiated nickel-based superalloy mill products increased 55% in 2016 compared to 2015, including both external sales and intercompany sales to our forging operations.

Precision forgings, castings and components sales increased 9% in 2016 compared to 2015, reflecting improved commercial aerospace demand. Sales of nickel-based alloys and specialty alloys mill products decreased 8% in 2016 compared to 2015, as lower sales of legacy commercial engine alloys and lower demand from other key end markets, particularly oil & gas, offsetting stronger sales of differentiated nickel-based alloys. Sales of titanium mill products were 4% lower in 2016 compared to 2015. Comparative information for the segment’s major product categories, based on their percentages of 2016 and 2015 segment revenues is as follows:

For the Years Ended December 31,	2016	2015
High-Value Products		
Nickel-based alloys and specialty alloys	29%	31%
Titanium and titanium-based alloys	29%	30%
Precision forgings, castings and components	29%	26%
Zirconium and related alloys	13%	13%
Total High-Value Products	100%	100%

HPMC segment operating profit for 2016 increased 7% compared to 2015, to $ 168.7 million , or 8.7% of sales, due primarily to improved utilization of our production assets from higher aerospace demand, as well as the benefits from our restructuring activities. HPMC segment results exclude the Rowley, UT titanium sponge operations beginning with the third quarter 2016 with the announcement of the indefinite idling of titanium production at Rowley. Segment operating profit in 2016 includes approximately $5 million of higher retirement benefit expense compared to 2015, due primarily to lower pension plan assets, as well as $5.3 million of non-recurring work stoppage and return to work costs related to a new labor agreement that was concluded in March 2016. Results in both 2016 and 2015 were also negatively impacted by the strategic decision to use ATI-produced titanium sponge rather than lower cost titanium scrap to manufacture certain titanium products.

Flat Rolled Products

(In millions)	2017	% Change	2016	% Change	2015
Sales to external customers	$ 1,457.7	21%	$ 1,204.2	(31)%	$ 1,733.7
Segment operating profit (loss)	$ 37.0	123%	$ (163.0)	33 %	$ (241.9)
Segment operating profit (loss) as a percentage of sales	2.5%		(13.5)%		(14.0)%
International sales as a percentage of sales	33.2%		33.6 %		41.5 %

2017 Compared to 2016

Sales for the FRP segment in 2017 increased 21% compared to 2016, to $1.46 billion, primarily due to higher shipment volume and selling prices for both standard stainless products and high-value products. Sales to the oil & gas market were 51% higher primarily due to project-based demand for chemical and hydrocarbon processing projects, and sales to the automotive market were 18% higher. Sales to the electrical energy market declined 23%. Prior year results also include a partial year of sales of unprofitable GOES products and certain commodity standard stainless steel sheet products prior to the idling of the Bagdad, PA and Midland, PA operations.

The FRP segment has undergone significant restructuring to refocus the business to a higher value product mix, and to right-size the operating footprint and cost structure to meet very competitive business conditions, from both domestic and international producers of flat-rolled stainless steel and other specialty metals. These actions included the 2016 idling and ultimate closure of the commodity stainless operations at the Midland, PA facility, and the GOES operations, including the Bagdad, PA finishing facility. Closure-related costs and employee benefit costs of $12.8 million were recognized in the fourth quarter of 2016 from these closure actions, which are excluded from 2016 FRP segment results. Severance charges of $11.8 million for reductions of over 250 employees, or approximately one-third of the ATI Flat Rolled Products salaried workforce, were also excluded from 2016 FRP segment results.

FRP shipments of titanium and ATI-produced Uniti joint venture titanium products increased 42% compared to 2016, to 5.7 million pounds, reflecting stronger project-based demand in industrial markets. Sales of high-value products, excluding GOES, were 20% higher compared to 2016, and sales of standard products were 32% higher compared to 2016, led by a 38% increase in specialty stainless sheet products.

Comparative information for our Flat Rolled Products segment revenues (in millions) by market, the respective percentages of overall segment revenues for the years ended 2017 and 2016, and the percentage change in revenues by market for 2017 is as follows:

Market	2017		2016		Change	
Oil & Gas	$ 354.5	24%	$ 234.4	19%	$ 120.1	51 %
Automotive	264.9	18%	225.2	19%	39.7	18 %
Food Equipment & Appliances	224.8	15%	170.5	14%	54.3	32 %
Aerospace & Defense	149.1	10%	151.2	13%	(2.1)	(1)%
Electronics/Computers/Communication	147.2	10%	106.3	9%	40.9	38 %
Construction/Mining	141.8	10%	124.0	10%	17.8	14 %
Electrical Energy	79.2	6%	103.5	9%	(24.3)	(23)%
Other	96.2	7%	89.1	7%	7.1	8 %
Total	$ 1,457.7	100%	$ 1,204.2	100%	$ 253.5	21 %

Our FRP segment produces, converts and distributes stainless steel, nickel-based alloys, specialty alloys, and titanium and titanium-based alloys, in a variety of product forms including plate, sheet, engineered strip, and Precision Rolled Strip products.

Comparative information for the Flat Rolled Products segment's major product categories, based on their percentages of 2017 and 2016 segment revenues is as follows:

For the Years Ended December 31,	2017	2016
High-Value Products		
Precision and engineered strip	34%	35%
Nickel-based alloys and specialty alloys	24%	25%
Titanium and titanium-based alloys	5%	4%
Total High-Value Products, excluding GOES	63%	64%
Grain-oriented electrical steel	—%	2%
Total High-Value Products, including GOES	63%	66%
Standard Products		
Stainless steel sheet	21%	19%
Specialty stainless sheet	12%	10%
Stainless steel plate	4%	5%
Total Standard Products	37%	34%
Grand Total	100%	100%

Comparative shipment volume and average selling price information on the segment's products for the years ended December 31, 2017 and 2016, excluding GOES from high-value products from both periods, is provided in the following table:

	2017	2016	% change
Volume (000's pounds):			
High-Value	323,391	293,589	10%
Standard	446,542	385,010	16%
Total	769,933	678,599	13%
Average prices (per lb.):			
High-Value	$2.81	$2.59	8%
Standard	$1.21	$1.06	14%
Combined Average	$1.88	$1.72	9%

Segment operating profit in 2017 was $ 37.0 million , or 2.5% of sales, compared to a segment operating loss of $ 163.0 million , or (13.5)% of sales, in 2016. The substantial improvement in operating results, which was the first profitable year since 2012, primarily reflects the benefits of higher operating levels, a greater mix of high-value products, and the benefits of cost reductions and restructuring actions, including the exit from the GOES market and the de-emphasis of certain commodity standard stainless sheet products, as discussed above. Segment operating results in 2017 also included approximately $14 million in lower retirement benefit expense from defined benefit plans compared to 2016, primarily due to lower defined benefit pension costs as a result of pension plan contributions, as well as from lower defined benefit retiree medical plan costs that were the result of changes achieved in the 2016 labor agreement. Segment operating results in 2016 were primarily driven by lower shipment volumes and selling prices, and also included $43.5 million of costs associated with the work stoppage and return-to-work of represented employees.

In November 2017, we announced the creation of Allegheny & Tsingshan Stainless, a 50-50 joint venture between ATI and an affiliate company of the Tsingshan Group (Tsingshan) to manufacture 60" wide stainless sheet, which is expected to be formed in the first quarter of 2018 after receiving regulatory clearances. This joint venture will utilize Tsingshan-supplied stainless steel slabs from its vertically integrated operations in Indonesia. The Tsingshan-supplied stainless steel slabs will be hot-rolled into coils on the FRP segment's HRPF under a conversion agreement. The hot-rolled coils will be finished into stainless steel sheet using ATI's previously-idled Direct Roll Anneal and Pickle (DRAP) production facility in Midland, PA, which is ATI's major investment in the joint venture. We expect to steadily improve the capacity utilization of the HRPF as the joint venture ramps up operations.

2016 Compared to 2015

Sales for the FRP segment in 2016 decreased 31% compared to 2015, to $1.20 billion, as our change in market focus to value, not volume, resulted in our exit from the GOES market in April 2016 and the de-emphasis of certain commodity stainless steel sheet products, lowering sales of these products significantly. Sales were lower across nearly all major end markets in 2016, due primarily to lower shipment volumes. Lower average selling prices also impacted 2016 results compared to 2015, as low raw material surcharges included in transaction prices continued throughout 2016 from low year-end 2015 levels whereas 2015 average selling prices declined during the year due to falling raw material surcharges and competitive market conditions.

In the fourth quarter 2015, due to the challenging business conditions for standard stainless steel products and grain-oriented electrical steel (GOES), we announced actions to return the FRP business to profitability. These actions included the 2016 idling of the commodity stainless steel operations at the Midland, PA facility, and the idling of GOES operations, including the Bagdad, PA finishing facility. Charges of $54.5 million for long-lived asset impairments associated with these actions were excluded from 2015 segment results. In October 2016, we concluded that the Midland and Bagdad facilities could not be operated at an acceptable rate of return, and we announced that these operations would be closed. Closure-related costs and employee benefit costs of $12.8 million were recognized in the fourth quarter of 2016 from these closure actions, which are excluded from 2016 FRP segment results. Severance charges of $11.8 million for reductions of over 250 employees, or approximately one-third of the ATI Flat Rolled Products salaried workforce, were also excluded from 2016 FRP segment results.

Sales to the oil & gas market, which remains the segment’s largest end market, continued at lower levels in 2016, whereas demand remained good in the first half of 2015 as we completed a large nickel plate project, but then declined significantly in the second half of that year. Demand for our flat-rolled titanium products remained at low levels in 2016 for chemical and hydrocarbon processing projects, with shipments of titanium and ATI-produced Uniti joint venture titanium products decreasing 31% in 2016 compared to 2015, to 4.1 million pounds, which followed a 40% decline in 2015. Sales of high-value products, excluding GOES, were 23% lower in 2016 compared to 2015, and sales of standard products were 32% lower in 2016, compared to 2015, led by a 45% decline in specialty stainless sheet products. Segment results in 2016 were also impacted by a seven month work stoppage affecting the domestic operations of ATI Flat Rolled Products, which concluded in March 2016.

Comparative information for our Flat Rolled Products segment revenues (in millions) by market, the respective percentages of overall segment revenues for the years ended 2016 and 2015, and the percentage change in revenues by market for 2016 is as follows:

Market	2016		2015		Change	
Oil & Gas	$ 234.4	19%	$ 429.4	25%	$ (195.0)	(45)%
Automotive	225.2	19%	288.1	17%	(62.9)	(22)%
Food Equipment & Appliances	170.5	14%	214.4	12%	(43.9)	(20)%
Aerospace & Defense	151.2	13%	148.1	9%	3.1	2 %
Construction/Mining	124.0	10%	179.6	10%	(55.6)	(31)%
Electronics/Computers/Communication	106.3	9%	121.9	7%	(15.6)	(13)%
Electrical Energy	103.5	9%	232.3	13%	(128.8)	(55)%
Other	89.1	7%	119.9	7%	(30.8)	(26)%
Total	$ 1,204.2	100%	$ 1,733.7	100%	$ (529.5)	(31)%

Comparative information for the Flat Rolled Products segment's major product categories, based on their percentages of 2016 and 2015 segment revenues is as follows:

For the Years Ended December 31,	2016	2015
High-Value Products		
Precision and engineered strip	35%	29%
Nickel-based alloys and specialty alloys	25%	25%
Titanium and titanium-based alloys	4%	3%
Total High-Value Products, excluding GOES	64%	57%
Grain-oriented electrical steel	2%	8%
Total High-Value Products, including GOES	66%	65%
Standard Products		
Stainless steel sheet	19%	18%
Specialty stainless sheet	10%	13%
Stainless steel plate	5%	4%
Total Standard Products	34%	35%
Grand Total	100%	100%

Comparative shipment volume and average selling price information on the segment's products for the years ended December 31, 2016 and 2015, excluding GOES from high-value products from both periods, is provided in the following table:

	2016	2015	% change
Volume (000's pounds):			
High-Value	293,589	317,054	(7)%
Standard	385,010	514,035	(25)%
Total	678,599	831,089	(18)%
Average prices (per lb.):			
High-Value	$2.59	$3.12	(17)%
Standard	$1.06	$1.16	(9)%
Combined Average	$1.72	$1.91	(10)%

Segment operating results in 2016 were a loss of $163.0 million, or (13.5)% of sales, compared to segment operating loss of $241.9 million, or (14.0)% of sales in 2015. The 2016 FRP segment loss improved from 2015 due primarily to restructuring actions, including the idling in early 2016 of production capacity for commodity stainless steel sheet and GOES products, which were not able to be sold at profitable levels based on current market conditions. While 2016 had lower shipment volumes and selling prices compared to 2015, results reflected a better alignment of raw material costs and raw material surcharge recovery in transaction prices, compared to 2015. Base prices for most products were slightly improved in 2016 from year-end 2015 levels. 2016 results were negatively affected by reduced operating efficiencies, primarily affecting the U.S. operations of ATI Flat Rolled Products, during and after the 2015-2016 work stoppage, which ended in March 2016 upon ratification of a new four-year collective bargaining labor agreement by USW-represented employees. The 2016 segment operating loss includes $43.5 million of non-recurring operating costs related to higher-cost material produced prior to the end of the work stoppage, higher conversion costs during the return to more normal operating levels, and costs associated with contractual obligations in the return to work agreement for represented employees. FRP segment operating losses were progressively reduced each quarter during 2016 as a result of these factors, and with the initial benefits of our restructuring actions the fourth quarter 2016 segment operating loss was only $0.8 million. Segment operating results in 2016 also included approximately $4 million in higher retirement benefit expense from defined benefit plans compared to 2015, as higher defined benefit pension costs primarily associated with lower pension plan assets were partially offset by lower defined benefit retiree medical plan costs, which were the result of changes to retiree medical benefits achieved in the 2016 labor agreement.

In 2015, base prices for the most common standard grade stainless sheet product fell 25% to approximately $0.45 per pound in December 2015, which represents a historic low, from a $0.60 per pound level in effect for most of 2014. These base price declines for standard products, combined with falling raw material price surcharges which did not align with manufacturing costs, negatively affected segment operating results in 2015. Additionally, in anticipation of a possible strike action related to the USW labor negotiations, inventory with higher cost raw materials produced in the first half of 2015 was sold in the second half of 2015 and into 2016 at lower transaction prices due to falling raw material surcharges. Based on continued weak demand for industrial titanium products from global markets, we recorded lower of cost or market inventory charges of $17.7 million in 2016 and $24.5 million in 2015 to reduce the carrying values of these product inventories to current market levels. Segment operating results also include ATI's share of Uniti's results, which was income of $0.5 million in 2016 and a loss of $0.1 million in 2015. Results in both 2015 and 2016 were also negatively impacted by the strategic decision to use ATI-produced titanium sponge rather than lower cost titanium scrap to manufacture certain standard quality titanium products.

LIFO and Net Realizable Value Reserves

The net effect of changes in LIFO and net realizable value (NRV) inventory reserves was expense of $0.2 million for 2017 , and benefits of $0.8 million and $0.1 million in 2016 and 2015, respectively. Rising inventory costs in 2017 and 2016 resulted in $54.2 million and $39.1 million , respectively, pretax LIFO inventory valuation reserve charges, which were offset by $54.0 million and $39.9 million , respectively, pretax non-cash benefits for NRV inventory reserves that are required to offset the Company's aggregate net debit LIFO inventory balance that exceeds current inventory replacement cost. Rapidly falling raw material prices, primarily for nickel, resulted in a $131.6 million LIFO inventory valuation reserve benefit in 2015 which was offset by a $131.5 million charge for NRV inventory reserves.

Corporate Expenses

Corporate expenses, which are included in selling and administrative expenses in the statement of operations, were $50.5 million in 2017 compared to $43.4 million in 2016 , and $44.7 million in 2015 . The increase in corporate expenses in 2017 compared to 2016 and 2015 were due primarily due to higher incentive compensation costs, and as well as start-up research and development costs for Next Gen Alloys, our meltless titanium alloy powder joint venture formed with GE in 2017.

Closed Operations and Other Expenses

Closed operations and other expenses, which were $34.0 million in 2017 , $34.6 million in 2016 , and $22.1 million in 2015 , include charges for closed operations and other non-operating income or expense. Closed operation and other expenses in 2017 were comparable to 2016 as lower closed facility costs, a $3.7 million benefit for reduction in liabilities for legacy employee benefit programs, and higher royalty income were offset by increased foreign currency exchange losses, primarily related to our European Treasury Center operation, and other legacy costs of closed operations, compared to prior year amounts. The increase in closed company operations in 2016 compared to 2015 is primarily due to operations of our Rowley, UT titanium sponge facility, which were classified in closed operations beginning in the third quarter of 2016 due to the indefinite idling decision and ongoing shutdown activities. Closed operations and other expenses are presented primarily in selling and administrative expenses in the consolidated statements of operations, and include legal, environmental, retirement benefit and insurance obligations associated with closed operations.

Restructuring, Goodwill Impairment and Other Charges

2017

Business segment results in 2017 exclude a $114.4 million goodwill impairment charge to write-off all the goodwill assigned to ATI Cast Products, our titanium investment casting business in the HPMC segment. During the third quarter of 2017, we performed an interim goodwill impairment analysis on ATI Cast Products due to impairment indicators, including lower actual results versus projections. As a result of the 2017 interim goodwill impairment evaluation, we determined that the fair value of the Cast Products business was significantly below the carrying value, including goodwill. This was primarily due to lower projected revenues, profitability and cash flows associated with revised expectations for the rate of operational improvement and profitability of this business based on current customer agreements. This goodwill impairment charge was excluded from HPMC 2017 business segment results.

2016

Business segment results in 2016 exclude $538.5 million of restructuring and other charges. These charges include $471.3 million in long-lived asset impairment charges, $31.7 million of facility shutdown and idling costs, $24.2 million of employee benefit costs and $11.3 million of inventory valuation charges.

In August 2016, we announced the indefinite idling of the Rowley, UT titanium sponge production facility and the consolidation of certain titanium manufacturing operations in the HPMC segment. We recorded a non-cash impairment charge of $470.8 million during 2016 to reduce the carrying value of the Rowley, UT facility to an estimated fair value of $15.0 million. The indefinite idling of the Rowley, UT facility was completed in the fourth quarter 2016, as was the closure of a small titanium wire production facility in Frackville, PA, and the idling of certain titanium manufacturing operations in Albany, OR.

We recognized $23.8 million of facility shutdown and idling costs, including contract termination costs, and $7.5 million of employee benefit costs including severance obligations for the elimination of approximately 180 positions associated with these and other HPMC restructuring actions. Also, an $11.3 million charge was recorded in cost of sales to revalue titanium sponge inventory based on revised assessments of industrial grade titanium market conditions and expected utilization of this inventory. The Rowley facility was idled in a manner that allows the facility to be restarted in the future if supported by market conditions.

In October 2016, we announced the closure of the Midland, PA commodity stainless steel operations and the Bagdad, PA GOES finishing facility. These facilities, which were part of our FRP operations, were indefinitely idled earlier in 2016, and management concluded that the facilities could not be operated at an acceptable rate of return. As a result of these actions, during 2016 we recorded $8.4 million of closure-related costs and asset impairments, and $4.9 million of employee benefit costs, including $3.4 million of special termination benefits for pension and other postretirement benefit plans.

Results for 2016 also include an $11.8 million charge for severance obligations in the FRP operations, for the reduction of approximately one-third of the salaried workforce at ATI Flat Rolled Products through the elimination of over 250 positions, which was largely completed by the end of 2016. Reserves for restructuring charges at December 31, 2016 were $33 million, consisting of severance and employee benefit and closure costs, and were substantially paid in 2017.

2015

Business segment results exclude $216.3 million of goodwill impairment, restructuring and other charges in 2015. We recorded a $126.6 million pre-tax impairment charge in 2015 to write-off all the goodwill in the Flat Rolled Products segment. As a result of the annual goodwill impairment evaluations in 2015, we determined that the fair value of the Flat Rolled Products business was below carrying value, including goodwill. This was due to challenging market conditions in 2015 in this business, primarily impacting commodity stainless flat-rolled products. This goodwill impairment charge was excluded from the Flat Rolled Products 2015 business segment results.

In 2015, we recorded $89.7 million in restructuring and other charges, including $54.5 million in long-lived asset impairment charges, $3.5 million in facility idling costs, a $25.4 million charge to revalue inventory, and $6.3 million in employee severance charges.

In December 2015, we announced rightsizing actions to better align our Flat Rolled Products operations to the challenging market conditions for commodity products. Such actions included the idling of our standard stainless melt shop and sheet finishing operations at the Midland, PA facility, which was completed in January 2016, and the idling of our GOES operations in Western PA, including the Bagdad, PA facility, which was completed in April 2016. As a result, 2015 operating results include a $54.5 million asset impairment charge to reduce the carrying values of these facilities and $3.5 million of charges for future idling costs at these facilities.

In December 2015, based on current market prices for non-PQ titanium sponge, we recorded a $25.4 million charge to revalue this inventory. The charge includes revised assessments of the non-PQ titanium market conditions and expected utilization of this inventory.

In 2015, we implemented a salaried workforce reduction of approximately 100 employees, in response to business conditions, in both the High Performance Materials & Components segment and at ATI's headquarters. Severance charges of $6.3 million were recorded for this action in 2015, the majority of which were paid in 2016.

Debt Extinguishment Charge

In December 2017, we redeemed all $350 million aggregate principal amount of our 2019 Notes, resulting in a $37.0 million pre-tax debt extinguishment charge, which included a $35.8 million cash payment as a make-whole provision on the early extinguishment of debt, and a $1.2 million charge for previously-unrecognized debt issue costs.

Interest Expense, Net

Interest expense, net of interest income and interest capitalization, was $133.8 million in 2017 , $124.0 million in 2016 , and $110.2 million in 2015 . The increase in interest expense in 2017 compared to 2016 was primarily due to interest on the $287.5 million 4.75% Convertible Senior Notes due 2022 (2022 Convertible Notes) and the $100.0 million term loan (Term Loan), both of which were issued during the second quarter of 2016. The increase in interest expense in 2016 compared to 2015 was due to the 2022 Convertible Notes and the Term Loan, as well as a higher interest rate on the Company's 5.875% Senior Notes due 2023 (2023 Notes) resulting from credit rating downgrades, and higher average borrowings under the revolving portion of our Asset Based Lending (ABL) Credit Facility. Interest expense is presented net of interest income of $1.1 million in 2017 , $1.4 million in 2016 , and $1.2 million in 2015 .

Interest expense in 2017 , 2016 , and 2015 was reduced by $2.6 million , $4.7 million , and $2.2 million , respectively, related to interest capitalization on major strategic capital projects.

Income Taxes

Since 2015, ATI results have reflected a three year cumulative loss from U.S. operations. In situations where a three year cumulative loss condition exists, accounting standards limit the ability to consider projections of future results as positive evidence to assess the realizability of deferred tax assets. Deferred taxes result from temporary differences in the recognition of income and expense for financial and income tax reporting purposes, and differences between the fair value of assets acquired in business combinations accounted for as a purchase for financial reporting purposes and their corresponding tax bases. Deferred income taxes represent future tax benefits or costs to be recognized when those temporary differences reverse. We established $74.5 million in deferred tax asset valuation allowances in 2015, of which $68.4 million were for certain federal and state deferred tax assets. In 2016, the actions to indefinitely idle the Rowley, UT titanium sponge production facility resulted in a reassessment of the realizability of U.S. federal deferred tax assets. In 2016, our results of operations included an increase to deferred tax asset valuation allowances of $171.5 million, including an additional $165.8 million valuation allowance on federal and state deferred tax assets, as well as additional deferred tax asset valuation allowances in certain foreign jurisdictions. In 2017, ATI continued to maintain income tax valuation allowances on its U.S. Federal and state deferred tax assets. As a result of deferred tax valuation allowances, the remeasurement of our deferred tax assets and liabilities due to the lower enacted federal tax rate in the Tax Cuts and Jobs Act (Tax Act) did not have a significant impact on 2017 results. At December 31, 2017, we had a consolidated net deferred tax liability of $2.1 million.

The 2017 income tax benefit was $6.8 million , or 7.9% of the pre-tax loss, compared to the 2016 income tax benefit of $106.9 million, or 14.6% of the pre-tax loss, and the 2015 income tax benefit of $112.1 million, or 23.5% of pre-tax loss. Results for all periods include impacts from income taxes that differ from the standard 35% U.S. federal tax rate then in effect, primarily related to income tax valuation allowance changes. The 2017 income tax benefit included a $4.1 million benefit on the remeasurement of certain tax attributes, mainly indefinite-lived deferred tax liabilities, due to Tax Act changes.

Financial Condition and Liquidity

We have a $500 million Asset Based Lending (ABL) Credit Facility, which is collateralized by the accounts receivable and inventory of our domestic operations. The ABL includes a $400 million revolving credit facility, which includes a letter of credit sub-facility of up to $200 million , and a $100 million Term Loan.

In June 2017, the ABL facility was amended to extend the maturity date of the Term Loan from November 2017 to February 2022 and to reduce the interest rate on the Term Loan to 3.0% plus a LIBOR spread from 3.5% plus a LIBOR spread. The Term Loan can be prepaid in minimum increments of $50 million if certain minimum liquidity conditions are satisfied. The underwriting costs associated with amending the Term Loan were $0.8 million, and are being amortized, along with the unamortized portion of the $1.0 million of previously recognized deferred fees from the issuance of the Term Loan, to interest expense over the extended term of the loan ending February 2022.

Also in June 2017, the ABL facility was amended to, among other things, extend the duration of the revolving portion of the facility from September 2020 to February 2022. As amended, the applicable interest rate for revolving credit borrowings under the ABL facility includes interest rate spreads based on available borrowing capacity that range between 1.75% and 2.25% for LIBOR-based borrowings (2.0% and 2.5% prior to amendment) and between 1.0% and 1.5% for base rate borrowings. The ABL facility contains a financial covenant whereby we must maintain a fixed charge coverage ratio of not less than 1.00 : 1.00 after an event of default has occurred and is continuing or if the undrawn availability under the revolving credit portion of the facility is less than the greater of (i) 10% , as amended, of the then applicable maximum borrowing amount under the revolving credit portion of the ABL and any outstanding Term Loan balance, or (ii) $40 million . We do not meet this required fixed charge coverage ratio at December 31, 2017. As a result, we are not able to access $50 million of the revolving credit portion of the ABL facility until we meet the required ratio. Additionally, we must demonstrate liquidity, as calculated in accordance with the terms of the ABL facility, of at least $700 million on the date that is 91 days prior to January 15, 2021, the maturity date of the 5.95% Senior Notes due 2021, and that such liquidity is available at all times thereafter until the 5.95% Senior Notes due 2021 (2021 Notes) are paid in full or refinanced. Costs associated with entering into the ABL amendment were $1.0 million, and are being amortized, along with the unamortized portion of $2.4 million of previously recognized deferred costs, to interest expense over the extended term of the facility ending February 2022.

There were no outstanding revolving credit borrowings under the ABL facility as of December 31, 2017, and $42.3 million was utilized to support the issuance of letters of credit. Average revolving credit borrowings under the ABL facility for the fiscal year ended December 31, 2017 were $37 million , bearing an average annual interest rate of 3.255% . Average borrowings under the ABL for the fiscal year ended December 31, 2016 were $82 million , bearing an average annual interest rate of 1.8% .

On November 7, 2017, we issued 17 million shares of common stock at $24.00 per share before expenses in an underwritten registered public offering. This equity offering resulted in proceeds, net of transaction costs, of $397.8 million that were used to redeem all of the outstanding $350 million aggregate principal amount of our 2019 Notes. We recognized a $37.0 million pre-tax debt extinguishment charge to redeem the 2019 Notes, which included a $35.8 million cash payment as a make-whole provision on the early extinguishment of debt, and a $1.2 million charge for previously-unrecognized debt issue costs. As a result of the 2019 Notes redemption and the ABL actions, we have no significant debt maturities until 2021.

At December 31, 2017 , we had $142 million of cash and cash equivalents, and available additional liquidity under the ABL facility of approximately $305 million. We do not expect to pay any significant U.S. federal income taxes in the next few years due to net operating loss carryforwards. Tax law changes in the Tax Cuts and Jobs Act related to a liability for foreign earnings are expected to be offset with these net operating loss carryforwards or other tax attributes.

In March 2017, we made a $135 million cash contribution to the ATI Pension Plan, which completed our funding requirements for 2017. Based on recently-issued IRS regulations regarding mortality table changes for 2018, the current year performance of our pension trust assets through December 31, 2017, and the expected rate of return on pension assets in future years, we currently expect our 2018 funding requirements to the ATI Pension Plan to be approximately $40 million, and to have annual funding requirements of approximately $85 million to the ATI Pension Plan for the next few years thereafter. However, these funding estimates are subject to significant uncertainty including the actual pension trust assets' fair value, and the discount rates used to measure pension liabilities.

We believe that internally generated funds, current cash on hand and available borrowings under the ABL facility will be adequate to meet our liquidity needs, including currently projected required contributions to the ATI Pension Plan, our U.S. qualified defined benefit pension plan. If we needed to obtain additional financing using the credit markets, the cost and the terms and conditions of such borrowings may be influenced by our credit rating. In addition, we regularly review our capital structure, various financing alternatives and conditions in the debt and equity markets in order to opportunistically enhance our capital structure. In connection therewith, we may seek to refinance or retire existing indebtedness, incur new or additional indebtedness or issue equity or equity-linked securities, in each case, depending on market and other conditions.

We have no off-balance sheet arrangements as defined in Item 303(a)(4) of SEC Regulation S-K.

Cash Flow and Working Capital

Cash provided by operations for 2017 was $22.4 million , despite a $135.0 million contribution to the ATI Pension Plan and a use of cash of $111.8 million from higher managed working capital balances. Managed working capital increased in 2017 as we continue to expand production levels to support business growth, including large pipeline project orders in our FRP segment, which will be delivered to our customers in early 2018, along with initial materials received to support the pending Allegheny & Tsingshan Stainless joint venture. Cash flow used in operations for 2016 was $43.7 million, which included a $115.0 million contribution to the ATI Pension Plan, and an offsetting benefit of $91.7 million from lower managed working capital balances.

As part of managing the liquidity of the business, we focus on controlling managed working capital, which is defined as gross accounts receivable and gross inventories, less accounts payable. In measuring performance in controlling this managed working capital, we exclude the effects of LIFO and other inventory valuation reserves, and reserves for uncollectible accounts receivable which, due to their nature, are managed separately. We also measure managed working capital as a percentage of the prior three months annualized sales to evaluate our performance based on recent levels of business volume. In 2017 , managed working capital decreased to 38.1% of annualized total ATI sales compared to 40.0% of annualized sales at December 31, 2016. The $111.8 million increase in managed working capital in 2017 resulted from a $145.8 million increase in inventory and $91.8 million increase in accounts receivable, partially offset by a $125.8 million increase in accounts payable. Days sales outstanding, which measures actual collection timing for accounts receivable, improved by approximately 10% at year-end 2017 compared to 2016 . Gross inventory turns, which exclude the effect of LIFO and any applicable offsetting NRV inventory valuation reserves, remained unchanged in 2017 compared to 2016.

In 2016, managed working capital decreased by $91.7 million, due primarily to inventory reductions in the FRP segment. The $91.7 million decrease resulted from a $232.8 million decrease in inventory, partially offset by an $86.5 million decrease in accounts payable and a $54.6 million increase in accounts receivable.

The components of managed working capital were as follows:

(In millions)		**December 31, 2017**		December 31, 2016		December 31, 2015
Accounts receivable	**$**	**545.3**	$	452.1	$	400.3
Inventory		**1,176.1**		1,037.0		1,271.6
Accounts payable		**(420.1)**		(294.3)		(380.8)
Subtotal		**1,301.3**		1,194.8		1,291.1
Allowance for doubtful accounts		**5.9**		7.3		4.5
LIFO reserve		**(43.1)**		(97.3)		(136.4)
Inventory reserves		**121.5**		169.0		206.3
Managed working capital	**$**	**1,385.6**	$	1,273.8	$	1,365.5
Annualized prior 3 months sales	**$**	**3,639.5**	$	3,184.2	$	2,955.5
Managed working capital as a % of annualized sales		**38.1%**		40.0%		46.2%
December 31, 2017 change in managed working capital	**$**	**111.8**				

Cash used in investing activities was $119.6 million in 2017, with $122.7 million for capital expenditures, partially offset by cash proceeds from sales of miscellaneous assets. Our capital expansion project at STAL, our Chinese joint venture in which ATI has a 60% interest, for our third Precision Rolled Strip manufacturing facility is ongoing and will be fully funded by STAL's operations. The HPMC segment capital expansion project for our new nickel-based powder alloys facility in North Carolina was completed, and is expected to be commercially qualified in early 2018. We are at the end of a significant, multi-year period of capital expansions, and expect our capital expenditures to be well below depreciation expense for the next several years. We expect to fund our capital expenditures with cash on hand and cash flow generated from our operations and, if needed, by using a portion of the ABL facility.

Cash provided by financing activities in 2017 was $9.2 million , as $397.8 million of proceeds from our November equity offering were largely offset by $353.0 million in long-term debt payments and $35.8 million for a debt extinguishment charge both of which reflect the redemption of our 2019 Notes. Cash provided by financing activities in 2016 was $323.5 million with $387.5 million for the Term Loan and the 2022 Convertible Notes issued in the second quarter of 2016, partially offset by $25.8 million of dividends paid to ATI shareholders, $16.0 million in dividend payments to the 40% noncontrolling interest in our STAL joint venture, $10.4 million of issuance costs related to the new debt, and $12.2 million primarily for the purchase of the 15% redeemable noncontrolling interest in ATI Flowform Products.

At December 31, 2017 , cash and cash equivalents on hand totaled $141.6 million , an $88.0 million decrease from year-end 2016 . Cash and cash equivalents held by our foreign subsidiaries was $58.7 million at December 31, 2017 , of which $26.2 million was held by the STAL joint venture.

Debt

Total debt outstanding decreased $340.3 million in 2017 to $1,553.8 million at December 31, 2017 . This decrease was due to the redemption of the 2019 Notes in the fourth quarter of 2017.

In managing our overall capital structure, some of the measures on which we focus are net debt to total capitalization, which is the percentage of our debt, net of cash that may be available to reduce borrowings, to our total invested and borrowed capital, and total debt to total capitalization, which excludes cash balances. These leverage ratios decreased in 2017 primarily as a result of the redemption of the 2019 Notes. At year-end 2017 , our net debt to total capitalization was 44.8% , compared to 55.1% at December 31, 2016 .

(In millions)		**December 31, 2017**		December 31, 2016
Total debt (a)	**$**	**1,553.8**	$	1,894.1
Less: Cash		**(141.6)**		(229.6)
Net debt	**$**	**1,412.2**	$	1,664.5
Total ATI stockholders' equity		**1,739.4**		1,355.2
Net ATI capital	**$**	**3,151.6**	$	3,019.7
Net debt to ATI capital		**44.8%**		55.1%

Total debt to total capitalization was 47.2% at December 31, 2017 compared to 58.3% at December 31, 2016 .

(In millions)	**December 31, 2017**	December 31, 2016
Total debt (a)	**$ 1,553.8**	$ 1,894.1
Total ATI stockholders' equity	**1,739.4**	1,355.2
Total ATI capital	**$ 3,293.2**	$ 3,249.3
Total debt to ATI capital	**47.2%**	58.3%

(a) Excludes debt issuance costs.

In December 2017, we redeemed all $350 million aggregate principal amount of the 2019 Notes, resulting in a $37.0 million pre-tax debt extinguishment charge, which included a $35.8 million cash payment as a make-whole provision on the early extinguishment of debt, and a $1.2 million charge for previously-unrecognized debt issue costs.

The 5.875% stated interest rate payable on the 2023 Notes is subject to adjustment in the event of changes in the credit ratings on the 2023 Notes by either Moody's or Standard & Poor's (S&P). Each notch of credit rating downgrade from the credit ratings in effect when the 2023 Notes were issued in July 2013 increases interest expense by 0.25% on the 2023 Notes, up to a maximum 4 notches by each of the two rating agencies, or a total 2.0% potential interest rate change up to 7.875% .

In February 2016, the 2023 Notes reset one notch to the maximum 7.875% annual interest rate as a result of a credit rating downgrade by S&P, which resulted in an additional $1.3 million of interest expense measured on an annual basis, compared to 2015. Any further credit rating downgrades have no effect on the interest rate of the 2023 Notes, and increases in the Company's credit ratings from these ratings agencies would reduce interest expense incrementally on the 2023 Notes to the original 5.875% interest rate in a similar manner.

In the second quarter of 2016, we issued and sold $287.5 million aggregate principal amount of the 2022 Convertible Notes. Interest on the 2022 Convertible Notes is payable in cash semi-annually in arrears on each January 1 and July 1, commencing January 1, 2017. The 2022 Convertible Notes have a conversion price of $14.45 per share, subject to adjustment in certain events. Other than receiving cash in lieu of fractional shares, holders do not have the option to receive cash instead of shares of common stock upon conversion.

STAL, the Company's Chinese joint venture company in which ATI has a 60% interest, has a separate $20 million revolving credit facility entered into in April 2015. Borrowings under the STAL revolving credit facility are in U.S. dollars based on U.S. interbank offered rates. The credit facility is supported solely by STAL's financial capability without any guarantees from the joint venture partners. The credit facility requires STAL to maintain a minimum level of shareholders' equity, and certain financial ratios.

A summary of required payments under financial instruments (excluding accrued interest) and other commitments are presented below. A liability for taxes due on mandatory deemed repatriation of earnings of controlled foreign corporations, which is one of the provisions of the recently-enacted Tax Act, has been excluded from the contractual cash obligations disclosure because ATI has sufficient net operating loss carryforwards available to fully offset the tax payment obligation.

(In millions)	Total	Less than 1 year	1-3 years	4-5 years	After 5 years
Contractual Cash Obligations					
Total Debt including Capital Leases	$ 1,553.8	$ 10.1	$ 5.5	$ 888.2	$ 650.0
Interest on Debt (A)	507.6	99.7	202.2	135.0	70.7
Operating Lease Obligations	77.4	20.0	26.0	17.5	13.9
Other Long-term Liabilities	73.2	—	22.4	9.1	41.7
Pension and OPEB Obligations (B)	684.3	81.1	258.9	192.3	152.0
Unconditional Purchase Obligations					
Raw Materials (C)	1,049.3	367.3	489.0	193.0	—
Capital expenditures	62.8	50.6	12.2	—	—
Other (D)	146.3	68.3	47.3	22.4	8.3
Total	$ 4,154.7	$ 697.1	$ 1,063.5	$ 1,457.5	$ 936.6
Other Financial Commitments					
Lines of Credit (E)	$ 469.7	$ 69.7	$ —	$ 400.0	$ —
Guarantees	$ 31.2				

(A) Amounts include contractual interest payments using the interest rates in effect as of December 31, 2017 applicable to the Company’s 2021 Notes, the Term Loan due 2022, the 2022 Convertible Notes, the 2023 Notes and the 6.95% Debentures due 2025.

(B) Based on current actuarial studies, amounts include payments for the next 10 years to defined benefit pension plans, assuming the expected long-term return on pension assets is achieved. Projections of minimum required payments to the ATI Pension Plan are subject to significant uncertainty based on a number of factors including actual pension plan asset returns, changes in estimates of participant longevity, and changes in interest rates. Amounts also include actuarial projections of payments under other postemployment benefit plans for the next 10 years. In most retiree healthcare plans, our contributions are capped based on the cost as of a certain date. See Note 11, Retirement Benefits for further information.

(C) We have contracted for physical delivery for certain of our raw materials to meet a portion of our needs. These contracts are based upon fixed or variable price provisions. We used current market prices as of December 31, 2017, for raw material obligations with variable pricing.

(D) We have various contractual obligations that extend through 2026 for services involving production facilities and administrative operations. Our purchase obligation as disclosed represents the estimated termination fees payable if we were to exit these contracts.

(E) At December 31, 2017, there was $6.3 million drawn under foreign credit agreements. Drawn amounts on the U.S. facility were $42.3 million utilized under the $400 million ABL facility for standby letters of credit, which renew annually. These letters of credit are used to support: $29.1 million in workers’ compensation and general insurance arrangements, $12.4 million related to environmental matters and $0.8 million for ATI’s assurance of performance to a customer.

Commitments and Contingencies

At December 31, 2017 , our reserves for environmental remediation obligations totaled approximately $12 million , of which $7 million was included in other current liabilities. These reserves included estimated probable future costs of: $2 million for federal Superfund and comparable state-managed sites; $8 million for formerly owned or operated sites for remediation or indemnification obligations; $1 million for owned or controlled sites at which our operations have been discontinued; and $1 million for sites utilized in our ongoing operations. We continue to evaluate whether we may be able to recover a portion of future costs for environmental liabilities from third parties and to pursue such recoveries where appropriate. The timing of expenditures depends on a number of factors that vary by site. ATI expects that it will expend present accruals over many years and that remediation of all sites with which it has been identified will be completed within thirty years.

At December 31, 2017 , we had recognized asset retirement obligations (AROs) of $24 million related to landfill closures, decommissioning costs, facility leases and conditional AROs associated with manufacturing activities using what may be characterized as potentially hazardous materials.

Based on currently available information, it is reasonably possible that the costs for active matters may exceed our recorded reserves by as much as $15 million . However, future investigation or remediation activities may result in the discovery of additional hazardous materials, potentially higher levels of contamination than discovered during prior investigation, and may impact costs of the success or lack thereof in remedial solutions. Therefore, future developments, administrative actions or liabilities relating to environmental matters could have a material adverse effect on the ATI’s consolidated financial condition or results of operations.

Labor Matters

Collective bargaining agreements with the United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied & Industrial Service Workers International Union, AFL-CIO, CLC (USW) that cover approximately 600 employees expired in 2017, and operations continue at these facilities while negotiations with the USW are ongoing. In addition, the Company has CBAs with approximately 300 full-time employees that expire in 2018.

Retirement Benefits

We instituted several liability management actions over the last few years to effect changes to our retirement benefit programs. As a result of these actions, nearly all of ATI’s operations have defined benefit pensions that are either frozen for all future benefit accruals or closed to new entrants, and remaining collectively-bargained defined benefit retiree health care plans that are capped and closed to new entrants, transitioning ATI’s retirement benefit and other postretirement benefit programs largely to a defined contribution structure.

At December 31, 2017 , the ATI Pension Plan was approximately 76% funded in accordance with generally accepted accounting principles, and was remeasured at that date using a 3.85% discount rate to measure the projected benefit obligation. For ERISA funding purposes, discount rates used to measure pension liabilities for U.S. qualified defined benefit plans are calculated on a different basis using an IRS-determined segmented yield curve, which currently results in a higher discount rate than the discount rate methodology required by accounting standards. Funding requirements are also affected by IRS-determined mortality assumptions, which may differ from those used under accounting standards. Based upon current regulations and actuarial studies, we expect to make approximately a $40 million cash contribution to the ATI Pension Plan in 2018, and we currently expect to have average annual funding requirements of approximately $85 million for the next few years for this plan, using an expected 7.75% rate of return on pension plan assets. However, these estimates are subject to significant uncertainty, including potential changes to mortality tables with revised longevity estimates, and the performance of our pension trust assets. Pension trust asset performance for both our accounting and ERISA funding calculations is determined using the market value of plan assets at the end of each year. Since July 2016, we have contributed $250 million in cash to the ATI Pension Plan to improve the plan's funded position.

Dividends

Effective with the fourth quarter of 2016 , our Board of Directors decided to suspend the quarterly dividend. A quarterly dividend of $0.08 per share of common stock outstanding was paid for each of the first three quarters of 2016 . The payment of dividends and the amount of such dividends depends upon matters deemed relevant by our Board of Directors on a quarterly basis, such as our results of operations, financial condition, cash requirements, future prospects, any limitations imposed by law, credit agreements or senior securities, and other factors deemed relevant and appropriate. Under the ABL facility, there is no limit on dividend declarations or payments provided that the undrawn availability, after giving effect to a particular dividend payment, is at least the greater of $100 million and 25% of the maximum revolving credit availability, and no event of default under the ABL facility has occurred and is continuing or would result from paying a dividend. In addition, there is no limit on dividend declarations or payments if the undrawn availability is less than the greater of $100 million and 25% of the maximum revolving credit advance amount but more than the greater of $60 million and 15% of the maximum revolving credit advance amount, if (i) no event of default has occurred and is continuing or would result from paying the dividend, (ii) we demonstrate to the administrative agent that, prior to and after giving effect to the payment of the dividend (A) the undrawn availability, as measured both at the time of the dividend payment and as an average for the 60 consecutive day period immediately preceding the dividend payment, is at least the greater of $60 million and 15% of the maximum revolving credit availability, and (B) we maintain a fixed charge coverage ratio of at least 1.00:1.00, as calculated in accordance with the terms of the ABL facility.

Critical Accounting Policies

The accompanying consolidated financial statements have been prepared in conformity with United States generally accepted accounting principles. When more than one accounting principle, or the method of its application, is generally accepted, management selects the principle or method that is appropriate in our specific circumstances. Application of these accounting principles requires our management to make estimates about the future resolution of existing uncertainties; as a result, actual results could differ from these estimates. In preparing these consolidated financial statements, management has made its best estimates and judgments of the amounts and disclosures included in the financial statements giving due regard to materiality.

Inventories

At December 31, 2017 , we had net inventory of $1,176.1 million . Inventories are stated at the lower of cost (LIFO, FIFO and average cost methods) or market, less progress payments. Costs include direct material, direct labor and applicable manufacturing and engineering overhead, and other direct costs. Most of our inventory is valued utilizing the LIFO costing methodology. Inventory of our non-U.S. operations is valued using average cost or FIFO methods. Under the LIFO inventory valuation method, changes in the cost of raw materials and production activities are recognized in cost of sales in the current period even though these material and other costs may have been incurred at significantly different values due to the length of time of our production cycle. In a period of rising prices, cost of sales expense recognized under LIFO is generally higher than the cash costs incurred to acquire the inventory sold. Conversely, in a period of declining raw material prices, cost of sales recognized under LIFO is generally lower than cash costs incurred to acquire the inventory sold. Generally, over time based on overall inflationary trends in raw materials, labor and overhead costs, the use of the LIFO inventory valuation method will result in a LIFO inventory valuation reserve, as the higher current period costs are included in cost of sales and the balance sheet carrying value of inventory is reduced.

The prices for many of the raw materials we use have been extremely volatile during the past several years, while labor and overhead costs have been generally stable, with a modest inflationary trend. Raw material cost changes typically have the largest impact on the LIFO inventory costing methodology based on the overall proportion of raw material costs to other inventoriable costs. Since we value most of our inventory utilizing the LIFO inventory costing methodology, a fall in material costs generally results in a benefit to operating results by reducing cost of sales and increasing the inventory carrying value, while conversely, a rise in raw material costs generally has a negative effect on our operating results by increasing cost of sales while lowering the carrying value of inventory. For example, for the years ended December 31, 2017 and 2016, the LIFO inventory valuation method resulted in cost of sales that were $54.2 million and $39.1 million, respectively, higher than would have been recognized under the FIFO methodology to value our inventory.

Due primarily to persistent raw material deflation in prior years, we are in the unusual situation of having a LIFO inventory balance that exceeds replacement cost. In cases where inventory at FIFO cost is lower than the LIFO carrying value, a write-down of the inventory to market may be required, subject to a lower of cost or market evaluation. In applying the lower of cost or market principle, market means current replacement cost, subject to a ceiling (market value shall not exceed net realizable value) and a floor (market shall not be less than net realizable value reduced by an allowance for a normal profit margin). We evaluate product lines on a quarterly basis to identify inventory values that exceed estimated net realizable value. The calculation of a resulting NRV inventory reserve, if any, is recognized as an expense in the period that the need for the reserve is identified.

The impact to our cost of sales for changes in the LIFO costing methodology and associated NRV inventory reserves were as follows (in millions):

	Fiscal year ended December 31,		
	2017	2016	2015
LIFO benefit (charge)	**$ (54.2)**	$ (39.1)	$ 131.6
NRV benefit (charge)	**54.0**	39.9	(131.5)
Net cost of sales impact	**$ (0.2)**	$ 0.8	$ 0.1

We also recorded inventory valuation charges for the market-based valuation of Rowley-produced titanium sponge inventory. These lower of cost or market charges in 2016 and 2015 were $17.7 million and $24.5 million , respectively. Additionally, in the third quarter of 2016, in conjunction with the indefinite idling of our Rowley, UT titanium sponge facility, an additional $11.3 million charge was taken to revalue titanium sponge inventory based on revised assessments of industrial grade titanium market conditions and expected utilization of this inventory. In December 2015, based on current market prices for non-premium quality (PQ) grades of titanium sponge, we recorded an additional $25.4 million charge to revalue this inventory. This charge included revised assessments of the non-PQ titanium market conditions and expected utilization of this inventory.

It is our general policy to write-down to scrap value any inventory that is identified as obsolete and any inventory that has aged or has not moved in more than twelve months. In some instances this criterion is up to twenty-four months due to the longer manufacturing and distribution process for certain products.

The LIFO inventory valuation methodology is not utilized by many of the companies with which we compete, including foreign competitors. As such, our results of operations may not be comparable to those of our competitors during periods of volatile material costs due, in part, to the differences between the LIFO inventory valuation method and other acceptable inventory valuation methods.

Asset Impairment

We monitor the recoverability of the carrying value of our long-lived assets. An impairment charge is recognized when the expected net undiscounted future cash flows from an asset's use (including any proceeds from disposition) are less than the asset's carrying value, and the asset's carrying value exceeds its fair value. Changes in the expected use of a long-lived asset group, and the financial performance of the long-lived asset group and its operating segment, are evaluated as indicators of possible impairment. Future cash flow value may include appraisals for property, plant and equipment, land and improvements, future cash flow estimates from operating the long-lived assets, and other operating considerations. In the fourth quarter of each year in conjunction with the annual business planning cycle, or more frequently if new material information is available, we evaluate the recoverability of idled facilities.

In August 2016, ATI announced the indefinite idling of the Rowley, Utah titanium sponge production facility, with the orderly wind-down of operations to occur through December 2016. Over the last several years significant global capacity had been added to produce titanium sponge, which is a key raw material used to produce ATI's titanium products. In addition, demand for industrial-grade titanium products from global markets continued to be weak. As a result of these factors, titanium sponge, including aerospace quality sponge, could be purchased from qualified global producers under long-term supply agreements at prices lower than the production costs at ATI's titanium sponge facility in Rowley, UT. The Rowley facility was idled in a manner that allows the facility to be restarted in the future if supported by market conditions. As a result of this idling decision, we evaluated the recoverability of this facility and concluded that the expected net undiscounted future cash flows from these assets were less than their carrying value. A $470.8 million impairment charge was recognized in 2016 to reduce the carrying value of the Rowley, UT facility to estimated fair value based on asset appraisals using cost, income and market approaches.

In December 2015, we announced rightsizing actions to better align our Flat Rolled Products operations to the challenging market conditions for our commodity products. Such actions included the idling of the standard stainless operations at the Midland, PA facility, which was completed in January 2016, and the GOES operations in Western PA, including the Bagdad, PA facility, which was completed in April 2016. In October 2016, the Company announced the closure of these facilities as management concluded that the facilities could not be operated at an acceptable rate of return. As a result of these idlings in 2015, we evaluated the recoverability of these idled facilities and concluded that the expected net undiscounted future cash flows from these assets were less than their carrying value. A $24.2 million impairment charge was recognized to reduce the carrying value of the Midland facility to estimated fair value and a $30.3 million impairment charge was recognized to reduce the carrying value of GOES operations assets to estimated fair value in 2015. These long-lived asset impairment charges were based on analysis of the estimated fair values, including asset appraisals using income and market approaches.

Goodwill is reviewed annually in the fourth quarter of each year for impairment or more frequently if impairment indicators arise. Other events and changes in circumstances may also require goodwill to be tested for impairment between annual measurement dates. During the third quarter of 2017, we performed an interim goodwill impairment analysis on ATI Cast Products, a titanium investment casting business, due to impairment indicators including lower actual results versus projections. This reporting unit had a fair value that exceeded carrying value by 12% as a result of our 2016 annual goodwill impairment evaluation. As a result of the 2017 interim goodwill impairment evaluation, we determined that the fair value of the Cast Products business was significantly below the carrying value, including goodwill. This was primarily due to lower projected revenues, profitability and cash flows associated with revised expectations for the rate of operational improvement and profitability of this business based on current customer agreements. Consequently, during the third quarter of 2017, we recorded a $114.4 million pre-tax impairment charge to write-off all of the goodwill associated with ATI Cast Products, most of which was assigned from our 2011 Ladish acquisition that was not deductible for income tax purposes.

Also during the third quarter of 2017, management concluded that the goodwill impairment at ATI Cast Products was an impairment indicator to evaluate the recoverability of other long-lived assets of this reporting unit, including property, plant, equipment, and intangible assets. No impairment was determined to exist in these long-lived assets as a result of this interim impairment test.

For both our annual and interim goodwill impairment analysis in 2017, fair values were determined by using a quantitative assessment that may include discounted cash flow and multiples of cash earnings valuation techniques, plus valuation comparisons to recent public sale transactions of similar businesses, if any, which represents Level 3 unobservable information in the fair value hierarchy. These impairment assessments and valuation methods require us to make estimates and assumptions regarding future operating results, cash flows, changes in working capital and capital expenditures, selling prices, profitability, and the cost of capital. Many of these assumptions are determined by reference to market participants we have identified. For example, our weighted average costs of capital used in our discounted cash flow assessments ranged from approximately 10% to 11% and long-term growth rates ranged from 3% to 4.5%. Although we believe that the estimates and assumptions used were reasonable, actual results could differ from those estimates and assumptions.

For our annual goodwill impairment evaluation, a reconciliation of the aggregate fair values of all reporting units to market capitalization was performed using a reasonable control premium in order to validate the reasonableness of the estimated fair values of the reporting units as of the valuation date. No impairments were determined to exist from the annual goodwill impairment evaluations for the years ended December 31, 2017 and 2016. For the 2017 evaluation, our two HPMC reporting units with goodwill had fair values that were significantly in excess of carrying value.

As a result of this assessment in 2015, we determined that the fair value of the Flat Rolled Products business was below carrying value, including goodwill. During the fourth quarter of 2015, we recorded a $126.6 million pre-tax impairment charge to write-off all the goodwill in the Flat Rolled Products segment. This was due to challenging market conditions in 2015 in this business, primarily impacting commodity stainless flat-rolled products. No other goodwill impairments were determined to exist for the year ended December 31, 2015.

Income Taxes

The provision for, or benefit from, income taxes includes deferred taxes resulting from temporary differences in income for financial and tax purposes using the liability method. Such temporary differences result primarily from differences in the carrying value of assets and liabilities. Future realization of deferred income tax assets requires sufficient taxable income within the carryback and/or carryforward period available under tax law. On a quarterly basis, we evaluate the realizability of our deferred tax assets.

The evaluation includes the consideration of all available evidence, both positive and negative, regarding historical operating results including recent years with reported losses, the estimated timing of future reversals of existing taxable temporary differences, estimated future taxable income exclusive of reversing temporary differences and carryforwards, and potential tax planning strategies which may be employed to prevent an operating loss or tax credit carryforward from expiring unused. In situations where a three year cumulative loss condition exists, accounting standards limit the ability to consider projections of future results as positive evidence to assess the realizability of deferred tax assets. Valuation allowances are established when it is estimated that it is more likely than not that the tax benefit of the deferred tax asset will not be realized.

Since 2015, ATI results have reflected a three year cumulative loss from U.S. operations. We established $74.5 million in deferred tax asset valuation allowances in 2015, of which $68.4 million were for certain federal and state deferred tax assets. In 2016, the actions to indefinitely idle the Rowley, UT titanium sponge production facility resulted in a reassessment of the realizability of U.S. federal deferred tax assets. In 2016, our results of operations included an increase to deferred tax asset valuation allowances of $171.5 million, including an additional $165.8 million valuation allowance on federal and state deferred tax assets as well as additional deferred tax asset valuation allowances in certain foreign jurisdictions. These deferred tax valuation allowances in 2015 and 2016 had the effect of significantly reducing the reported income tax benefit applicable to the pre-tax loss in each period. In 2017, ATI continued to maintain income tax valuation allowances on its U.S. Federal and state deferred tax assets. In addition we have a $28.8 million valuation allowance on amounts recorded in other comprehensive income as of December 31, 2017.

While we remain in a cumulative loss condition, our ability to evaluate the realizability of deferred tax assets is generally limited to the ability to offset timing differences on taxable income associated with deferred tax liabilities. Therefore, a change in estimate of deferred tax asset valuation allowances for federal, state, or foreign jurisdictions during this cumulative loss condition period will primarily be affected by changes in estimates of the time periods that deferred tax assets and liabilities will be realized, or on a limited basis to tax planning strategies that may result in a change in the amount of taxable income realized. At December 31, 2017, our deferred tax asset valuation allowance was $274.0 million.

On December 22, 2017, the U.S. government enacted comprehensive tax legislation commonly referred to as the Tax Cuts and Jobs Act. The Tax Act makes broad and complex changes to the U.S. tax code, including, but not limited to:

(1) reducing the U.S. federal corporate tax rate from 35% to 21%;
(2) requiring companies to pay a one-time transition tax on certain unrepatriated earnings of foreign subsidiaries;
(3) generally eliminating U.S. federal income taxes on dividends from foreign subsidiaries;
(4) requiring a current inclusion in U.S. federal taxable income of certain earnings of controlled foreign corporations;
(5) eliminating the corporate alternative minimum tax (AMT) and changing how existing AMT credits can be realized;
(6) creating the base erosion anti-abuse tax (BEAT), a new minimum tax;
(7) creating a new limitation on deductible interest expense; and
(8) changing rules related to uses and limitations of net operating loss carryforwards created in tax years beginning after December 31, 2017.

We continue to evaluate various aspects of the Tax Act, including the following significant items:

Reduction of US federal corporate tax rate: The Tax Act reduces the corporate tax rate to 21%, effective January 1, 2018. While we are able to make a reasonable estimate of the impact of the reduction in corporate rate, it may be affected by other analyses related to the Tax Act, including, but not limited to, our calculation of deemed repatriation of deferred foreign income and the state tax effect of adjustments made to federal temporary differences.

Deemed Repatriation Transition Tax: The Deemed Repatriation Transition Tax (Transition Tax) is a tax on previously untaxed accumulated and current earnings and profits (E&P) of certain of our foreign subsidiaries. To determine the amount of the Transition Tax, we must determine, in addition to other factors, the amount of post-1986 E&P of the relevant subsidiaries, as well as the amount of non-U.S. income taxes paid on such earnings. We are able to make a reasonable estimate of the Transition Tax and recorded a provisional Transition Tax obligation. However, as we gather additional information and receive additional guidance from the U.S. Treasury on the application of certain provisions of Tax Act, we will refine our estimate.

Global intangible low taxed income (GILTI): The Tax Act creates a new requirement effective for fiscal years beginning after December 31, 2017, that certain income (i.e., GILTI) earned by controlled foreign corporations (CFCs) must be included currently in the gross income of the CFCs' U.S. shareholder. Because of the complexity of the new GILTI tax rules, we are continuing to evaluate this provision of the Tax Act and the application of ASC 740, however, we have estimated that no expense would be required to be recorded in the current year.

Base Erosion and Anti-Abuse (BEAT): The Tax Act imposes a new "base erosion" minimum tax that is generally calculated after adding back certain deductible payments made to related foreign subsidiaries to taxable income and is applicable for years beginning after December 31, 2017. We continue to review the impact of BEAT but have preliminarily estimated that no expense would be required to be recorded in the current year.

Valuation allowances: ATI must assess whether its valuation allowance analyses or deferred tax assets are affected by various aspects of the Tax Act (e.g., deemed repatriation of deferred foreign income, GILTI inclusions, and new categories of foreign tax credits). We recorded provisional amounts related to certain portions of the Tax Act, therefore any corresponding determination of the need for or change in a valuation allowance is also provisional.

Retirement Benefits

We have defined contribution retirement plans or benefit pension plans covering substantially all of our employees. We also sponsor several postretirement plans covering certain hourly and salaried employees and retirees. These plans provide health care and life insurance benefits for eligible employees. Company contributions to defined contribution retirement plans are generally based on a percentage of eligible pay or based on hours worked, and are funded with cash. We instituted several liability management actions over the last few years to effect changes to our retirement benefit programs. As a result of these actions, nearly all of ATI's operations have defined benefit pensions that are either frozen for all future benefit accruals or closed to new entrants, and remaining collectively-bargained defined benefit retiree health care plans that are capped and closed to new entrants, transitioning ATI's retirement benefit and other postretirement benefit programs largely to a defined contribution structure.

Under U.S. generally accepted accounting principles, amounts recognized in financial statements for defined benefit pension plans are determined on an actuarial basis, rather than as contributions are made to the plan. A significant element in determining our pension income or expense in accordance with the accounting standards is the expected investment return on plan assets. In establishing the expected return on plan investments, which is reviewed annually in the fourth quarter, we take into consideration input from our third party pension plan asset managers and actuaries regarding the types of securities the plan assets are invested in, how those investments have performed historically, and expectations for how those investments will perform in the future. Our expected long-term return on pension plan investments was 7.75% in 2017 . We apply this assumed rate to the market value of plan assets at the end of the previous year. This produces the expected return on plan assets that is included in annual pension expense for the current year. The actual returns on pension plan assets for the last five years have been 16.9% for 2017 , 5.3% for 2016 , (1.2)% for 2015 , 6.5% for 2014 , and 14.3% for 2013 . The effect of increasing, or lowering, the expected return on pension plan investments by 0.25% would result in additional pre-tax annual income, or expense, of approximately $5 million. The cumulative difference between the expected return and the actual return on plan assets is deferred and amortized into pension income or expense over future periods. The amount of expected return on plan assets can vary significantly from year-to-year since the calculation is dependent on the market value of plan assets as of the end of the preceding year. The expected long-term rate of return on pension plan investments for 2018 is 7.75% .

In accordance with accounting standards, we determine the discount rate used to value pension plan liabilities as of the last day of our fiscal year. The discount rate reflects the current rate at which the pension liabilities could be effectively settled. In estimating this rate, we receive input from our actuaries regarding the rates of return on high quality, fixed-income investments with maturities matched to the expected future retirement benefit payments. Based on this assessment, we established a discount rate of 3.85% for valuing the pension liabilities as of December 31, 2017 , and for determining the pension expense for 2018 . We had previously assumed a discount rate of 4.45% at the end of 2016 and 4.65% at the end of 2015 . The estimated effect of changing the discount rate by 0.50% would decrease pension liabilities in the case of an increase in the discount rate, or increase pension liabilities in the case of a decrease in the discount rate, by approximately $150 million. Such a change in the discount rate would decrease pension expense in the case of an increase in the discount rate, or increase pension expense in the case of a decrease in the discount rate, by approximately $2 million. The effect on pension liabilities for changes to the discount rate, as well as the net effect of other changes in actuarial assumptions and experience, are deferred and amortized over future periods in accordance with the accounting standards.

As discussed above, gains and losses due to differences between actual and expected results for investment returns on plan assets, changes in the discount rate used to value benefit obligations, and other changes in estimates such as participant life expectancy are deferred and recognized in the consolidated statement of operations over future periods. However for balance sheet presentation, these gains and losses are included in the determination of benefit obligations, net of plan assets, included on the year-end consolidated balance sheet. At December 31, 2017 , the Company had $1.4 billion of pre-tax net actuarial losses on its pension obligations, primarily related to an extended decline over the last several years in the discount rate used to value the pension obligations. These actuarial losses have been recognized on the consolidated balance sheet through a reduction in stockholders' equity, and are being recognized in the consolidated statement of operations through expense amortizations over future years. Due to nearly all of ATI's defined benefit plans being either frozen for all future benefit accruals or closed to new entrants, the amortization period for accumulated other comprehensive loss recognition for all of these plans is average remaining life expectancy, which is approximately 17 years on a weighted average basis.

With respect to our postretirement plans, under most of the plans, our contributions towards retiree medical premiums are capped based upon the cost as of certain dates, thereby creating a defined contribution. In accordance with U.S. generally accepted accounting standards, postretirement expenses recognized in financial statements associated with defined benefit plans are determined on an actuarial basis, rather than as benefits are paid. We use actuarial assumptions, including the discount rate and the expected trend in health care costs, to estimate the costs and benefit obligations for these plans. The discount rate, which is determined annually at the end of each fiscal year, is developed based upon rates of return on high quality, fixed-income investments. At the end of 2017 , we determined the rate to be 3.80% , compared to a 4.35% discount rate in 2016 , and a 4.50% discount rate in 2015 . The estimated effect of changing the discount rate by 0.50% would decrease postretirement obligations in the case of an increase in the discount rate, or increase postretirement obligations in the case of a decrease in the discount rate, by approximately $14 million. Such a change in the discount rate would decrease postretirement benefit expense in the case of an increase in the discount rate, or increase postretirement benefit expense in the case of a decrease in the discount rate, by approximately $1 million. Based upon predictions of continued significant medical cost inflation in future years, the annual assumed rate of increase in the per capita cost of covered benefits of health care plans is 6.8% in 2018 and is assumed to gradually decrease to 4.5% in the year 2038 and remain level thereafter. Assumed health care cost trend rates can have a significant effect on the benefit obligation for health care plans, however, the Company's contributions for most of its' retiree health plans are capped based on a fixed premium amount, which limits the impact of future health care cost increases.

New Accounting Pronouncements Adopted

In January 2017, the Company early adopted changes issued by the Financial Accounting Standards Board (FASB) to simplify how an entity is required to test goodwill for impairment by eliminating Step 2 from the goodwill impairment test. Step 2 measures a goodwill impairment loss by comparing the implied fair value of a reporting unit's goodwill with the carrying amount of that goodwill, which is currently required if a reporting unit with goodwill fails a Step 1 test comparing the fair value of the reporting unit to its carrying value including goodwill. Under this new guidance, an entity should perform its annual, or interim, goodwill impairment test using just the Step 1 test of comparing the fair value of a reporting unit with its carrying amount. Any goodwill impairment, representing the amount by which the carrying amount exceeds the reporting unit's fair value, is determined using this Step 1 test. Any goodwill impairment loss recognized would not exceed the total carrying amount of goodwill allocated to that reporting unit.

In January 2017, the Company adopted changes issued by the FASB to simplify employee share-based payment accounting. The areas for simplification in this guidance involve several aspects of the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows, which will be prospectively adopted. The adoption of these changes did not have a material impact on the Company's financial statements.

In January 2017, the Company adopted changes issued by the FASB to simplify the measurement of inventory valuation at the lower of cost or net realizable value. Net realizable value is the estimated selling price in the ordinary course of business, less reasonably predictable costs of completion, disposal and transportation. The new inventory measurement requirements replace the current inventory valuation guidance that requires the use of a lower of cost or market framework. This change in the measurement of inventory does not apply to inventory valued on a LIFO basis, which is the accounting basis used for most of the Company's inventory. The adoption of these changes did not have a material impact on the Company's financial statements.

In the fourth quarter 2017, the Company early adopted changes issued by the FASB on classification of cash receipts and cash payments on the statement of cash flows. The adoption of these changes did not have a material impact on the Company's financial statements other than requiring the classification of the cash portion of the Company's debt extinguishment charge in 2017 as a financing activity in the 2017 consolidated statement of cash flows. See Note 8. Debt for further discussion of this debt extinguishment charge.

Pending Accounting Pronouncements

In February 2018, the FASB issued limited changes to accounting standards to address the income tax accounting for certain provisions of the Tax Cuts and Jobs Act (the "Tax Act"). Accounting standards require the effect of a change in tax laws or rates on deferred tax assets and liabilities to be included in income from continuing operations in the reporting period that the change was enacted, including tax effects that were initially recognized directly in other comprehensive income at the previous rate. This results in stranded amounts in accumulated other comprehensive income (AOCI) related to the income tax rate differential, as the net-of-tax AOCI balance is not adjusted for the tax rate change. This new accounting guidance provides the option to make a one-time reclassification from AOCI to retained earnings for stranded tax effects resulting from the newly enacted U.S. federal tax rate under the Tax Act, calculated on the basis of the difference between the historical and newly enacted U.S. federal tax rate on deferred tax assets and liabilities related to items within AOCI. Adoption of the new accounting guidance is not required, and the Company has elected not to adopt this new guidance.

In August 2017, the FASB issued changes to its accounting guidance for derivatives and hedging, which changes both the designation and measurement guidance for qualifying hedging relationships and the presentation of hedge results. Some changes resulting from this new guidance include the elimination of the concept of recognizing periodic hedge ineffectiveness for cash flow hedges, changes to the recognition and presentation of changes in the fair value of the hedging instrument, enhancement of the ability to use the critical-terms-match method for the cash flow hedge of groups of forecasted transactions when the timing of the hedged transactions does not perfectly match the hedging instrument's maturity date, and the addition of new disclosure requirements and amendments to existing ones. This new guidance is effective for the Company's 2019 fiscal year, with early adoption permitted and all transition requirements and elections being applied to hedging relationships existing on the date of adoption. The Company is currently evaluating the impact of the new guidance on its consolidated financial statements.

In March 2017, the FASB issued changes to the accounting for defined benefit pension and other postretirement benefit expenses. This new guidance requires the disaggregation of the service cost component from the other components of net benefit cost. The service cost component of net benefit cost is to be reported in the same line item on the consolidated statement of operations as other compensation costs arising from services rendered by the pertinent employees, while the other components of net benefit cost are to be presented in the consolidated statement of operations separately, outside a subtotal of operating income. The amendments also provide explicit guidance to allow only the service cost component of net benefit cost to be eligible for capitalization. This new guidance is effective for the Company's 2018 fiscal year, with the adoption of the change in presentation of net benefit cost in the consolidated statement of operations to be applied retrospectively, and the change in capitalization for only service cost applied prospectively. The guidance allows a practical expedient that permits the use of the amounts disclosed in the retirement benefits footnote for the prior comparative periods as the estimation basis for applying the retrospective presentation requirements. The Company will adopt this new guidance in the first quarter of fiscal year 2018 using this practical expedient.

The Company expects such adoption to have a material impact to reported operating income in the consolidated statement of operations due to the change in presentation of non-service cost expense components. For example, applying the practical expedient to fiscal year 2017 results, operating income for 2017 would be $54.3 million higher, with the reclassification of this amount representing the other components of net benefit cost to a newly-created non-operating retirement benefit expense category, with no net impact to the reported 2017 loss before income taxes. This statement of operations change in presentation of net benefit cost will not affect ATI's measure of segment operating profit; all defined benefit pension and other postretirement benefit expense attributable to business segment operations remains a component of business segment financial performance. The Company expects to have a one-time, unfavorable impact of approximately $6 million to pre-tax reported results in the first quarter of 2018 upon adoption primarily affecting the Flat Rolled Products business segment, due to the change limiting only the service cost component of net benefit cost to be capitalizable into inventory.

In February 2016, the FASB issued new guidance on the accounting for leases. This new guidance will require that a lessee recognize assets and liabilities on the balance sheet for all leases with a lease term of more than twelve months, with the result being the recognition of a right of use asset and a lease liability. The new lease accounting requirements are effective for the Company's 2019 fiscal year with a modified retrospective transition approach required, with early adoption permitted. The Company is currently evaluating the impact of the new guidance on its consolidated financial statements.

In May 2014, the FASB issued changes to revenue recognition with customers, which is required to be adopted by the Company in fiscal year 2018. This update provides a five-step analysis of transactions to determine when and how revenue is recognized, along with expanded disclosure requirements. An entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The Company will adopt this accounting standard update using the modified retrospective method, with the cumulative effect of initially applying this update recognized in the first reporting period of 2018. The Company has evaluated the impact of this standard on individual customer contracts and based on this evaluation determined that there are several customer agreements involving production of parts and components in the High Performance Materials and Components segment that require revenue to be recognized over time due to there being no alternative use for the product without significant economic loss and an enforceable right to payment including a normal profit margin from the customer in the event of contract termination. Over-time recognition is a change from current accounting, which is at a point-in-time for these products. As a result, the Company will recognize a $15.5 million increase to retained earnings at the beginning of the 2018 fiscal year for the cumulative effect of applying the over-time revenue recognition to prior periods, representing the favorable impact to prior results had the over-time revenue recognition method been applied. Due to certain customer agreements with limited duration, 2018 gross profit is now expected to be lower by approximately $5 million as a result of the cumulative effect adjustment for over-time recognition. There is no other significant impact to the Company upon adoption, with the exception of reclassifications to contract assets and liabilities on the consolidated balance sheet. As of January 1, 2018, total assets and total liabilities both increased by approximately $33 million, representing the reclassification of amounts recorded previously in accounts receivable and inventory to contract liabilities on the consolidated balance sheet. The Company also expects an increase to financial statement footnote disclosures in 2018 regarding revenues, contract assets and contract liabilities as a result of this accounting standard update.

Forward-Looking Statements

From time-to-time, the Company has made and may continue to make "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Certain statements in this report relate to future events and expectations and, as such, constitute forward-looking statements. Forward-looking statements include those containing such words as "anticipates," "believes," "estimates," "expects," "would," "should," "will," "will likely result," "forecast," "outlook," "projects," and similar expressions. Such forward-looking statements are based on management's current expectations and include known and unknown risks, uncertainties and other factors, many of which the Company is unable to predict or control, that may cause our actual results or performance to materially differ from any future results or performance expressed or implied by such statements. Various of these factors are described in Item 1A, Risk Factors, of this Annual Report on Form 10-K and will be described from time-to-time in the Company filings with the SEC, including the Company's Annual Reports on Form 10-K and the Company's subsequent reports filed with the SEC on Form 10-Q and Form 8-K, which are available on the SEC's website at www.sec.gov and on the Company's website at www.atimetals.com. We assume no duty to update our forward-looking statements.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

As part of our risk management strategy, we utilize derivative financial instruments, from time to time, to hedge our exposure to changes in energy and raw material prices, foreign currencies, and interest rates. We monitor the third-party financial institutions which are our counterparty to these financial instruments on a daily basis and diversify our transactions among counterparties to minimize exposure to any one of these entities. Fair values for derivatives were measured using exchange-traded prices for the hedged items including consideration of counterparty risk and the Company's credit risk. Our exposure to volatility in interest rates is presently not material, as nearly all of our debt is at fixed interest rates.

Volatility of Energy Prices. Energy resources markets are subject to conditions that create uncertainty in the prices and availability of energy resources. The prices for and availability of electricity, natural gas, oil and other energy resources are subject to volatile market conditions. These market conditions often are affected by political and economic factors beyond our control. Increases in energy costs, or changes in costs relative to energy costs paid by competitors, have and may continue to adversely affect our profitability. To the extent that these uncertainties cause suppliers and customers to be more cost sensitive, increased energy prices may have an adverse effect on our results of operations and financial condition. We use approximately 8 to 10 million MMBtu's of natural gas annually, depending upon business conditions, in the manufacture of our products. These purchases of natural gas expose us to risk of higher gas prices. For example, a hypothetical $1.00 per MMBtu increase in the price of natural gas would result in increased annual energy costs of approximately $8 to $10 million. We use several approaches to minimize any material adverse effect on our financial condition or results of operations from volatile energy prices. These approaches include incorporating an energy surcharge on many of our products and using financial derivatives to reduce exposure to energy price volatility.

At December 31, 2017 , the outstanding financial derivatives used to hedge our exposure to energy cost volatility included natural gas hedges. During the fiscal years ended December 31, 2016 and 2015 due to changes in expected operating levels, we concluded that a portion of these natural gas cash flow hedges for 2016 and the first quarter of 2017 were ineffective based on forecast changes in underlying natural gas usage. We recognized $1.3 million and $3.3 million of pre-tax losses for the ineffective portion of these cash flow hedges for the years ended December 31, 2016 and 2015, respectively, which is reported in selling and administrative expenses on the consolidated statement of operations. At December 31, 2017 , we hedged approximately 40% of our annual forecasted domestic requirements for natural gas for 2018, approximately 35% for 2019, and approximately 15% for 2020. The net mark-to-market valuation of the outstanding natural gas hedges at December 31, 2017 was an unrealized pre-tax loss of $0.8 million , comprised of $0.1 million in prepaid expenses and other current assets, $0.3 million in other assets, $0.9 million in accrued liabilities, and $0.3 million in other long-term liabilities on the balance sheet. For the year ended December 31, 2017 , the effects of natural gas hedging activity increased cost of sales by $5.3 million .

Volatility of Raw Material Prices. We use raw materials surcharge and index mechanisms to offset the impact of increased raw material costs; however, competitive factors in the marketplace can limit our ability to institute such mechanisms, and there can be a delay between the increase in the price of raw materials and the realization of the benefit of such mechanisms. For example, in 2017 we used approximately 100 million pounds of nickel; therefore a hypothetical change of $1.00 per pound in nickel prices would result in increased costs of approximately $100 million. In addition, in 2017 we also used approximately 400 million pounds of ferrous scrap in the production of our flat-rolled products and a hypothetical change of $0.01 per pound would result in increased costs of approximately $4 million. While we enter into raw materials futures contracts from time-to-time to hedge exposure to price fluctuations, such as for nickel, we cannot be certain that our hedge position adequately reduces exposure. We believe that we have adequate controls to monitor these contracts, but we may not be able to accurately assess exposure to price volatility in the markets for critical raw materials.

The majority of our products are sold utilizing raw material surcharges and index mechanisms. However as of December 31, 2017 , we had entered into financial hedging arrangements, primarily at the request of our customers, related to firm orders, for an aggregate amount of approximately 18 million pounds of nickel with hedge dates through 2021 . The aggregate notional amount hedged is approximately 20% of a single year's estimated nickel raw material purchase requirements. Any gain or loss associated with these hedging arrangements is included in cost of sales. At December 31, 2017 , the net mark-to-market valuation of our outstanding raw material hedges was an unrealized pre-tax gain of $11.7 million , comprised of $10.5 million in prepaid expenses and other current assets, $5.5 million in other assets, $2.1 million in accrued liabilities, and $2.2 million in other long-term liabilities on the balance sheet.

Foreign Currency Risk. Foreign currency exchange contracts are used, from time-to-time, to limit transactional exposure to changes in currency exchange rates. We sometimes purchase foreign currency forward contracts that permit us to sell specified amounts of foreign currencies expected to be received from our export sales for pre-established U.S. dollar amounts at specified dates. The forward contracts are denominated in the same foreign currencies in which export sales are denominated. These contracts are designated as hedges of the variability in cash flows of a portion of the forecasted future export sales transactions which otherwise would expose the Company to foreign currency risk, primarily the euro. In addition, we may also designate cash balances held in foreign currencies as hedges of forecasted foreign currency transactions.

During the fiscal year ended December 31, 2015, we net settled 211.9 million euro notional value of foreign currency forward contracts designated as cash flow hedges with 2016 and 2017 maturity dates, receiving cash proceeds of $56.5 million which is reported in cash provided by operating activities on the consolidated statement of cash flows. In the fourth quarter 2015, due to management actions in the Flat Rolled Products segment to de-emphasize commodity stainless steel sheet products in 2016, we concluded that a portion of these settled euro cash flow hedges for 2016 were ineffective based on forecast changes for euro-denominated sales. We recognized a $14.3 million pre-tax gain for the ineffective portion of these cash flow hedges, which is reported in selling and administrative expenses on the consolidated statement of operations for the year ended December 31, 2015. As of December 31, 2017, all of the deferred gains on the effective portion of these settled cash flow hedges, which were previously recognized in accumulated other comprehensive income, have been reclassified to earnings due to the occurrence of the underlying transactions. In 2015, we entered into 244.7 million euro notional value of foreign currency forward contracts designated as fair value hedges with 2015, 2016 and 2017 maturity dates to replace a portion of the settled euro cash flow hedges, of which none were outstanding as of December 31, 2017 and 43.2 million and 139.2 million euro notional value were outstanding as of December 31, 2016 and 2015, respectively. We recorded $2.7 million of charges during the fiscal year ended December 31, 2017 and $1.0 million and $9.0 million of benefits during the fiscal years ended December 31, 2016 and 2015, respectively, in costs of sales on the consolidated statement of operations for maturities and mark-to-market changes on these fair value hedges.

We may also enter into foreign currency forward contracts that are not designated as hedges, which are denominated in the same foreign currency in which export sales are denominated. We have 10 million euro notional value outstanding as of December 31, 2017 of foreign currency forward contracts not designated as hedges, with maturity dates into the fourth quarter of 2018.

At December 31, 2017 , the net mark-to-market valuation of the outstanding foreign currency forward contracts was not material.

Item 8. Financial Statements and Supplementary Data

Report of Independent Registered Public Accounting Firm

**To the Shareholders and the Board of Directors of
Allegheny Technologies Incorporated and Subsidiaries**

Opinion on the Financial Statements

We have audited the accompanying balance sheets of Allegheny Technologies Incorporated and Subsidiaries (the Company) as of December 31, 2017 and 2016 , the related statements of operations, comprehensive income (loss), cash flows, and changes in equity for each of the three years in the period ended December 31, 2017 , and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016 , and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2017 , in conformity with US generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2017 , based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 20, 2018 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the US federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 1996.

Pittsburgh, Pennsylvania

February 20, 2018

Allegheny Technologies Incorporated and Subsidiaries
Consolidated Statements of Operations

(In millions, except per share amounts)

For the Years Ended December 31,	2017	2016	2015
Sales	**$ 3,525.1**	$ 3,134.6	$ 3,719.6
Cost of sales	**3,076.1**	2,972.1	3,659.3
Gross profit	**449.0**	162.5	60.3
Selling and administrative expenses	**254.3**	247.7	238.8
Impairment of goodwill	**114.4**	—	126.6
Restructuring charges	**—**	527.2	64.3
Operating income (loss)	**80.3**	(612.4)	(369.4)
Interest expense, net	**(133.8)**	(124.0)	(110.2)
Debt extinguishment charge	**(37.0)**	—	—
Other income, net	**4.0**	2.4	1.6
Loss before income taxes	**(86.5)**	(734.0)	(478.0)
Income tax benefit	**(6.8)**	(106.9)	(112.1)
Net loss	**(79.7)**	(627.1)	(365.9)
Less: Net income attributable to noncontrolling interests	**12.2**	13.8	12.0
Net loss attributable to ATI	**$ (91.9)**	$ (640.9)	$ (377.9)
Basic net loss attributable to ATI per common share	**$ (0.83)**	$ (5.97)	$ (3.53)
Diluted net loss attributable to ATI per common share	**$ (0.83)**	$ (5.97)	$ (3.53)

The accompanying notes are an integral part of these statements.

Allegheny Technologies Incorporated and Subsidiaries
Consolidated Statements of Comprehensive Income (Loss)

(In millions)

For the Years Ended December 31,	**2017**	2016	2015
Net loss	**$ (79.7)**	$ (627.1)	$ (365.9)
Currency translation adjustment			
Unrealized net change arising during the period	**39.1**	(47.1)	(37.0)
Reclassification adjustment included in net loss	**—**	—	—
Total	**39.1**	(47.1)	(37.0)
Unrealized holding gain (loss) on securities			
Net gain (loss) arising during the period	**—**	—	—
Derivatives			
Net derivatives gain (loss) on hedge transactions	**14.3**	21.2	(33.3)
Reclassification to net income of net realized loss (gain)	**(7.2)**	7.9	(18.2)
Income taxes on derivative transactions	—	9.5	(19.5)
Total	**7.1**	19.6	(32.0)
Postretirement benefit plans			
Actuarial loss			
Amortization of net actuarial loss	**71.6**	75.0	75.0
Net loss arising during the period	**(42.7)**	(92.1)	(95.8)
Prior service cost			
Amortization to net loss of net prior service cost (credits)	**(1.6)**	(0.4)	6.2
Income taxes on postretirement benefit plans	—	43.9	5.1
Total	**27.3**	(61.4)	(19.7)
Other comprehensive income (loss), net of tax	**73.5**	(88.9)	(88.7)
Comprehensive loss	**(6.2)**	(716.0)	(454.6)
Less: Comprehensive income attributable to noncontrolling interests	**19.8**	4.1	6.4
Comprehensive loss attributable to ATI	**$ (26.0)**	$ (720.1)	$ (461.0)

The accompanying notes are an integral part of these statements.

Allegheny Technologies Incorporated and Subsidiaries
Consolidated Balance Sheets

(In millions, except share and per share amounts)	**December 31, 2017**	December 31, 2016
Assets		
Cash and cash equivalents	**$ 141.6**	$ 229.6
Accounts receivable, net	**545.3**	452.1
Inventories, net	**1,176.1**	1,037.0
Prepaid expenses and other current assets	**52.7**	47.8
Total Current Assets	**1,915.7**	1,766.5
Property, plant and equipment, net	**2,495.7**	2,498.9
Goodwill	**531.4**	641.9
Other assets	**242.6**	262.7
Total Assets	**$ 5,185.4**	$ 5,170.0
Liabilities and Stockholders' Equity		
Accounts payable	**$ 420.1**	$ 294.3
Accrued liabilities	**282.4**	309.3
Short-term debt and current portion of long-term debt	**10.1**	105.1
Total Current Liabilities	**712.6**	708.7
Long-term debt	**1,530.6**	1,771.9
Accrued postretirement benefits	**317.8**	317.7
Pension liabilities	**697.0**	827.9
Deferred income taxes	**9.7**	15.6
Other long-term liabilities	**73.2**	83.4
Total Liabilities	**3,340.9**	3,725.2
Equity:		
ATI Stockholders' Equity:		
Preferred stock, par value $0.10: authorized-50,000,000 shares; issued-none	**—**	—
Common stock, par value $0.10: authorized-500,000,000 shares; issued- 126,695,171 shares at December 31, 2017 and 109,695,171 shares at December 31, 2016; outstanding-125,857,197 shares at December 31, 2017 and 108,925,254 shares at December 31, 2016	**12.7**	11.0
Additional paid-in capital	**1,596.3**	1,188.8
Retained earnings	**1,184.3**	1,277.1
Treasury stock: 837,974 shares at December 31, 2017 and 769,917 shares at December 31, 2016	**(26.1)**	(28.0)
Accumulated other comprehensive loss, net of tax	**(1,027.8)**	(1,093.7)
Total ATI Stockholders' Equity	**1,739.4**	1,355.2
Noncontrolling Interests	**105.1**	89.6
Total Stockholders' Equity	**1,844.5**	1,444.8
Total Liabilities and Stockholders' Equity	**$ 5,185.4**	$ 5,170.0

The accompanying notes are an integral part of these statements.

Allegheny Technologies Incorporated and Subsidiaries
Consolidated Statements of Cash Flows

(In millions)

For the Years Ended December 31,	2017	2016	2015
Operating Activities:			
Net loss	$ **(79.7)**	$ (627.1)	$ (365.9)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:			
Depreciation and amortization	**160.8**	170.3	189.9
Deferred taxes	**(1.4)**	(119.8)	(118.0)
Impairment of goodwill	**114.4**	—	126.6
Non-cash restructuring charges	—	471.3	54.5
Debt extinguishment charge	**37.0**	—	—
Change in operating assets and liabilities:			
Retirement benefits (a)	**(110.3)**	(80.0)	14.3
Accounts receivable	**(93.2)**	(51.8)	203.3
Inventories	**(139.2)**	234.7	201.2
Accounts payable	**125.8**	(51.2)	(211.3)
Accrued income taxes	**(1.9)**	9.3	55.8
Accrued liabilities and other	**10.1**	0.6	(19.0)
Cash provided by (used in) operating activities	**22.4**	(43.7)	131.4
Investing Activities:			
Purchases of property, plant and equipment	**(122.7)**	(202.2)	(144.5)
Purchases of businesses, net of cash acquired	—	—	(0.5)
Asset disposals and other	**3.1**	2.2	(0.1)
Cash used in investing activities	**(119.6)**	(200.0)	(145.1)
Financing Activities:			
Borrowings on long-term debt	**8.5**	387.5	—
Payments on long-term debt and capital leases	**(353.0)**	(2.7)	(23.6)
Net borrowings under credit facilities	**1.6**	3.1	1.5
Debt issuance costs	**(0.8)**	(10.4)	—
Debt extinguishment charge	**(35.8)**	—	—
Issuance of common stock	**397.8**	—	—
Dividends paid to shareholders	—	(25.8)	(66.5)
Dividends paid to noncontrolling interests	**(8.0)**	(16.0)	(16.0)
Sale to noncontrolling interest	**3.7**	—	—
Acquisition of noncontrolling interests	—	(12.2)	—
Shares repurchased for income tax withholding on share-based compensation	**(4.8)**	—	(1.4)
Cash provided by (used in) financing activities	**9.2**	323.5	(106.0)
Increase (decrease) in cash and cash equivalents	**(88.0)**	79.8	(119.7)
Cash and cash equivalents at beginning of year	**229.6**	149.8	269.5
Cash and cash equivalents at end of year	$ **141.6**	$ 229.6	$ 149.8

(a) Includes a $(135) million contribution to the U.S. defined benefit pension plan in 2017 and a $(115) million contribution to the U.S. defined benefit pension plan in 2016.

Amounts presented on the Consolidated Statements of Cash Flows may not agree to the corresponding changes in consolidated balance sheet items due to the accounting for purchases and sales of businesses and the effects of foreign currency translation.

The accompanying notes are an integral part of these statements.

Allegheny Technologies Incorporated and Subsidiaries
Statements of Changes in Consolidated Equity

	ATI Stockholders						
(In millions, except per share amounts)	Common Stock	Additional Paid-In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Income (Loss)	Non-controlling Interests	Total Equity
Balance, December 31, 2014	$ 11.0	$ 1,164.2	$ 2,398.9	$ (44.3)	$ (931.4)	$ 110.9	$ 2,709.3
Net income (loss)	—	—	**(377.9)**	—	—	**12.0**	**(365.9)**
Other comprehensive loss	—	—	—	—	(83.1)	(5.6)	(88.7)
Cash dividends on common stock ($0.62 per share)	—	—	(66.5)	—	—	—	(66.5)
Dividends paid to noncontrolling interest	—	—	—	—	—	(16.0)	(16.0)
Redeemable noncontrolling interest	—	—	(0.3)	—	—	0.3	—
Employee stock plans	—	(2.5)	(8.3)	23.0	—	—	12.2
Balance, December 31, 2015	**$ 11.0**	**$ 1,161.7**	**$ 1,945.9**	**$ (21.3)**	**$ (1,014.5)**	**$ 101.6**	**$ 2,184.4**
Net income (loss)	—	—	**(640.9)**	—	—	**13.8**	**(627.1)**
Other comprehensive loss	—	—	—	—	(79.2)	(9.7)	(88.9)
Cash dividends on common stock ($0.24 per share)	—	—	(25.8)	—	—	—	(25.8)
Purchase of subsidiary shares from noncontrolling interests	—	—	—	—	—	(0.1)	(0.1)
Dividends paid to noncontrolling interest	—	—	—	—	—	(16.0)	(16.0)
Employee stock plans	—	27.1	(2.1)	(6.7)	—	—	18.3
Balance, December 31, 2016	**$ 11.0**	**$ 1,188.8**	**$ 1,277.1**	**$ (28.0)**	**$ (1,093.7)**	**$ 89.6**	**$ 1,444.8**
Net income (loss)	—	—	**(91.9)**	—	—	**12.2**	**(79.7)**
Other comprehensive income	—	—	—	—	65.9	7.6	73.5
Issuance of common stock	1.7	396.1	—	—	—	—	397.8
Dividends paid to noncontrolling interest	—	—	—	—	—	(8.0)	(8.0)
Sales of subsidiary shares to noncontrolling interest	—	—	—	—	—	3.7	3.7
Employee stock plans	—	11.4	(0.9)	1.9	—	—	12.4
Balance, December 31, 2017	**$ 12.7**	**$ 1,596.3**	**$ 1,184.3**	**$ (26.1)**	**$ (1,027.8)**	**$ 105.1**	**$ 1,844.5**

The accompanying notes are an integral part of these statements.

Notes to Consolidated Financial Statements

Note 1. Summary of Significant Accounting Policies

Principles of Consolidation

The consolidated financial statements include the accounts of Allegheny Technologies Incorporated and its subsidiaries. The financial results of majority-owned joint ventures are consolidated into the Company's operating results and financial position, with the minority ownership interest recognized in the consolidated statement of operations as net income attributable to noncontrolling interests, and as equity attributable to the noncontrolling interests within total stockholders' equity. Investments in which the Company exercises significant influence, but which it does not control (generally a 20% to 50% ownership interest) are accounted for under the equity method of accounting, whereby ATI's carrying value of the equity method investment on the statement of financial position is the capital investment and any undistributed profit or loss, and is classified in Other (noncurrent) assets. The profit or loss attributable to ATI from an equity method investment is included in the results of operations. See Note 5 for further explanation of the Company's joint ventures. Significant intercompany accounts and transactions have been eliminated. Unless the context requires otherwise, "Allegheny Technologies," "ATI" and the "Company" refer to Allegheny Technologies Incorporated and its subsidiaries.

Risks and Uncertainties and Use of Estimates

The preparation of consolidated financial statements in conformity with United States generally accepted accounting principles requires management to make estimates and assumptions that affect reported amounts of assets and liabilities at the date of the financial statements, as well as the reported amounts of income and expenses during the reporting period. Actual results could differ from those estimates. Management believes that the estimates are reasonable. Certain prior year amounts have been reclassified in order to conform with the 2017 presentation.

The Company markets its products to a diverse customer base, principally throughout the United States. No single customer accounted for more than 10% of sales for any year presented. The principal end markets for the ATI's products are customers in the aerospace & defense, oil & gas, electrical energy, automotive, construction and mining, food equipment and appliances, and medical markets.

At December 31, 2017, ATI has approximately 8,600 full-time employees, of which approximately 15% are located outside the United States. Approximately 40% of ATI's workforce is covered by various collective bargaining agreements (CBAs), predominantly with the United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied & Industrial Service Workers International Union, AFL-CIO, CLC (USW). CBAs with the USW that cover approximately 600 employees expired in 2017, and operations continue at these facilities while negotiations with the USW are ongoing. In addition, the Company has CBAs with approximately 300 full-time employees that expire in 2018.

Cash Equivalents and Investments

Cash equivalents are highly liquid investments valued at cost, which approximates fair value, acquired with an original maturity of three months or less.

Accounts Receivable

Accounts receivable are presented net of a reserve for doubtful accounts of $5.9 million and $7.3 million at December 31, 2017 and 2016 , respectively. Trade credit is extended based upon evaluations of each customer's ability to perform its obligations, which are updated periodically. Accounts receivable reserves are determined based upon an aging of accounts and a review for collectability of specific accounts. Amounts are written-off against the reserve in the period it is determined that the receivable is uncollectible.

Inventories

Inventories are stated at the lower of cost (last-in, first-out (LIFO), first-in, first-out (FIFO), and average cost methods) or market, less progress payments. Costs include direct material, direct labor and applicable manufacturing and engineering overhead, and other direct costs. Most of the Company's inventory is valued utilizing the LIFO costing methodology. Inventory of the Company's non-U.S. operations is valued using average cost or FIFO methods.

The Company evaluates product lines on a quarterly basis to identify inventory carrying values that exceed estimated net realizable value. In applying the lower of cost or market principle, market means current replacement cost, subject to a ceiling (market value shall not exceed net realizable value) and a floor (market shall not be less than net realizable value reduced by an allowance for a normal profit margin). The calculation of a resulting reserve, if any, is recognized as an expense in the period that the need for the reserve is identified. However, in cases where inventory at FIFO cost is lower than the LIFO carrying value, a write-down of the inventory to market may be required, subject to the ceiling and floor. It is the Company's general policy to write-down to scrap value any inventory that is identified as slow-moving or aged more than twelve months, subject to sales, backlog and anticipated orders considerations. In some instances this aging criterion is up to twenty-four months.

Long-Lived Assets

Property, plant and equipment are recorded at cost, including capitalized interest, and include long-lived assets acquired under capital leases. Depreciation is primarily recorded using the straight-line method. Property, plant and equipment associated with the Company's Rowley titanium sponge production facility in the High Performance Materials & Components segment (prior to its indefinite idling in August 2016 - see Note 16 for further explanation), and the Hot-Rolling and Processing Facility (HRPF) in the Flat Rolled Products segment, are being depreciated utilizing the units of production method of depreciation, which the Company believes provides a better matching of costs and revenues. The Company periodically reviews estimates of useful life and production capacity assigned to new and in service assets. Significant enhancements, including major maintenance activities that extend the lives of property and equipment, are capitalized. Costs related to repairs and maintenance are charged to expense in the period incurred. The cost and related accumulated depreciation of property and equipment retired or disposed of are removed from the accounts and any related gains or losses are included in income.

The Company monitors the recoverability of the carrying value of its long-lived assets. An impairment charge is recognized when an indicator of impairment occurs and the expected net undiscounted future cash flows from an asset's use (including any proceeds from disposition) are less than the asset's carrying value and the asset's carrying value exceeds its fair value. Assets to be disposed of by sale are stated at the lower of their fair values or carrying amounts and depreciation is no longer recognized.

Goodwill

Goodwill is reviewed annually for impairment, or more frequently if impairment indicators arise. The review for goodwill impairment requires a comparison of the fair value of each reporting unit that has goodwill associated with its operations with its carrying amount, including goodwill. If this comparison reflects impairment, then the loss would be measured as the excess of the carrying value over the calculated fair value as required by the new accounting guidance early adopted by the Company in 2017. See New Accounting Pronouncements Adopted section below for further explanation of this new accounting guidance.

Generally accepted accounting standards provide the option to qualitatively assess goodwill for impairment before completing a quantitative assessment. Under the qualitative approach, if, after assessing the totality of events or circumstances, including both macroeconomic, industry and market factors, and entity-specific factors, the Company determines it is likely (more likely than not) that the fair value of a reporting unit is greater than its carrying amount, then the quantitative impairment analysis is not required. The quantitative assessment may be performed each year for a reporting unit at the Company's option without first performing a qualitative assessment. The Company's quantitative assessment of goodwill for possible impairment includes estimating the fair market value of a reporting unit which has goodwill associated with its operations using discounted cash flow and multiples of cash earnings valuation techniques, plus valuation comparisons to recent public sale transactions of similar businesses, if any. These impairment assessments and valuation methods require the Company to make estimates and assumptions regarding future operating results, cash flows, changes in working capital and capital expenditures, selling prices, profitability, and the cost of capital. Many of these assumptions are determined by reference to market participants identified by the Company. Although management believes that the estimates and assumptions used were reasonable, actual results could differ from those estimates and assumptions.

Other events and changes in circumstances may also require goodwill to be tested for impairment between annual measurement dates. While a decline in stock price and market capitalization is not specifically cited as a goodwill impairment indicator, a company's stock price and market capitalization should be considered in determining whether it is more likely than not that the fair value of a reporting unit is less that its carrying value. Additionally, a significant decline in a company's stock price may suggest that an adverse change in the business climate may have caused the fair value of one or more reporting units to fall below carrying value. A sustained decline in market capitalization below book value may be determined to require an interim goodwill impairment review.

Environmental

Costs that mitigate or prevent future environmental contamination or extend the life, increase the capacity or improve the safety or efficiency of property utilized in current operations are capitalized. Other costs that relate to current operations or an existing condition caused by past operations are expensed. Environmental liabilities are recorded when the Company's liability is probable and the costs are reasonably estimable, but generally not later than the completion of the feasibility study or the

Company’s recommendation of a remedy or commitment to an appropriate plan of action. The accruals are reviewed periodically and, as investigations and remediations proceed, adjustments of the accruals are made to reflect new information as appropriate. Accruals for losses from environmental remediation obligations do not take into account the effects of inflation, and anticipated expenditures are not discounted to their present value. The accruals are not reduced by possible recoveries from insurance carriers or other third parties, but do reflect allocations among potentially responsible parties (PRPs) at Federal Superfund sites or similar state-managed sites after an assessment is made of the likelihood that such parties will fulfill their obligations at such sites and after appropriate cost-sharing or other agreements are entered. The measurement of environmental liabilities by the Company is based on currently available facts, present laws and regulations, and current technology. Such estimates take into consideration the Company’s prior experience in site investigation and remediation, the data concerning cleanup costs available from other companies and regulatory authorities, and the professional judgment of the Company’s environmental experts in consultation with outside environmental specialists, when necessary.

Foreign Currency Translation

Assets and liabilities of international operations are translated into U.S. dollars using year-end exchange rates, while revenues and expenses are translated at average exchange rates during the period. The resulting net translation adjustments are recorded as a component of accumulated other comprehensive income (loss) in stockholders’ equity.

Sales Recognition

Sales are recognized when title passes or as services are rendered.

Research and Development

Company funded research and development costs were $13.3 million in 2017 , $14.7 million in 2016 , and $14.2 million in 2015 and were expensed as incurred. Customer funded research and development costs were $1.4 million in 2017 , $2.2 million in 2016 , and $1.5 million in 2015 .

Stock-based Compensation

The Company accounts for stock-based compensation transactions, such as nonvested stock and performance equity awards, using fair value. Compensation expense for an award is estimated at the date of grant and is recognized over the requisite service period. Compensation expense is adjusted for equity awards that do not vest because service or performance conditions are not satisfied. However, compensation expense already recognized is not adjusted if market conditions are not met, such as the Company’s total shareholder return performance relative to a peer group under certain of the Company’s performance equity awards. Compensation expense is adjusted for estimated forfeitures over the award measurement period.

Income Taxes

The provision for, or benefit from, income taxes includes deferred taxes resulting from temporary differences in income for financial and tax purposes using the liability method. Such temporary differences result primarily from differences in the carrying value of assets and liabilities. Future realization of deferred income tax assets requires sufficient taxable income within the carryback and/or carryforward period available under tax law.

The Company evaluates on a quarterly basis whether, based on all available evidence, it is probable that the deferred income tax assets are realizable. Valuation allowances are established when it is estimated that it is more likely than not that the tax benefit of the deferred tax asset will not be realized. The evaluation includes the consideration of all available evidence, both positive and negative, regarding historical operating results including recent years with reported losses, the estimated timing of future reversals of existing taxable temporary differences, estimated future taxable income exclusive of reversing temporary differences and carryforwards, and potential tax planning strategies which may be employed to prevent an operating loss or tax credit carryforward from expiring unused.

It is the Company’s policy to classify interest and penalties recognized on underpayment of income taxes as income tax expense.

Net Income Per Common Share

Basic and diluted net income per share are calculated by dividing the net income available to common stockholders by the weighted average number of common shares outstanding during the year. Diluted amounts assume the issuance of common stock for all potentially dilutive share equivalents outstanding. The calculations of all diluted income/loss per share figures for a period exclude the potentially dilutive effect of dilutive share equivalents if there is a net loss since the inclusion in the calculation of additional shares in the net loss per share would result in a lower per share loss and therefore be anti-dilutive.

New Accounting Pronouncements Adopted

In January 2017, the Company early adopted changes issued by the Financial Accounting Standards Board (FASB) to simplify how an entity is required to test goodwill for impairment by eliminating Step 2 from the goodwill impairment test. Step 2 measures a goodwill impairment loss by comparing the implied fair value of a reporting unit's goodwill with the carrying amount of that goodwill, which is currently required if a reporting unit with goodwill fails a Step 1 test comparing the fair value of the reporting unit to its carrying value including goodwill. Under this new guidance, an entity should perform its annual, or interim, goodwill impairment test using just the Step 1 test of comparing the fair value of a reporting unit with its carrying amount. Any goodwill impairment, representing the amount by which the carrying amount exceeds the reporting unit's fair value, is determined using this Step 1 test. Any goodwill impairment loss recognized would not exceed the total carrying amount of goodwill allocated to that reporting unit.

In January 2017, the Company adopted changes issued by the FASB to simplify employee share-based payment accounting. The areas for simplification in this guidance involve several aspects of the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows, which will be prospectively adopted. The adoption of these changes did not have a material impact on the Company's financial statements.

In January 2017, the Company adopted changes issued by the FASB to simplify the measurement of inventory valuation at the lower of cost or net realizable value. Net realizable value is the estimated selling price in the ordinary course of business, less reasonably predictable costs of completion, disposal and transportation. The new inventory measurement requirements replace the current inventory valuation guidance that requires the use of a lower of cost or market framework. This change in the measurement of inventory does not apply to inventory valued on a last-in, first-out (LIFO) basis, which is the accounting basis used for most of the Company's inventory. The adoption of these changes did not have a material impact on the Company's financial statements.

In the fourth quarter 2017, the Company early adopted changes issued by the FASB on classification of cash receipts and cash payments on the statement of cash flows. The adoption of these changes did not have a material impact on the Company's financial statements other than requiring the classification of the cash portion of the Company's debt extinguishment charge in 2017 as a financing activity in the 2017 consolidated statement of cash flows. See Note 8 for further discussion of this debt extinguishment charge.

Pending Accounting Pronouncements

In February 2018, the FASB issued limited changes to accounting standards to address the income tax accounting for certain provisions of the Tax Cuts and Jobs Act (the "Tax Act"). Accounting standards require the effect of a change in tax laws or rates on deferred tax assets and liabilities to be included in income from continuing operations in the reporting period that the change was enacted, including tax effects that were initially recognized directly in other comprehensive income at the previous rate. This results in stranded amounts in accumulated other comprehensive income (AOCI) related to the income tax rate differential, as the net-of-tax AOCI balance is not adjusted for the tax rate change. This new accounting guidance provides the option to make a one-time reclassification from AOCI to retained earnings for stranded tax effects resulting from the newly enacted U.S. federal tax rate under the Tax Act, calculated on the basis of the difference between the historical and newly enacted U.S. federal tax rate on deferred tax assets and liabilities related to items within AOCI. Adoption of the new accounting guidance is not required, and the Company has elected not to adopt this new guidance.

In August 2017, the FASB issued changes to its accounting guidance for derivatives and hedging, which changes both the designation and measurement guidance for qualifying hedging relationships and the presentation of hedge results. Some changes resulting from this new guidance include the elimination of the concept of recognizing periodic hedge ineffectiveness for cash flow hedges, changes to the recognition and presentation of changes in the fair value of the hedging instrument, enhancement of the ability to use the critical-terms-match method for the cash flow hedge of groups of forecasted transactions when the timing of the hedged transactions does not perfectly match the hedging instrument's maturity date, and the addition of new disclosure requirements and amendments to existing ones. This new guidance is effective for the Company's 2019 fiscal year, with early adoption permitted and all transition requirements and elections being applied to hedging relationships existing on the date of adoption. The Company is currently evaluating the impact of the new guidance on its consolidated financial statements.

In March 2017, the FASB issued changes to the accounting for defined benefit pension and other postretirement benefit expenses. This new guidance requires the disaggregation of the service cost component from the other components of net benefit cost. The service cost component of net benefit cost is to be reported in the same line item on the consolidated statement of operations as other compensation costs arising from services rendered by the pertinent employees, while the other components of net benefit cost are to be presented in the consolidated statement of operations separately, outside a subtotal of operating income. The amendments also provide explicit guidance to allow only the service cost component of net benefit cost to be eligible for capitalization. This new guidance is effective for the Company's 2018 fiscal year, with the adoption of the change in presentation of net benefit cost in the consolidated statement of operations to be applied retrospectively, and the change in capitalization for only service cost applied prospectively. The guidance allows a practical expedient that permits the use of the amounts disclosed in the retirement benefits footnote for the prior comparative periods as the estimation basis for applying the retrospective presentation requirements. The Company will adopt this new guidance in the first quarter of fiscal year 2018 using this practical expedient.

The Company expects such adoption to have a material impact to reported operating income in the consolidated statement of operations due to the change in presentation of non-service cost expense components. For example, applying the practical expedient to fiscal year 2017 results, operating income for 2017 would be $54.3 million higher, with the reclassification of this amount representing the other components of net benefit cost to a newly-created non-operating retirement benefit expense category, with no net impact to the reported 2017 loss before income taxes. This statement of operations change in presentation of net benefit cost will not affect ATI's measure of segment operating profit; all defined benefit pension and other postretirement benefit expense attributable to business segment operations remains a component of business segment financial performance. The Company expects to have a one-time, unfavorable impact of approximately $6 million to pre-tax reported results in the first quarter of 2018 upon adoption primarily affecting the Flat Rolled Products business segment, due to the change limiting only the service cost component of net benefit cost to be capitalizable into inventory.

In February 2016, the FASB issued new guidance on the accounting for leases. This new guidance will require that a lessee recognize assets and liabilities on the balance sheet for all leases with a lease term of more than twelve months, with the result being the recognition of a right of use asset and a lease liability. The new lease accounting requirements are effective for the Company's 2019 fiscal year with a modified retrospective transition approach required, with early adoption permitted. The Company is currently evaluating the impact of the new guidance on its consolidated financial statements.

In May 2014, the FASB issued changes to revenue recognition with customers, which is required to be adopted by the Company in fiscal year 2018. This update provides a five-step analysis of transactions to determine when and how revenue is recognized, along with expanded disclosure requirements. An entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The Company will adopt this accounting standard update using the modified retrospective method, with the cumulative effect of initially applying this update recognized in the first reporting period of 2018. The Company has evaluated the impact of this standard on individual customer contracts and based on this evaluation determined that there are several customer agreements involving production of parts and components in the High Performance Materials and Components segment that require revenue to be recognized over time due to there being no alternative use for the product without significant economic loss and an enforceable right to payment including a normal profit margin from the customer in the event of contract termination. Over-time recognition is a change from current accounting, which is at a point-in-time for these products. As a result, the Company will recognize a $15.5 million increase to retained earnings at the beginning of the 2018 fiscal year for the cumulative effect of applying the over-time revenue recognition to prior periods, representing the favorable impact to prior results had the over-time revenue recognition method been applied. Due to certain customer agreements with limited duration, 2018 gross profit is now expected to be lower by approximately $5 million as a result of the cumulative effect adjustment for over-time recognition. There is no other significant impact to the Company upon adoption, with the exception of reclassifications to contract assets and liabilities on the consolidated balances sheet. As of January 1, 2018, total assets and total liabilities both increased by approximately $33 million , representing the reclassification of amounts recorded previously in accounts receivable and inventory to contract liabilities on the consolidated balance sheet. The Company also expects an increase to financial statement footnote disclosures in 2018 regarding revenues, contract assets and contract liabilities as a result of this accounting standard update.

Note 2. Inventories

Inventories at December 31, 2017 and 2016 were as follows (in millions):

	2017	2016
Raw materials and supplies	$ 162.8	$ 149.6
Work-in-process	955.5	837.9
Finished goods	165.0	161.7
Total inventories at current cost	1,283.3	1,149.2
Adjustment from current cost to LIFO cost basis	43.1	97.3
Inventory valuation reserves	(121.5)	(169.0)
Progress payments	(28.8)	(40.5)
Total inventories, net	$ 1,176.1	$ 1,037.0

Inventories, before progress payments, determined on the LIFO method were $821.2 million at December 31, 2017 , and $736.3 million at December 31, 2016 . The remainder of the inventory was determined using the FIFO and average cost methods, and these inventory values do not differ materially from current cost. Due to deflationary impacts primarily related to raw materials, the carrying value of the Company's inventory as valued on LIFO exceeds current replacement cost, and based on a lower of cost or market value analysis, a net realizable value (NRV) inventory reserve is required. In applying the lower of cost or market principle, market means current replacement cost, subject to a ceiling (market value shall not exceed net realizable value) and a floor (market shall not exceed net realizable value reduced by an allowance for a normal profit margin). Impacts to cost of sales for changes in the LIFO costing methodology and associated NRV inventory reserves were as follows (in millions):

	Fiscal year ended December 31,		
	2017	2016	2015
LIFO benefit (charge)	$ (54.2)	$ (39.1)	$ 131.6
NRV benefit (charge)	54.0	39.9	(131.5)
Net cost of sales impact	$ (0.2)	$ 0.8	$ 0.1

During 2017 , 2016 and 2015 , inventory usage resulted in liquidations of LIFO inventory quantities, increasing cost of sales by $4.6 million , $61.5 million and $9.6 million , respectively. These inventories were carried at differing costs prevailing in prior years as compared with the cost of current manufacturing cost and purchases.

The results for fiscal years 2016 and 2015 included $17.7 million and $24.5 million , respectively, in inventory valuation charges related to the market-based valuation of titanium products. Additionally, in the third quarter of 2016, in conjunction with the indefinite idling of the Company's Rowley, UT titanium sponge facility (see Note 16 for further explanation), an additional $11.3 million charge was taken to revalue titanium sponge inventory based on revised assessments of industrial grade titanium market conditions and expected utilization of this inventory. In December 2015, based on current market prices for non-premium quality (PQ) grades of titanium sponge, the Company recorded an additional $25.4 million charge to revalue this inventory. This charge included revised assessments of the non-PQ titanium market conditions and expected utilization of this inventory.

Note 3. Property, Plant and Equipment

Property, plant and equipment at December 31, 2017 and 2016 was as follows:

(In millions)	2017	2016
Land	$ 31.7	$ 31.4
Buildings	844.5	829.6
Equipment and leasehold improvements	3,597.6	3,497.2
	4,473.8	4,358.2
Accumulated depreciation and amortization	(1,978.1)	(1,859.3)
Total property, plant and equipment, net	$ 2,495.7	$ 2,498.9

Construction in progress at December 31, 2017 and 2016 was $90.7 million and $87.4 million , respectively. Depreciation and amortization for the years ended December 31, 2017 , 2016 and 2015 was as follows:

(In millions)		**2017**		2016		2015
Depreciation of property, plant and equipment	**$**	**135.2**	$	141.9	$	159.6
Software and other amortization		**25.6**		28.4		30.3
Total depreciation and amortization	**$**	**160.8**	$	170.3	$	189.9

Note 4. Goodwill and Other Intangible Assets

At December 31, 2017 , the Company had $531.4 million of goodwill on its consolidated balance sheet, all of which relates to the High Performance Materials & Components (HPMC) segment. Goodwill decreased $110.5 million in 2017 as a result of a $114.4 million impairment charge in the HPMC segment offset by $3.9 million from the impact of foreign currency translation on goodwill denominated in functional currencies other than the U.S. dollar.

The Company performs its annual goodwill impairment evaluations in the fourth quarter of each year. During the third quarter of 2017, the Company performed an interim goodwill impairment analysis on ATI Cast Products, a titanium investment casting business, due to impairment indicators including lower actual results versus projections. This reporting unit had a fair value that exceeded carrying value by 12% according to our 2016 annual goodwill impairment evaluation. For the 2017 interim impairment analysis, fair value was determined by using a quantitative assessment using a discounted cash flow technique, which represents Level 3 unobservable information in the fair value hierarchy. As a result of the 2017 interim goodwill impairment evaluation, the Company determined that the fair value of the Cast Products business was significantly below the carrying value, including goodwill. This was primarily due to lower projected revenues, profitability and cash flows associated with revised expectations for the rate of operational improvement and profitability of this business based on current customer agreements. Consequently, during the third quarter of 2017, the Company recorded a $114.4 million pre-tax impairment charge to write-off all of the goodwill associated with ATI Cast Products, most of which was assigned from the Company's 2011 Ladish acquisition that was not deductible for income tax purposes. This goodwill impairment charge was excluded from 2017 HPMC business segment results.

Also during the third quarter of 2017, management concluded that the goodwill impairment at ATI Cast Products was an impairment indicator to evaluate the recoverability of other long-lived assets of this reporting unit, including property, plant, equipment, and intangible assets. No impairment was determined to exist in these long-lived assets as a result of this interim impairment test.

For the Company's annual goodwill impairment evaluation performed in the fourth quarter of 2017, quantitative goodwill assessments were performed for the two HPMC reporting units with goodwill. Both of these reporting units had fair values that were significantly in excess of carrying value, and as a result, no impairments were determined to exist from the annual goodwill impairment evaluation for the year ended December 31, 2017. In order to validate the reasonableness of the estimated fair values of the reporting units as of the valuation date, a reconciliation of the aggregate fair values of all reporting units to market capitalization was performed using a reasonable control premium.

There were no goodwill impairments for the year ended December 31, 2016. As a result of the annual goodwill impairment evaluations in 2015, the Company determined that the fair value of the Flat Rolled Products business was below carrying value, including goodwill. During the fourth quarter of 2015, the Company recorded a $126.6 million pre-tax impairment charge to write-off all the goodwill in the Flat Rolled Products segment. This was due to challenging market conditions in 2015 in this business, primarily impacting commodity stainless flat-rolled products. This goodwill impairment charge was excluded from the Flat Rolled Products 2015 business segment results. Accumulated goodwill impairment losses as of December 31, 2017 and 2016 were $241.0 million and $126.6 million , respectively.

Other intangible assets, which are included in Other assets on the accompanying consolidated balance sheets as of December 31, 2017 and 2016 were as follows:

	December 31, 2017		December 31, 2016	
(in millions)	Gross carrying amount	Accumulated amortization	Gross carrying amount	Accumulated amortization
Technology	$ 91.4	$ (27.4)	$ 91.4	$ (23.0)
Customer relationships	35.7	(9.1)	35.7	(7.6)
Trademarks	64.6	(17.2)	64.6	(12.9)
Total amortizable intangible assets	$ 191.7	$ (53.7)	$ 191.7	$ (43.5)

Amortization expense related to intangible assets was approximately $10 million for the years ended December 31, 2017 , 2016 and 2015 . For each of the years ending December 31, 2018 through 2022, annual amortization expense is expected to be approximately $10 million .

Note 5. Joint Ventures

The financial results of majority-owned joint ventures are consolidated into the Company's operating results and financial position, with the minority ownership interest recognized in the consolidated statement of operations as net income attributable to noncontrolling interests, and as equity attributable to the noncontrolling interests within total stockholders' equity. Investments in which the Company exercises significant influence, but which it does not control (generally a 20% to 50% ownership interest) are accounted for under the equity method of accounting.

Majority-Owned Joint Ventures

The Company has a 60% interest in the Chinese joint venture known as Shanghai STAL Precision Stainless Steel Company Limited (STAL). The remaining 40% interest in STAL is owned by China Baowu Steel Group Corporation Limited, a state authorized investment company whose equity securities are publicly traded in the People's Republic of China. STAL is part of ATI's Flat Rolled Products segment, and manufactures Precision Rolled Strip stainless products mainly for the electronics, communication equipment, computers and automotive markets located in Asia. Cash and cash equivalents held by STAL as of December 31, 2017 were $26.2 million .

During 2017, the Company formed Next Gen Alloys LLC, a joint venture with GE Aviation for the development of a new meltless titanium alloy powder manufacturing technology. ATI owns a 51% interest in this joint venture. The titanium alloy powders are being developed for use in additive manufacturing applications, including 3D printing. Cash and cash equivalents held by this joint venture as of December 31, 2017 were $7.0 million .

Equity Method Joint Ventures

ATI has a 50% interest in the industrial titanium joint venture known as Uniti LLC (Uniti), with the remaining 50% interest held by VSMPO, a Russian producer of titanium, aluminum, and specialty steel products. Uniti is accounted for under the equity method of accounting. ATI's share of Uniti's income/(loss) was $0.6 million in 2017 , $0.5 million in 2016 , and $(0.1) million in 2015 , which is included in the Flat Rolled Products segment's operating results, and within cost of sales in the consolidated statements of operations. Sales to Uniti, which are included in ATI's consolidated statements of operations, were $38.6 million in 2017 , $20.3 million in 2016 , and $55.4 million in 2015 . Accounts receivable from Uniti were $1.2 million and $1.5 million at December 31, 2017 and 2016 , respectively.

Stockholders' equity includes undistributed earnings of investees accounted for under the equity method of accounting of approximately $10 million at December 31, 2017 .

Note 6. Asset Retirement Obligations

The Company maintains reserves where a legal obligation exists to perform an asset retirement activity and the fair value of the liability can be reasonably estimated. These asset retirement obligations (AROs) include liabilities where the timing and (or) method of settlement may be conditional on a future event, that may or may not be within the control of the entity. At December 31, 2017 , the Company had recognized AROs of $23.5 million related to landfill closures, decommissioning costs, facility leases and conditional AROs associated with manufacturing activities using what may be characterized as potentially hazardous materials.

Estimates of AROs are evaluated annually in the fourth quarter, or more frequently if material new information becomes known. Accounting for asset retirement obligations requires significant estimation and in certain cases, the Company has determined that an ARO exists, but the amount of the obligation is not reasonably estimable. The Company may determine that additional AROs are required to be recognized as new information becomes available.

Changes in asset retirement obligations for the years ended December 31, 2017 and 2016 were as follows:

(In millions)	**2017**	2016
Balance at beginning of year	**$ 23.3**	$ 25.0
Accretion expense	**0.8**	0.7
Payments	**(0.7)**	(2.0)
Revision of estimates	**0.1**	(0.4)
Balance at end of year	**$ 23.5**	$ 23.3

Note 7. Supplemental Financial Statement Information

Cash and cash equivalents at December 31, 2017 and 2016 were as follows:

(In millions)	**2017**	2016
Cash	**$ 140.2**	$ 164.1
Other short-term investments	**1.4**	65.5
Total cash and cash equivalents	**$ 141.6**	$ 229.6

Accounts receivable are presented net of a reserve for doubtful accounts of $5.9 million at December 31, 2017 , and $7.3 million at December 31, 2016 . During 2017 , the Company recognized expense of $0.1 million to increase the reserve for doubtful accounts and wrote off $1.5 million of uncollectible accounts, which decreased the reserve. During 2016 , the Company recognized expense of $4.8 million to increase the reserve for doubtful accounts and wrote off $2.0 million of uncollectible accounts, which decreased the reserve. During 2015 , the Company recognized expense of $1.1 million to increase the reserve for doubtful accounts and wrote off $1.4 million of uncollectible accounts, which decreased the reserve.

Accrued liabilities included salaries, wages and other payroll-related liabilities of $61.6 million and $54.6 million , and accrued interest of $36.2 million and $40.4 million at December 31, 2017 and 2016 , respectively.

Other income (expense) for the years ended December 31, 2017 , 2016 , and 2015 was as follows:

(In millions)	**2017**	2016	2015
Rent and royalty income	**$ 3.5**	$ 1.4	$ 2.0
Net gains on property and investments	**0.5**	1.0	—
Other	**—**	—	(0.4)
Total other income, net	**$ 4.0**	$ 2.4	$ 1.6

Note 8. Debt

Debt at December 31, 2017 and 2016 was as follows:

(In millions)	2017	2016
Allegheny Technologies $500 million 5.875% Senior Notes due 2023 (a)	**$ 500.0**	$ 500.0
Allegheny Technologies $500 million 5.95% Senior Notes due 2021	**500.0**	500.0
Allegheny Technologies $350 million 9.375% Senior Notes due 2019	**—**	350.0
Allegheny Technologies $287.5 million 4.75% Convertible Senior Notes due 2022	**287.5**	287.5
Allegheny Ludlum 6.95% Debentures due 2025	**150.0**	150.0
Term Loan due 2022	**100.0**	100.0
U.S. revolving credit facility	**—**	—
Foreign credit agreements	**6.3**	4.4
Other	**10.0**	2.2
Debt issuance costs	**(13.1)**	(17.1)
Total short-term and long-term debt	**1,540.7**	1,877.0
Short-term debt and current portion of long-term debt	**10.1**	105.1
Total long-term debt	**$ 1,530.6**	$ 1,771.9

(a) Bearing interest at 7.875% effective February 15, 2016.

Interest expense was $134.9 million in 2017 , $125.4 million in 2016 , and $111.4 million in 2015 . Interest expense was reduced by $2.6 million , $4.7 million , and $2.2 million , in 2017 , 2016 , and 2015 , respectively, from interest capitalization on capital projects. Interest and commitment fees paid were $133.8 million in 2017 , $127.2 million in 2016 , and $113.4 million in 2015 . Net interest expense includes interest income of $1.1 million in 2017 , $1.4 million in 2016 , and $1.2 million in 2015 .

Scheduled principal payments during the next five years are $10.1 million in 2018, $4.5 million in 2019, $1.1 million in 2020, $500.5 million in 2021, and $387.7 million in 2022.

2019 Notes

In December 2017, the Company redeemed all $350 million aggregate principal amount of the 9.375% Senior Notes due 2019 (2019 Notes), resulting in a $37.0 million pre-tax debt extinguishment charge, which included a $35.8 million cash payment as a make-whole provision on the early extinguishment of debt, and a $1.2 million charge for previously-unrecognized debt issue costs.

2023 Notes

The 5.875% stated interest rate payable on the Company's Senior Notes due 2023 (2023 Notes) is subject to adjustment in the event of changes in the credit ratings on the 2023 Notes by either Moody's or Standard & Poor's (S&P). Each notch of credit rating downgrade from the credit ratings in effect when the 2023 Notes were issued in July 2013 increases interest expense by 0.25% on the 2023 Notes, up to a maximum 4 notches by each of the two rating agencies, or a total 2.0% potential interest rate change up to 7.875% .

In February 2016, the 2023 Notes reset one notch to the maximum 7.875% annual interest rate as a result of a credit rating downgrade by S&P, which resulted in an additional $1.3 million of interest expense measured on an annual basis, compared to 2015. Any further credit rating downgrades have no effect on the interest rate of the 2023 Notes, and increases in the Company's credit ratings from these ratings agencies would reduce interest expense incrementally on the 2023 Notes to the original 5.875% interest rate in a similar manner.

Credit Agreements

The Company has a $500 million Asset Based Lending (ABL) Credit Facility, which is collateralized by the accounts receivable and inventory of the Company's domestic operations. The ABL includes a $400 million revolving credit facility, which includes a letter of credit sub-facility of up to $200 million , and a $100.0 million term loan (Term Loan).

In June 2017, the ABL facility was amended to extend the maturity date of the Term Loan from November 2017 to February 2022 and to reduce the interest rate on the Term Loan to 3.0% plus a LIBOR spread from 3.5% plus a LIBOR spread. The Term Loan can be prepaid in minimum increments of $50 million if certain minimum liquidity conditions are satisfied. The underwriting costs associated with amending the Term Loan were $0.8 million , and are being amortized, along with the unamortized portion of the $1.0 million of previously recognized deferred fees from the issuance of the Term Loan, to interest expense over the extended term of the loan ending February 2022.

Also in June 2017, the ABL facility was amended to, among other things, extend the duration of the revolving portion of the facility from September 2020 to February 2022. As amended, the applicable interest rate for revolving credit borrowings under the ABL facility includes interest rate spreads based on available borrowing capacity that range between 1.75% and 2.25% for LIBOR-based borrowings (2.0% and 2.5% prior to amendment) and between 1.0% and 1.5% for base rate borrowings. The ABL facility contains a financial covenant whereby the Company must maintain a fixed charge coverage ratio of not less than 1.00 : 1.00 after an event of default has occurred and is continuing or if the undrawn availability under the revolving credit portion of the facility is less than the greater of (i) 10% , as amended, of the then applicable maximum borrowing amount under the revolving credit portion of the ABL and any outstanding Term Loan balance, or (ii) $40 million . The Company does not meet this required fixed charge coverage ratio at December 31, 2017. As a result, the Company is not able to access $50 million of the revolving credit portion of the ABL facility until it meets the required ratio. Additionally, the Company must demonstrate liquidity, as calculated in accordance with the terms of the ABL facility, of at least $700 million on the date that is 91 days prior to January 15, 2021, the maturity date of the 5.95% Senior Notes due 2021, and that such liquidity is available at all times thereafter until the 5.95% Senior Notes due 2021 are paid in full or refinanced. Costs associated with entering into the ABL amendment were $1.0 million , and are being amortized, along with the unamortized portion of $2.4 million of previously recognized deferred costs, to interest expense over the extended term of the facility ending February 2022.

There were no outstanding revolving credit borrowings under the ABL facility as of December 31, 2017, and $42.3 million was utilized to support the issuance of letters of credit. Average revolving credit borrowings under the ABL facility for the fiscal year ended December 31, 2017 were $37 million , bearing an average annual interest rate of 3.255% . Average borrowings under the ABL for the fiscal year ended December 31, 2016 were $82 million , bearing an average annual interest rate of 1.8% .

Convertible Notes

In the second quarter of 2016, the Company issued and sold $287.5 million aggregate principal amount of 4.75% Convertible Senior Notes due 2022 (2022 Convertible Notes). Interest on the 2022 Convertible Notes is payable in cash semi-annually in arrears on each January 1 and July 1, commencing January 1, 2017. The underwriting fees and other third-party expense for the issuance of the 2022 Convertible Notes were $9.4 million and are being amortized to interest expense over the 6 -year term of the 2022 Convertible Notes.

The Company does not have the right to redeem the 2022 Convertible Notes prior to their stated maturity date. Holders of the 2022 Convertible Notes have the option to convert their notes into shares of the Company’s common stock, at any time prior to the close of business on the business day immediately preceding the stated maturity date (July 1, 2022). The initial conversion rate for the 2022 Convertible Notes is 69.2042 shares of ATI common stock per $1,000 (in whole dollars) principal amount of Notes (19.9 million shares), equivalent to conversion price of $14.45 per share, subject to adjustment in certain events. Other than receiving cash in lieu of fractional shares, holders do not have the option to receive cash instead of shares of common stock upon conversion. Accrued and unpaid interest that exists upon conversion of a note will be deemed paid by the delivery of shares of ATI common stock and no cash payment or additional shares will be given to the holders.

If the Company undergoes a fundamental change, holders of the 2022 Convertible Notes may require the Company to repurchase the notes in whole or in part for cash at a price equal to 100% of the principal amount of the notes to be purchased plus any accrued and unpaid interest to, but excluding, the repurchase date.

Ladish Notes

In conjunction with the acquisition of Ladish Co., Inc. (“Ladish”, now ATI Ladish LLC) in May 2011, the Company assumed the Series B and Series C Notes previously issued by Ladish. During 2015, the Company prepaid $5.7 million in aggregate principal amount of its 6.14% ATI Ladish Series B senior notes due May 16, 2016, representing all of the remaining outstanding Series B Notes. Also during 2015, the Company repaid the $10.0 million aggregate principal amount of its outstanding 6.41% ATI Ladish Series C senior notes, due September 2, 2015.

Foreign and Other Credit Facilities

STAL, the Company’s Chinese joint venture company in which ATI has a 60% interest, has a separate $20 million revolving credit facility entered into in April 2015. Borrowings under the STAL revolving credit facility are in U.S. dollars based on U.S. interbank offered rates. The credit facility is supported solely by STAL’s financial capability without any guarantees from the joint venture partners. The credit facility requires STAL to maintain a minimum level of shareholders’ equity, and certain financial ratios.

The Company has no off-balance sheet financing relationships as defined in Item 303(a)(4) of SEC Regulation S-K, with variable interest entities, structured finance entities, or any other unconsolidated entities. At December 31, 2017 , the Company had not guaranteed any third-party indebtedness.

Note 9. Derivative Financial Instruments and Hedging

As part of its risk management strategy, the Company, from time-to-time, utilizes derivative financial instruments to manage its exposure to changes in raw material prices, energy costs, foreign currencies, and interest rates. In accordance with applicable accounting standards, the Company accounts for most of these contracts as hedges. In general, hedge effectiveness is determined by examining the relationship between offsetting changes in fair value or cash flows attributable to the item being hedged, and the financial instrument being used for the hedge. Effectiveness is measured utilizing regression analysis and other techniques to determine whether the change in the fair market value or cash flows of the derivative exceeds the change in fair value or cash flow of the hedged item. Calculated ineffectiveness, if any, is immediately recognized on the statement of operations.

The Company sometimes uses futures and swap contracts to manage exposure to changes in prices for forecasted purchases of raw materials, such as nickel, and natural gas. Under these contracts, which are accounted for as cash flow hedges, the price of the item being hedged is fixed at the time that the contract is entered into and the Company is obligated to make or receive a payment equal to the net change between this fixed price and the market price at the date the contract matures.

The majority of ATI’s products are sold utilizing raw material surcharges and index mechanisms. However, as of December 31, 2017 , the Company had entered into financial hedging arrangements primarily at the request of its customers, related to firm orders, for an aggregate notional amount of approximately 18 million pounds of nickel with hedge dates through 2021 . The aggregate notional amount hedged is approximately 20% of a single year’s estimated nickel raw material purchase requirements.

At December 31, 2017 , the outstanding financial derivatives used to hedge the Company’s exposure to energy cost volatility included natural gas hedges. During the fiscal years ended December 31, 2016 and 2015, due to changes in expected operating levels, the Company concluded that portions of these natural gas cash flow hedges for 2016 and the first quarter 2017 were ineffective based on forecast changes in underlying natural gas usage. The Company recognized $1.3 million and $3.3 million of pre-tax losses for the ineffective portion of these cash flow hedges for the years ended December 31, 2016 and 2015, respectively, which is reported in selling and administrative expenses on the consolidated statement of operations. At December 31, 2017 , the company hedged approximately 40% of the Company’s annual forecasted domestic requirements for natural gas for 2018, approximately 35% for 2019, and approximately 15% for 2020.

While the majority of the Company’s direct export sales are transacted in U.S. dollars, foreign currency exchange contracts are used, from time-to-time, to limit transactional exposure to changes in currency exchange rates for those transactions denominated in a non-U.S. currency. The Company sometimes purchases foreign currency forward contracts that permit it to sell specified amounts of foreign currencies expected to be received from its export sales for pre-established U.S. dollar amounts at specified dates. The forward contracts are denominated in the same foreign currencies in which export sales are denominated. These contracts are designated as hedges of the variability in cash flows of a portion of the forecasted future export sales transactions which otherwise would expose the Company to foreign currency risk, primarily euros. In addition, the Company may also designate cash balances held in foreign currencies as hedges of forecasted foreign currency transactions.

During the fiscal year ended December 31, 2015, the Company net settled 211.9 million euro notional value of foreign currency forward contracts designated as cash flow hedges with 2016 and 2017 maturity dates, receiving cash proceeds of $56.5 million , which is reported in cash provided by operating activities on the consolidated statement of cash flows. In the fourth quarter 2015, due to management actions in the Flat Rolled Products segment to de-emphasize commodity stainless steel sheet products in 2016, the Company concluded that a portion of these settled euro cash flow hedges for 2016 were ineffective based on forecast changes for euro-denominated sales. The Company recognized a $14.3 million pre-tax gain for the ineffective portion of these cash flow hedges, which is reported in selling and administrative expenses on the consolidated statement of operations for the year ended December 31, 2015. As of December 31, 2017, all of the deferred gains on the effective portion of these settled cash flow hedges, which were previously recognized in accumulated other comprehensive income, have been reclassified to earnings due to the occurrence of the underlying transactions. In 2015, the Company entered into 244.7 million euro notional value of foreign currency forward contracts designated as fair value hedges with 2015, 2016 and 2017 maturity dates to replace a portion of the settled euro cash flow hedges, of which none were outstanding as of December 31, 2017 and 43.2 million and 139.2 million euro notional values were outstanding as of December 31, 2016 and 2015, respectively. The Company recorded $2.7 million of charges during the fiscal year ended December 31, 2017 and $1.0 million and $9.0 million of benefits during the fiscal years ended December 31, 2016 and 2015, respectively, in costs of sales on the consolidated statement of operations for maturities and mark-to-market changes on these fair value hedges.

The Company may enter into derivative interest rate contracts to maintain a reasonable balance between fixed- and floating-rate debt. There were no unsettled derivative financial instruments related to debt balances for the periods presented.

There are no credit risk-related contingent features in the Company's derivative contracts, and the contracts contained no provisions under which the Company has posted, or would be required to post, collateral. The counterparties to the Company's derivative contracts were substantial and creditworthy commercial banks that are recognized market makers. The Company controls its credit exposure by diversifying across multiple counterparties and by monitoring credit ratings and credit default swap spreads of its counterparties. The Company also enters into master netting agreements with counterparties when possible.

The fair values of the Company's derivative financial instruments are presented below, representing the gross amounts recognized which are not offset by counterpart or by type of item hedged. All fair values for these derivatives were measured using Level 2 information as defined by the accounting standard hierarchy, which includes quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, and inputs derived principally from or corroborated by observable market data.

(In millions) Asset derivatives	Balance sheet location	**December 31, 2017**	December 31, 2016
Derivatives designated as hedging instruments:			
Foreign exchange contracts	Prepaid expenses and other current assets	**$ —**	$ 2.4
Natural gas contracts	Prepaid expenses and other current assets	**0.1**	0.2
Nickel and other raw material contracts	Prepaid expenses and other current assets	**10.5**	2.2
Foreign exchange contracts	Other assets	**—**	0.2
Natural gas contracts	Other assets	**0.3**	0.2
Nickel and other raw material contracts	Other assets	**5.5**	3.3
Total derivatives designated as hedging instruments		**16.4**	8.5
Derivatives not designated as hedging instruments:			
Foreign exchange contracts	Prepaid expenses and other current assets	**0.1**	0.6
Total derivatives not designated as hedging instruments:		**0.1**	0.6
Total asset derivatives		**$ 16.5**	$ 9.1

Liability derivatives	Balance sheet location	**December 31, 2017**	December 31, 2016
Derivatives designated as hedging instruments:			
Natural gas contracts	Accrued liabilities	**$ 0.9**	$ 2.5
Nickel and other raw material contracts	Accrued liabilities	**2.1**	6.7
Foreign exchange contracts	Other long-term liabilities	**—**	0.1
Natural gas contracts	Other long-term liabilities	**0.3**	—
Nickel and other raw material contracts	Other long-term liabilities	**2.2**	9.4
Total derivatives designated as hedging instruments		**5.5**	18.7
Total liability derivatives		**$ 5.5**	$ 18.7

For derivative financial instruments that are designated as cash flow hedges, the effective portion of the gain or loss on the derivative is reported as a component of other comprehensive income (OCI) and reclassified into earnings in the same period or periods during which the hedged item affects earnings. Gains and losses on the derivative representing either hedge ineffectiveness or hedge components excluded from the assessment of effectiveness are recognized in current period results. For derivative financial instruments that are designated as fair value hedges, changes in the fair value of these derivatives are recognized in current period results and are reported as changes within accrued liabilities and other on the consolidated statements of cash flows. The Company did not use net investment hedges for the periods presented. The effects of derivative instruments in the tables below are presented net of related income taxes, excluding any impacts of changes to income tax valuation allowances affecting results of operations or other comprehensive income, when applicable (see Note 12 for further explanation).

Assuming market prices remain constant with those at December 31, 2017 , a pre-tax loss of $7.6 million is expected to be recognized over the next 12 months.

Activity with regard to derivatives designated as cash flow hedges for the year ended December 31, 2017 were as follows (in millions):

Derivatives in Cash Flow Hedging Relationships	Amount of Gain (Loss) Recognized in OCI on Derivatives (Effective Portion)		Amount of Gain (Loss) Reclassified from Accumulated OCI into Income (Effective Portion) (a)		Amount of Gain (Loss) Recognized in Income on Derivatives (Ineffective Portion and Amount Excluded from Effectiveness Testing) (b)	
	2017	2016	**2017**	2016	**2017**	2016
Nickel and other raw material contracts	**$ 14.1**	$ 9.4	**$ (2.1)**	$ (12.1)	**$ —**	$ —
Natural gas contracts	**(2.8)**	3.8	**(3.3)**	(8.4)	**—**	(0.8)
Foreign exchange contracts	**(0.2)**	—	**9.9**	16.4	**—**	—
Total	**$ 11.1**	$ 13.2	**$ 4.5**	$ (4.1)	**$ —**	$ (0.8)

(a) The gains (losses) reclassified from accumulated OCI into income related to the effective portion of the derivatives are presented in cost of sales in the same period or periods in which the hedged item affects earnings.

(b) The gains (losses) recognized in income on derivatives related to the ineffective portion and the amount excluded from effectiveness testing are presented in selling and administrative expenses.

The disclosures of gains or losses presented above for nickel and other raw material contracts and foreign currency contracts do not take into account the anticipated underlying transactions. Since these derivative contracts represent hedges, the net effect of any gain or loss on results of operations may be fully or partially offset.

The Company has 10 million euro notional value outstanding as of December 31, 2017 of foreign currency forward contracts not designated as hedges, with maturity dates into the fourth quarter of 2018. These derivatives that are not designated as hedging instruments were as follows:

(In millions)	Amount of Gain (Loss) Recognized in Income on Derivatives	
Derivatives Not Designated as Hedging Instruments	**2017**	2016
Foreign exchange contracts	**$ (0.8)**	$ (0.2)

Changes in the fair value of foreign exchange contract derivatives not designated as hedging instruments are recorded in cost of sales and are reported as changes within accrued liabilities and other on the consolidated statements of cash flows.

Note 10. Fair Value of Financial Instruments

The estimated fair value of financial instruments at December 31, 2017 was as follows:

		Fair Value Measurements at Reporting Date Using		
(In millions)	**Total Carrying Amount**	**Total Estimated Fair Value**	**Quoted Prices in Active Markets for Identical Assets (Level 1)**	**Significant Observable Inputs (Level 2)**
Cash and cash equivalents	$ 141.6	$ 141.6	$ 141.6	$ —
Derivative financial instruments:				
Assets	16.5	16.5	—	16.5
Liabilities	5.5	5.5	—	5.5
Debt (a)	1,553.8	1,853.2	1,736.9	116.3

The estimated fair value of financial instruments at December 31, 2016 was as follows:

		Fair Value Measurements at Reporting Date Using		
(In millions)	Total Carrying Amount	Total Estimated Fair Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Observable Inputs (Level 2)
Cash and cash equivalents	$ 229.6	$ 229.6	$ 229.6	$ —
Derivative financial instruments:				
Assets	9.1	9.1	—	9.1
Liabilities	18.7	18.7	—	18.7
Debt (a)	1,894.1	1,975.0	1,868.4	106.6

(a) The total carrying amount for debt excludes debt issuance costs related to the recognized debt liability which is presented in the consolidated balance sheet as a direct reduction from the carrying amount of the debt liability.

In accordance with accounting standards, fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants at the measurement date. Accounting standards established three levels of a fair value hierarchy that prioritizes the inputs used to measure fair value. This hierarchy requires entities to maximize the use of observable inputs and minimize the use of unobservable inputs. The three levels of inputs used to measure fair value are as follows:

Level 1 – Quoted prices in active markets for identical assets or liabilities.

Level 2 – Observable inputs other than quoted prices included in Level 1, such as quoted prices for similar assets and liabilities in active markets; quoted prices for identical or similar assets and liabilities in markets that are not active; or other inputs that are observable or can be corroborated by observable market data.

Level 3 – Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets and liabilities. This includes certain pricing models, discounted cash flow methodologies and similar techniques that use significant unobservable inputs.

The availability of observable market data is monitored to assess the appropriate classification of financial instruments within the fair value hierarchy. Changes in economic conditions or model-based valuation techniques may require the transfer of financial instruments from one fair value level to another. In such instances, the transfer is reported at the beginning of the reporting period. No transfers between levels were reported in 2017 or 2016 .

The following methods and assumptions were used by the Company in estimating the fair value of its financial instruments:

Cash and cash equivalents: Fair values were determined using Level 1 information.

Derivative financial instruments: Fair values for derivatives were measured using exchange-traded prices for the hedged items. The fair value was determined using Level 2 information, including consideration of counterparty risk and the Company’s credit risk.

Short-term and long-term debt: The fair values of the 2019 Notes (prior to redemption in December 2017), the Allegheny Technologies 5.95% Senior Notes due 2021, the Allegheny Technologies 4.75% Convertible Senior Notes due 2022, the Allegheny Technologies 5.875% Senior Notes due 2023 and the Allegheny Ludlum 6.95% Debentures due 2025 were determined using Level 1 information. The fair values of other short-term and long-term debt were determined using Level 2 information.

Note 11. Retirement Benefits

The Company has defined contribution retirement plans or defined benefit pension plans covering substantially all employees. Company contributions to defined contribution retirement plans are generally based on a percentage of eligible pay or based on hours worked. Benefits under the defined benefit pension plans are generally based on years of service and/or final average pay. The Company funds the U.S. defined benefit pension plans in accordance with the Employee Retirement Income Security Act of 1974, as amended, and the Internal Revenue Code (“Code”).

The Company also sponsors several postretirement plans covering certain collectively-bargained salaried and hourly employees. The plans provide health care and life insurance benefits for eligible retirees. In most retiree health care plans, Company contributions towards premiums are capped based on the cost as of a certain date, thereby creating a defined contribution.

The Company instituted several liability management actions over the last few years to effect changes to its retirement benefit programs. As a result of these actions, nearly all of ATI's operations have defined benefit pensions that are either frozen for all future benefit accruals or closed to new entrants, and remaining collectively-bargained defined benefit retiree health care plans that are capped and closed to new entrants, transitioning ATI's retirement benefit and other postretirement benefit programs largely to a defined contribution structure.

Costs for defined contribution retirement plans were $35.5 million in 2017 , $34.5 million in 2016 , and $41.2 million in 2015 . Company contributions to these defined contribution plans are funded with cash. Other postretirement benefit costs for a defined contribution plan were $1.7 million for the fiscal year ended December 31, 2017.

The components of pension and other postretirement benefit expense for the Company's defined benefit plans included the following:

	Pension Benefits			Other Postretirement Benefits		
(In millions)	**2017**	2016	2015	**2017**	2016	2015
Service cost—benefits earned during the year	**$ 14.1**	$ 20.6	$ 22.8	**$ 2.4**	$ 2.6	$ 2.7
Interest cost on benefits earned in prior years	**116.7**	125.4	121.0	**14.6**	16.0	17.9
Expected return on plan assets	**(146.9)**	(148.7)	(168.3)	**—**	(0.1)	(0.1)
Amortization of prior service cost (credit)	**1.3**	1.3	1.3	**(2.9)**	(1.7)	4.9
Amortization of net actuarial loss	**62.6**	65.4	60.4	**9.0**	9.6	14.6
Termination benefits	**—**	1.1	—	**—**	2.3	—
Total retirement benefit expense	**$ 47.8**	$ 65.1	$ 37.2	**$ 23.1**	$ 28.7	$ 40.0

Special termination benefits recorded in 2016 related to both pension and other postretirement benefits for USW-represented employees associated with the permanent idling of the Flat Rolled Products segment's Midland, PA commodity stainless operations and Bagdad, PA GOES finishing facility that occurred in the fourth quarter of 2016, and these costs were reported in restructuring charges in the consolidated statement of operations and for segment reporting (see Notes 15 and 16).

Actuarial assumptions used to develop the components of defined benefit pension expense and other postretirement benefit expense were as follows:

	Pension Benefits			Other Postretirement Benefits		
	2017	2016	2015	**2017**	2016	2015
Discount rate (a)	**4.45%**	4.65%	4.25%	**4.35%**	4.05 - 4.50%	4.10%
Rate of increase in future compensation levels	**0.50 - 1.00%**	3.0 - 3.50%	3.0 - 3.50%	**—**	—	—
Expected long-term rate of return on assets	**7.75%**	8.00%	8.00%	**4.0%**	4.0%	4.0%

(a) Other postretirement benefits expense for 2016 was initially measured at a 4.50% discount rate. A portion of the obligation was remeasured using a 4.05% discount rate as of March 1, 2016, following a new USW labor agreement.

Actuarial assumptions used for the valuation of defined benefit pension and other postretirement benefit obligations at the end of the respective periods were as follows:

	Pension Benefits		Other Postretirement Benefits	
	2017	2016	**2017**	2016
Discount rate	**3.85%**	4.45%	**3.80%**	4.35%
Rate of increase in future compensation levels	**0.50 - 1.00%**	1.00%	**—**	—

A reconciliation of the funded status for the Company's defined benefit pension and other postretirement benefit plans at December 31, 2017 and 2016 was as follows:

	Pension Benefits		Other Postretirement Benefits	
(In millions)	**2017**	2016	**2017**	2016
Change in benefit obligations:				
Benefit obligation at beginning of year	**$ 2,727.7**	$ 2,805.9	**$ 354.8**	$ 400.8
Service cost	**14.1**	20.6	**2.4**	2.6
Interest cost	**116.7**	125.4	**14.6**	16.0
Benefits paid	**(220.1)**	(255.4)	**(38.6)**	(47.7)
Subsidy paid	—	—	**0.6**	0.8
Participant contributions	—	0.2	—	—
Effect of currency rates	**7.4**	(17.3)	—	—
Net actuarial (gains) losses – discount rate change	**174.6**	57.8	**16.6**	4.6
– other	**9.4**	(3.9)	**(0.5)**	(2.1)
Plan curtailments	—	(6.7)	—	—
Plan amendments	—	—	—	(22.5)
Special termination benefits	—	1.1	—	2.3
Benefit obligation at end of year	**$ 2,829.8**	$ 2,727.7	**$ 349.9**	$ 354.8

A $6.7 million plan curtailment for pension benefits as a result of the hard freeze of the U.K. pension plan reduced the pension benefit obligation in 2016. Plan amendments as a result of changes to retirement benefit programs in the 2016 USW labor agreement reduced the other postretirement benefits obligation by $22.5 million in 2016.

	Pension Benefits		Other Postretirement Benefits	
(In millions)	**2017**	2016	**2017**	2016
Change in plan assets:				
Fair value of plan assets at beginning of year	**$ 1,894.6**	$ 1,962.3	**$ 0.7**	$ 1.8
Actual returns on plan assets and plan expenses	**304.1**	79.7	**0.2**	(0.8)
Employer contributions	**143.4**	125.1	—	—
Participant contributions	—	0.2	—	—
Effect of currency rates	**7.6**	(17.3)	—	—
Benefits paid	**(220.1)**	(255.4)	**(0.3)**	(0.3)
Fair value of plan assets at end of year	**$ 2,129.6**	$ 1,894.6	**$ 0.6**	$ 0.7

Pension benefit payments in 2017 include approximately $22 million associated with a voluntary lump-sum cash out offer to terminated vested participants in the ATI Pension Plan, the Company's U.S. qualified defined benefit pension plan. Pension benefit payments in 2016 include $47 million for the annuity buyout of small pension balances in the ATI Pension Plan.

Assets (liabilities) recognized in the consolidated balance sheets:

	Pension Benefits		Other Postretirement Benefits	
	2017	2016	**2017**	2016
Noncurrent assets	**$ 2.1**	$ —	**$ —**	$ —
Current liabilities	**(5.3)**	(5.2)	**(31.5)**	(36.4)
Noncurrent liabilities	**(697.0)**	(827.9)	**(317.8)**	(317.7)
Total amount recognized	**$ (700.2)**	$ (833.1)	**$ (349.3)**	$ (354.1)

Changes to accumulated other comprehensive loss related to pension and other postretirement benefit plans in 2017 and 2016 were as follows:

	Pension Benefits		Other Postretirement Benefits	
(In millions)	**2017**	2016	**2017**	2016
Beginning of year accumulated other comprehensive loss	**$ (1,462.7)**	$ (1,418.2)	**$ (74.4)**	$ (101.4)
Amortization of net actuarial loss	**62.6**	65.4	**9.0**	9.6
Amortization of prior service cost (credit)	**1.3**	1.3	**(2.9)**	(1.7)
Remeasurements	**(27.3)**	(111.2)	**(15.4)**	19.1
End of year accumulated other comprehensive loss	**$ (1,426.1)**	$ (1,462.7)	**$ (83.7)**	$ (74.4)
Net change in accumulated other comprehensive loss	**$ 36.6**	$ (44.5)	**$ (9.3)**	$ 27.0

Amounts included in accumulated other comprehensive loss at December 31, 2017 and 2016 were as follows:

	Pension Benefits		Other Postretirement Benefits	
(In millions)	**2017**	2016	**2017**	2016
Prior service (cost) credit	**$ (1.0)**	$ (2.3)	**$ 11.7**	$ 14.6
Net actuarial loss	**(1,425.1)**	(1,460.4)	**(95.4)**	(89.0)
Accumulated other comprehensive loss	**(1,426.1)**	(1,462.7)	**(83.7)**	(74.4)
Deferred tax effect	**525.6**	543.4	**29.7**	28.2
Accumulated other comprehensive loss, net of tax	**$ (900.5)**	$ (919.3)	**$ (54.0)**	$ (46.2)

Amounts in accumulated other comprehensive loss presented above do not include any effects of deferred tax asset valuation allowances. See Note 12 for further discussion on deferred tax asset valuation allowances.

Retirement benefit expense for 2018 for defined benefit plans is estimated to be approximately $52 million , comprised of $29 million for pension expense and $23 million of expense for other postretirement benefits. The net actuarial loss is recognized in the consolidated statement of operations using a corridor method. Because all of ATI's pension plans are inactive, cumulative gains and losses in excess of 10% of the greater of the projected benefit obligation or the market value of plan assets are amortized over the expected average remaining future lifetime of participants, which is approximately 17 years on a weighted average basis. Prior service cost (credit) amortization is recognized in level amounts over the expected service of the active membership as of the amendment effective date. Amounts in accumulated other comprehensive loss that are expected to be recognized as components of net periodic benefit cost in 2018 are:

(In millions)	Pension Benefits	Other Postretirement Benefits	Total
Amortization of prior service cost (credit)	$ 0.4	$ (2.9)	$ (2.5)
Amortization of net actuarial loss	65.9	10.6	76.5
Amortization of accumulated other comprehensive loss	$ 66.3	$ 7.7	$ 74.0

The accumulated benefit obligation for all defined benefit pension plans was $2,810.5 million and $2,710.7 million at December 31, 2017 and 2016 , respectively. Additional information for pension plans with accumulated benefit obligations in excess of plan assets:

	Pension Benefits	
(In millions)	**2017**	2016
Projected benefit obligation	**$ 2,737.4**	$ 2,727.7
Accumulated benefit obligation	**$ 2,718.0**	$ 2,710.7
Fair value of plan assets	**$ 2,035.1**	$ 1,894.6

In March 2017, the Company made a $135 million cash contribution to the ATI Pension Plan in order to complete its funding requirements for 2017. In July 2016, the Company made a $115 million contribution to the ATI Pension Plan to improve the plan's funded position. Based upon current regulations and actuarial studies, the Company expects to make approximately a $40 million cash contribution to the ATI Pension Plan in 2018 , and use credit balance from prior years prefunding for the remaining required contribution during the year. In addition, for 2018, the Company expects to fund benefits of approximately $9 million for its U.S. nonqualified benefit pension plans and its U.K. defined benefit plan.

The following table summarizes expected benefit payments from the Company's various pension and other postretirement defined benefit plans through 2027, and also includes estimated Medicare Part D subsidies projected to be received during this period based on currently available information. Pension benefit payments for the ATI Pension Plan and the U.K. defined benefit plan are made from pension plan assets.

(In millions)	Pension Benefits	Other Postretirement Benefits	Medicare Part D Subsidy
2018	$ 201.0	$ 32.1	$ 0.8
2019	194.1	31.2	0.8
2020	192.0	29.7	0.8
2021	188.8	28.1	0.7
2022	186.8	26.2	0.7
2023 - 2027	891.5	109.0	2.8

The annual assumed rate of increase in the per capita cost of covered benefits (the health care cost trend rate) for health care plans was 6.8% in 2018 and is assumed to gradually decrease to 4.5% in the year 2038 and remain at that level thereafter. Assumed health care cost trend rates can have a significant effect on the amounts reported for the health care plans, however, the Company's contributions for most of its' retiree health plans are capped based on a fixed premium amount, which limits the impact of future health care cost increases. A one percentage point change in assumed health care cost trend rates would have the following effects:

(In millions)	One Percentage Point Increase	One Percentage Point Decrease
Effect on total of service and interest cost components for the year ended December 31, 2017	$ 0.3	$ (0.3)
Effect on other postretirement benefit obligation at December 31, 2017	$ 5.7	$ (5.1)

The plan assets for the ATI Pension Plan represent approximately 96% of total pension plan assets at December 31, 2017 . The ATI Pension Plan invests in a diversified portfolio consisting of an array of asset classes that attempts to maximize returns while minimizing volatility. These asset classes include U.S. domestic equities, non-U.S. developed market equities, emerging market equities, hedge funds, private equity, global high quality and high yield fixed income, floating rate debt and real estate. The Company continually monitors the investment results of these asset classes and its fund managers, and explores other potential asset classes for possible future investment.

ATI Pension Plan assets at December 31, 2017 and 2016 included 3.0 million shares of ATI common stock with a fair value of $71.3 million and $47.1 million , respectively. Dividends of $0.7 million were received by the ATI Pension Plan in 2016 on the ATI common stock held by this plan.

The fair values of the Company's pension plan assets are determined using net asset value (NAV) as a practical expedient, or by information categorized in the fair value hierarchy level based on the inputs used to determine fair value, as further discussed in Note 10. The fair values at December 31, 2017 were as follows:

(In millions)			Quoted Prices in Active Markets for Identical Assets	Significant Observable Inputs	Significant Unobservable Inputs
Asset category	Total	NAV	(Level 1)	(Level 2)	(Level 3)
Equity securities:					
ATI common stock	$ 71.3	$ —	$ 71.3	$ —	$ —
Other U.S. equities	416.0	267.7	148.3	—	—
International equities	432.5	385.9	46.6	—	—
Global debt securities and cash:					
Fixed income and cash equivalents	501.1	92.6	10.0	398.5	—
Floating rate	169.9	122.6	47.3	—	—
Private equity	137.5	137.5	—	—	—
Hedge funds	307.4	307.4	—	—	—
Real estate and other	93.9	90.7	—	3.2	—
Total assets	**$ 2,129.6**	**$ 1,404.4**	**$ 323.5**	**$ 401.7**	**$ —**

The fair values of the Company's pension plan assets at December 31, 2016 were as follows:

(In millions)			Quoted Prices in Active Markets for Identical Assets	Significant Observable Inputs	Significant Unobservable Inputs
Asset category	Total	NAV	(Level 1)	(Level 2)	(Level 3)
Equity securities:					
ATI common stock	$ 47.1	$ —	$ 47.1	$ —	$ —
Other U.S. equities	311.1	204.0	107.1	—	—
International equities	375.7	339.2	36.5	—	—
Global debt securities and cash:					
Fixed income and cash equivalents	412.2	82.3	0.5	329.2	0.2
Floating rate	225.5	225.5	—	—	—
Private equity	142.6	142.6	—	—	—
Hedge funds	283.9	283.9	—	—	—
Real estate and other	96.5	91.5	—	5.0	—
Total assets	**$ 1,894.6**	**$ 1,369.0**	**$ 191.2**	**$ 334.2**	**$ 0.2**

In order to conform with current year presentation, approximately $62 million was reclassified from private equity investments to floating rate debt for pension plan assets at December 31, 2016. In addition, approximately $99 million in floating rate debt securities previously classified as Level 3 was reclassified to net asset value (NAV) at December 31, 2016.

A financial instrument's categorization within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement. Investments in U.S. and International equities, and Fixed Income are predominantly held in common/collective trust funds and registered investment companies. These investments are public investment vehicles valued using the NAV provided by the administrator of the fund. The NAV is based on the value of the underlying assets owned by the fund, minus its liabilities, and then divided by the number of shares outstanding. These investments are not classified in the fair value hierarchy. In addition, some fixed income instruments are investments in debt instruments that are valued using external pricing vendors and are classified within Level 2 of the fair value hierarchy.

Floating interest rate global debt instruments are both domestic and foreign and include first lien debt, second lien debt and structured finance obligations, among others. These instruments are valued using NAV and are not classified in the fair value hierarchy, or are publicly traded securities and are classified as Level 1.

Private equity investments include both Direct Funds and Fund-of-Funds. Direct Funds are investments in Limited Partnership (LP) interests. Fund-of-Funds are investments in private equity funds that invest in other private equity funds or LPs. Fair value of these investments is determined utilizing net asset values, and are not classified in the fair value hierarchy.

Hedge fund investments are made as a limited partner in hedge funds managed by a general partner. Fair value of these investments is determined utilizing net asset values, and are not classified in the fair value hierarchy.

Real estate investments are made either (1) as a limited partner in a portfolio of properties managed by a general partner or (2) through a CIF that invests in a portfolio of real estate funds. Fair value of these investments is determined utilizing net asset values, and are not classified in the fair value hierarchy.

For certain investments which have formal financial valuations reported on a one-quarter lag, fair value is determined utilizing net asset values adjusted for subsequent cash flows, estimated financial performance and other significant events.

The fair value of Level 3 pension plan assets for the year ended December 31, 2017 was not material. Changes in the fair value of Level 3 pension plan assets for the year ended December 31, 2016 were as follows:

(In millions)	January 1, 2016 Balance	Net Realized and Unrealized Gains (Losses)	Net Purchases, Issuances and Settlements	Net Transfers Into (Out Of) Level 3	December 31, 2016 Balance
Global debt securities and cash:					
Fixed income and cash equivalents	$ 0.3	$ —	$ (0.1)	$ —	$ 0.2
Floating rate debt	194.3	4.8	(199.1)	—	—
Total	**$ 194.6**	**$ 4.8**	**$ (199.2)**	**$ —**	**$ 0.2**

For 2018 , the expected long-term rate of returns on defined benefit pension assets will be 7.75% . In developing the expected long-term rate of return assumptions, the Company evaluated input from its third party pension plan asset managers and actuaries, including reviews of their asset class return expectations and long-term inflation assumptions. The expected long-term rate of return is based on expected asset allocations within ranges for each investment category and projected annual compound returns. The Company's actual returns on pension assets for the last five years have been 16.9% for 2017 , 5.3% for 2016 , (1.2)% for 2015 , 6.5% for 2014 , and 14.3% for 2013 .

The target asset allocations for pension plans for 2018 , by major investment category, are:

Asset category	Target asset allocation range
Equity securities:	
U. S. equities	18% - 40%
International equities	10% - 30%
Global debt securities and cash	15% - 40%
Private equity	0% - 15%
Hedge funds	10% - 20%
Real estate and other	0% - 10%

As of December 31, 2017 , the ATI Pension Plan has outstanding commitments to invest up to $84 million in global debt securities, $72 million in private equity investments, $11 million in hedge funds and $10 million in real estate investments. These commitments are expected to be satisfied through the reallocation of pension trust assets while maintaining investments within the target asset allocation ranges.

At December 31, 2017 , other postretirement benefit plan assets of $0.6 million are primarily invested in private equity investments, which are classified as Level 3 in the valuation hierarchy, as the valuations are substantially based upon unobservable information.

The Company contributes to several multiemployer defined benefit pension plans under collective bargaining agreements that cover certain of its union-represented employees. The risks of participating in such plans are different from the risks of single-employer plans, in the following respects:

a. Assets contributed to a multiemployer plan by one employer may be used to provide benefits to employees of other participating employers.

b. If a participating employer ceases to contribute to the plan, the unfunded obligations of the plan may be borne by the remaining participating employers.

c. If the Company ceases to have an obligation to contribute to the multiemployer plan in which it had been a contributing employer, it may be required to pay to the plan an amount based on the underfunded status of the plan and on the history of the Company's participation in the plan prior to the cessation of its obligation to contribute. The amount that an employer that has ceased to have an obligation to contribute to a multiemployer plan is required to pay to the plan is referred to as a withdrawal liability.

The Company’s participation in multiemployer plans for the years ended December 31, 2017 , 2016 and 2015 is reported in the following table. The Company’s contributions to the Steelworkers Western Independent Shops Pension Plan exceed 5% of this plan’s total contributions for the plan year ended September 30, 2016, which is the most recent information available from the Plan Administrator.

		Pension Protection Act Zone Status (1)			in millions				
					Company Contributions				Expiration Dates of Collective Bargaining Agreements
Pension Fund	EIN / Pension Plan Number	2017	2016	FIP / RP Status Pending / Implemented (2)	**2017**	2016	2015	Surcharge Imposed (3)	
Steelworkers Western Independent Shops Pension Plan	90-0169564 / 001	Green	Green	N/A	**$ 0.6**	$ 1.2	$ 0.7	No	2/29/2020
Boilermakers-Blacksmiths National Pension Trust	48-6168020 / 001	Yellow	Yellow	Yes	**2.2**	1.8	1.8	No	9/30/2026
IAM National Pension Fund	51-6031295 / 002	Green	Green	N/A	**1.7**	1.6	1.5	No	Various between 2018-2022 (4)
Total contributions					**$ 4.5**	$ 4.6	$ 4.0		

(1) The most recent Pension Protection Act Zone Status available for ATI’s fiscal years 2017 and 2016 is for plan years ending in calendar years 2016 and 2015 , respectively. The zone status is based on information provided to ATI and other participating employers by each plan and is certified by the plan’s actuary. A plan in the “red” zone had been determined to be in “critical status”, based on criteria established by the Code, and is generally less than 65% funded. A plan in the “yellow” zone has been determined to be in “endangered status”, based on criteria established under the Code, and is generally less than 80% funded. A plan in the “green” zone has been determined to be neither in “critical status” nor in “endangered status”, and is generally at least 80% funded.

(2) The “FIP / RP Status Pending / Implemented” column indicates whether a Funding Improvement Plan, as required under the Code by plans in the “yellow” zone, or a Rehabilitation Plan, as required under the Code to be adopted by plans in the “red” zone, is pending or has been implemented as of the end of the plan year that ended in 2017 .

(3) The “Surcharge Imposed” column indicates whether ATI’s contribution rate for 2017 included an amount in addition to the contribution rate specified in the applicable collective bargaining agreement, as imposed by a plan in “critical status”, in accordance with the requirements of the Code.

(4) The Company is party to five separate bargaining agreements that require contributions to this plan. Expiration dates of these collective bargaining agreements range between April 22, 2018 and February 27, 2022.

Note 12. Accumulated Other Comprehensive Income (Loss)

The changes in accumulated other comprehensive income (loss) (AOCI) by component, net of tax, for the fiscal years ended December 31, 2017 , 2016 and 2015 were as follows (in millions):

	Post-retirement benefit plans	Currency translation adjustment	Unrealized holding gains on securities	Derivatives	Deferred Tax Asset Valuation Allowance	Total
Attributable to ATI:						
Balance, December 31, 2014	$ (931.5)	$ (16.2)	$ —	$ 16.3	$ —	$ (931.4)
OCI before reclassifications	(69.6)	(31.4)	—	(20.7)	—	(121.7)
Amounts reclassified from AOCI	(a) 49.9	(b) —	(b) —	(c) (11.3)	—	38.6
Net current-period OCI	(19.7)	(31.4)	—	(32.0)	—	(83.1)
Balance, December 31, 2015	(951.2)	(47.6)	—	(15.7)	—	(1,014.5)
OCI before reclassifications	(60.6)	(37.4)	—	13.2	(45.6)	(130.4)
Amounts reclassified from AOCI	(a) 46.3	(b) —	(b) —	(c) 4.9	—	51.2
Net current-period OCI	(14.3)	(37.4)	—	18.1	(45.6)	(79.2)
Balance, December 31, 2016	(965.5)	(85.0)	—	2.4	(45.6)	(1,093.7)
OCI before reclassifications	(32.5)	31.5	—	11.1	—	10.1
Amounts reclassified from AOCI	(a) 43.5	(b) —	(b) —	(c) (4.5)	16.8	55.8
Net current-period OCI	11.0	31.5	—	6.6	16.8	65.9
Balance, December 31, 2017	$ (954.5)	$ (53.5)	$ —	$ 9.0	$ (28.8)	$ (1,027.8)
Attributable to noncontrolling interests:						
Balance, December 31, 2014	$ —	$ 25.0	$ —	$ —	$ —	$ 25.0
OCI before reclassifications	—	(5.6)	—	—	—	(5.6)
Amounts reclassified from AOCI	—	(b) —	—	—	—	—
Net current-period OCI	—	(5.6)	—	—	—	(5.6)
Balance, December 31, 2015	—	19.4	—	—	—	19.4
OCI before reclassifications	—	(9.7)	—	—	—	(9.7)
Amounts reclassified from AOCI	—	(b) —	—	—	—	—
Net current-period OCI	—	(9.7)	—	—	—	(9.7)
Balance, December 31, 2016	—	9.7	—	—	—	9.7
OCI before reclassifications	—	7.6	—	—	—	7.6
Amounts reclassified from AOCI	—	(b) —	—	—	—	—
Net current-period OCI	—	7.6	—	—	—	7.6
Balance, December 31, 2017	$ —	$ 17.3	$ —	$ —	$ —	$ 17.3

(a) Amounts were included in net periodic benefit cost for pension and other postretirement benefit plans (see Note 11).

(b) No amounts were reclassified to earnings.

(c) Amounts related to the effective portion of the derivatives are included in cost of goods sold in the period or periods the hedged item affects earnings. Amounts related to the ineffective portion of the derivatives are presented in selling and administrative expenses on the consolidated statements of operations (see Note 9).

Other comprehensive income (loss) amounts (OCI) reported above by category are net of applicable income tax expense (benefit) for each year presented. Income tax expense (benefit) on OCI items is recorded as a change in a deferred tax asset or liability. Amounts recognized in OCI in 2016 and 2017 include the impact of any deferred tax asset valuation allowances (see Note 14 for further explanation), primarily relating to remeasurement of the Company’s postretirement benefit plans. Foreign currency translation adjustments, including those pertaining to noncontrolling interests, are generally not adjusted for income taxes as they relate to indefinite investments in non-U.S. subsidiaries.

Reclassifications out of AOCI for the fiscal years ended December 31, 2017 , 2016 and 2015 were as follows:

Details about AOCI Components *(In millions)*	Amount reclassified from AOCI (c) Fiscal year ended December 31, 2017		December 31, 2016		December 31, 2015		Affected line item in the consolidated statement of operations
Postretirement benefit plans							
Prior service credit (cost)	$ 1.6	(a)	$ 0.4	(a)	$ (6.2)	(a)	
Actuarial losses	(71.6)	(a)	(75.0)	(a)	(75.0)	(a)	
	(70.0)	(c)	(74.6)	(c)	(81.2)	(c)	Total before tax
	(26.5)		(28.3)		(31.3)		Tax benefit (d)
	$ (43.5)		$ (46.3)		$ (49.9)		Net of tax
Derivatives							
Nickel and other raw material contracts	$ (3.4)	(b)	$ (19.5)	(b)	$ (16.9)	(b)	
Natural gas contracts	(5.3)	(b)	(14.8)	(b)	(18.2)	(b)	
Electricity contracts	—	(b)	—	(b)	(0.2)	(b)	
Foreign exchange contracts	15.9	(b)	26.4	(b)	53.5	(b)	
	7.2	(c)	(7.9)	(c)	18.2	(c)	Total before tax
	2.7		(3.0)		6.9		Tax provision (benefit) (d)
	$ 4.5		$ (4.9)		$ 11.3		Net of tax

(a) Amounts are included in the computation of pension and other postretirement benefit expense, which is reported in both cost of goods sold and selling and administrative expenses. For additional information, see Note 11.

(b) Amounts related to the effective portion of the derivatives are included in cost of goods sold in the period or periods the hedged item affects earnings. Amounts related to the ineffective portion of the derivatives are presented in selling and administrative expenses on the consolidated statements of operations (see Note 9).

(c) For pretax items, positive amounts are income and negative amounts are expense in terms of the impact to net income. Tax effects are presented in conformity with ATI's presentation in the consolidated statements of operations.

(d) These amounts exclude the impact of any deferred tax asset valuation allowances (see Note 14 for further explanation).

Note 13. Stockholders' Equity

Preferred Stock

Authorized preferred stock may be issued in one or more series, with designations, powers and preferences as shall be designated by the Board of Directors. At December 31, 2017 , there were no shares of preferred stock issued.

Common Stock

On November 7, 2017, the Company issued 17 million shares of common stock at $24.00 per share before expenses in an underwritten registered public offering. This equity offering resulted in proceeds, net of transaction costs, of $397.8 million . In December 2017, the Company used the proceeds from the equity offering to redeem all of the 2019 Notes (see Note 8).

Share-based Compensation

During 2007, the Company adopted the Allegheny Technologies Incorporated 2007 Incentive Plan (the "2007 Incentive Plan"), which was amended and restated in 2010 and further amended in 2012, and in 2015, the Company adopted the Allegheny Technologies Incorporated 2015 Incentive Plan (the "2015 Incentive Plan"). In May 2017, the Company adopted the Allegheny Technologies Incorporated 2017 Incentive Plan (the "2017 Incentive Plan").

Upon adoption of the 2017 Incentive Plan, all new awards are being made under the 2017 Incentive Plan. Shares previously remaining available for grant under the 2015 Incentive Plan, or which become available for award due to the forfeiture or cancellation of prior awards under the 2015 Incentive Plan, are available for award under the 2017 Incentive Plan. Shares that are subject to awards under the 2007 Incentive Plan that are canceled or forfeited do not become available for use under the 2017 Incentive Plan. Outstanding grants previously made under the 2015 Incentive Plan or the 2007 Incentive Plan remain in effect in accordance with their terms and the terms of their respective Plan.

Awards earned under the Company's share-based incentive compensation programs are generally paid with shares held in treasury, if sufficient treasury shares are held, and any additional required share payments are made with newly issued shares. At December 31, 2017 , 5.6 million shares of common stock were available for future awards under the 2017 Incentive Plan. The general terms of each arrangement granted under the 2007 Incentive Plan, the 2015 Incentive Plan or the 2017 Incentive Plan, and predecessor plans, the method of estimating fair value for each arrangement, and award activity is reported below.

Beginning in 2016, the Company implemented a new share-based incentive compensation program, the Long-Term Incentive Plan (LTIP). The LTIP consists of both Restricted Share Units (RSU) and Performance Share Units (PSU).

For years prior to 2016, the Company's two principal share-based incentive compensation programs were the Performance/Restricted Stock Program (PRSP) of nonvested stock awards and the Long-Term Performance Plan (LTPP). The LTPP was adopted in 2014 and included performance shares under the Total Shareholder Return (TSR) portion and nonvested stock awards under the Long-Term Shareholder Value (LTSV) portion.

Nonvested stock awards/units:

Restricted Share Units: In 2016 and 2017, awards of RSUs were granted to employees, with service conditions. RSUs are rights to receive shares of Company stock when the award vests. The RSUs vest over three years based on employment service, with one-third of the award vesting on each of the first, second and third anniversaries of the grant date. No dividends are accumulated or paid on the RSUs. The fair value of the RSU award is measured based on the stock price at the grant date. In 2016 and 2017, 587,661 and 320,679 RSUs, respectively, were awarded to employees under the LTIP. In February 2017, one-third of the 2016 RSU award vested, comprising 190,421 shares.

Nonvested stock awards: Prior to 2016, awards of nonvested stock were granted to employees under the PRSP, with either performance and/or service conditions. Awards of nonvested stock are also granted to non-employee directors, with service conditions. For nonvested stock awards, dividend equivalents, whether in stock or cash form, accumulate but are not paid until the underlying award vests.

LTSV awards vest at the end of a three -year measurement period subject to the achievement, in whole or in part, of specified operational goals. At December 31, 2017, 60% of the operational goals for the 2015 LTSV were attained and 122,882 shares vested. All of the operational goals for the 2014 LTSV award were attained at December 31, 2016, and 116,989 shares vested.

The fair value of nonvested stock awards is measured based on the stock price at the grant date, adjusted for non-participating dividends, as applicable, based on the current dividend rate. For nonvested stock awards to employees in 2012, 2013, 2014 and 2015 under the Company's PRSP, one-half of the nonvested stock ("performance shares") vests only on the attainment of an income target, measured cumulatively over a three -year period. The remaining nonvested stock awarded to most employees under the 2015 PRSP vests over a service period of three years; for certain senior executives this service period is five years for the 2015 award. The remaining PRSP nonvested stock awarded to employees under the 2012, 2013 and 2014 vests over a service period of five years, with accelerated vesting to three years if the performance shares' vesting criterion is attained. Expense for each of these awards is recognized based on estimates of attaining the performance criterion, including estimated forfeitures. The three -year cumulative income statement metrics for the 2012, 2013, 2014 and 2015 PRSP awards were not met, and performance share forfeitures were 171,083 shares, 244,899 shares, 214,571 shares, and 196,196 shares, respectively. The remaining service portion of the 2012 PRSP, comprising of 166,929 shares, vested in February 2017. The remaining service portion of the 2015 PRSP for all employees except certain senior executives, comprising of 126,585 shares, vested at December 31, 2017. Vesting of the remaining service portion of the 2013 and 2014 PRSP awards and the 2015 PRSP awards for certain senior executives continues over the five -year service periods through February 2018, 2019, and 2020, respectively.

Compensation expense related to all nonvested stock awards and units was $9.8 million in 2017 , $11.2 million in 2016 , and $5.5 million in 2015 . Reduced compensation expense in 2015 is primarily the result of changes in estimates that PRSP award performance shares would vest. Approximately $7.3 million of unrecognized fair value compensation expense relating to nonvested stock awards and restricted stock units is expected to be recognized through 2020, including $4.6 million expected to be recognized in 2018, based on estimated service period forfeitures. Activity under the Company's nonvested stock awards and restricted share units for the years ended December 31, 2017 , 2016 , and 2015 was as follows:

(Shares in thousands, $ in millions)	**2017**			2016			2015		
	Number of shares/units		**Weighted Average Grant Date Fair Value**	Number of shares/units		Weighted Average Grant Date Fair Value	Number of shares		Weighted Average Grant Date Fair Value
Nonvested, beginning of year	**1,852**	**$**	**51.5**	1,652	$	57.0	1,376	$	47.8
Granted	**378**		**7.1**	682		8.4	669		20.8
Vested	**(640)**		**(18.4)**	(154)		(4.3)	(23)		(0.8)
Forfeited	**(270)**		**(7.7)**	(328)		(9.6)	(370)		(10.8)
Nonvested, end of year	**1,320**	**$**	**32.5**	1,852	$	51.5	1,652	$	57.0

Performance awards:

Performance Share Units: In 2016, the Company established the PSU award. PSU award opportunities are determined at a target number of shares, and the number of shares awarded is based on attainment of two ATI financial performance metrics measuring (1) net income to ATI and (2) return on invested capital, over a three -year performance period. For certain senior executives, the number of PSUs to be awarded based on the performance criteria is modified up or down by 20% based on the Company's relative total shareholder return over the performance measurement period ("TSR Modifier"), but not above the maximum number of PSUs to be vested. The TSR Modifier is measured as the return of the Company's stock price (including assumed dividend reinvestment, if any) at the end of the performance period as compared to the stock prices (including assumed dividend reinvestment, if any) of a group of industry peers. The fair value of the PSU award is measured based on the stock price at the grant date, including the effect of the TSR Modifier. The fair value of the TSR Modifier is estimated using Monte Carlo simulations of stock price correlation, projected dividend yields and other variables over a three -year time horizon matching the TSR performance measurement period.

In 2016 and 2017, the Company awarded 936,558 and 589,612 share units, respectively, at the target level. The 2016 and 2017 PSU performance, and share units, each have a threshold attainment of 25% and a maximum attainment of 150% of the target financial performance metrics and target share units, measured over the applicable three -year performance period. At December 31, 2017, a maximum of 2.2 million shares have been reserved for issuance for the PSU awards, to the 150% attainment level. Aggregate compensation expense recognized over the three year performance periods for the 2016 and 2017 PSU awards could range from zero to $33.3 million , including estimated forfeitures, based on the actual financial performance attained. Compensation expense for the PSUs during the performance period is recognized based on estimates of attaining the performance criteria, including estimated forfeitures, which is evaluated on a quarterly basis. The Company recognized $1.9 million and $3.8 million of compensation expense in 2016 and 2017, respectively, for the PSU awards. As of December 31, 2017, ATI estimates achieving financial performance attainment for the 2016 PSU award between the threshold and target levels, and approximately at the target level for the 2017 PSU award. Based on these estimates, there is $8.8 million of cumulative unrecognized compensation expense remaining for the PSU awards, including estimated forfeitures, which is expected to be recognized over the remaining performance periods through fiscal year 2019, including $4.9 million expected to be recognized in 2018. Activity under the Company's PSUs at target for the years ended December 31, 2017 and 2016 was as follows:

(Shares in thousands, $ in millions)	**2017**			2016		
	Number of shares/units		**Weighted Average Grant Date Fair Value**	Number of shares/units		Weighted Average Grant Date Fair Value
Nonvested, beginning of year	**919**	**$**	**11.3**	—	$	—
Granted	**590**		**12.4**	937		11.5
Forfeited	**(68)**		**(1.0)**	(18)		(0.2)
Nonvested, end of year	**1,441**	**$**	**22.7**	919	$	11.3

Total Shareholder Return: Award opportunities under the TSR portion of the formerly-used LTPP incentive compensation program are determined at a target number of shares, and performance equity awards pay out based on the measured return of the Company's stock price and dividend performance at the end of three -year periods as compared to the stock price and dividend performance of a group of industry peers. The actual number of shares awarded at the end of the performance measurement period may range from a minimum of zero to a maximum of two times target. Fair values for these performance awards were estimated using Monte Carlo simulations of stock price correlation, projected dividend yields and other variables over three -year time horizons matching the total shareholder return performance measurement periods. Compensation expense was $3.6 million in 2017 , $6.6 million in 2016 , and $10.6 million in 2015 for the TSR awards.

Based on the Company's stock price and dividend performance for the three-year period ended December 31, 2017 relative to the peer group, no award for the 2015-2017 TSRP performance period was earned. At December 31, 2017, there are no remaining TSR awards under the LTPP outstanding.

Note 14. Income Taxes

Income (loss) before income taxes for the Company's U.S. and non-U.S. operations was as follows:

(In millions)	**2017**	2016	2015
U.S.	**$ (119.8)**	$ (782.1)	$ (534.6)
Non-U.S.	**33.3**	48.1	56.6
Loss before income taxes	**$ (86.5)**	$ (734.0)	$ (478.0)

The income tax provision (benefit) was as follows:

(in millions)	**2017**	2016	2015
Current:			
Federal	**$ (0.8)**	$ 0.5	$ (60.7)
State	**(1.3)**	(1.5)	(0.4)
Foreign	**6.2**	14.4	9.4
Total	**4.1**	13.4	(51.7)
Deferred:			
Federal	**2.4**	(115.8)	(90.9)
State	**(14.4)**	(3.5)	30.4
Foreign	**1.1**	(1.0)	0.1
Total	**(10.9)**	(120.3)	(60.4)
Income tax benefit	**$ (6.8)**	$ (106.9)	$ (112.1)

The following is a reconciliation of income taxes computed at the statutory U.S. Federal income tax rate to the actual effective income tax benefit:

(In millions)	**2017**	2016	2015
Taxes computed at the federal rate	**$ (30.3)**	$ (256.9)	$ (167.3)
Goodwill impairment	**36.6**	—	—
State and local income taxes, net of federal tax benefit	**—**	(26.8)	(20.6)
Valuation allowance	**(14.5)**	171.5	74.5
Repatriation of foreign earnings	**14.2**	2.1	13.4
Change in federal tax rate and law change	**(4.1)**	—	—
Foreign earnings taxed at different rate	**(7.2)**	(5.3)	(11.2)
Adjustment to prior years' taxes	**(5.2)**	3.4	(5.4)
Foreign exchange differences	**2.6**	—	—
Withholding taxes	**2.2**	—	—
Other	**(1.1)**	5.1	4.5
Income tax benefit	**$ (6.8)**	$ (106.9)	$ (112.1)

We recognize deferred tax assets to the extent that we believe that these assets are more likely than not to be realized. Valuation allowances are established when it is estimated that it is more likely than not that the tax benefit of the deferred tax asset will not be realized. In making such determination, we consider all available evidence, both positive and negative, regarding historical operating results including recent years with reported losses, the estimated timing of future reversals of existing taxable temporary differences, estimated future taxable income exclusive of reversing temporary differences and carryforwards, and potential tax planning strategies which may be employed to prevent an operating loss or tax credit carryforward from expiring unused. In situations where a three year cumulative loss condition exists, accounting standards limit the ability to consider projections of future results as positive evidence to assess the realizability of deferred tax assets. If we determine that we would not be able to realize our deferred tax assets in the future in excess of their recorded net amount, we would make an adjustment to the deferred tax asset valuation allowance.

Since 2015, the Company's results have reflected a three year cumulative loss from U.S. operations. As a result, the Company established $74.5 million in deferred tax asset valuation allowances in 2015, of which $68.4 million were for certain federal and state deferred tax assets. In 2016, the actions to indefinitely idle the Rowley, UT titanium sponge production facility (see Note 16 for further information) resulted in a reassessment of the realizability of U.S. federal deferred tax assets. In 2016, the Company's results of operations included an increase to deferred tax asset valuation allowances of $171.5 million , including an additional $165.8 million valuation allowance on federal and state deferred tax assets. In addition, the Company established valuation allowances on amounts recorded in other comprehensive income in 2016 and 2017 of $45.6 million and $28.8 million , respectively, which are not reflected in the preceding table reconciling amounts recognized in the income tax benefit recorded on the statement of operations (see Note 12).

On December 22, 2017, the U.S. government enacted comprehensive tax legislation commonly referred to as the Tax Cuts and Jobs Act (the "Tax Act"). The Tax Act makes broad and complex changes to the U.S. tax code, including, but not limited to:

(1) reducing the U.S. federal corporate tax rate from 35% to 21% ;
(2) requiring companies to pay a one-time transition tax on certain unrepatriated earnings of foreign subsidiaries;
(3) generally eliminating U.S. federal income taxes on dividends from foreign subsidiaries;
(4) requiring a current inclusion in U.S. federal taxable income of certain earnings of controlled foreign corporations;
(5) eliminating the corporate alternative minimum tax (AMT) and changing how existing AMT credits can be realized;
(6) creating the base erosion anti-abuse tax (BEAT), a new minimum tax;
(7) creating a new limitation on deductible interest expense; and
(8) changing rules related to uses and limitations of net operating loss carryforwards created in tax years beginning after December 31, 2017.

In connection with ATI's initial analysis of the impact of the Tax Act, the following Tax Act impacts within the current year financial statements have been accounted for as provisional estimated amounts, pending further information which includes final tax return filings, and additional analysis of foreign earnings and profits, and the Company expects to finalize adjustments by the fourth quarter of 2018. The change in the U.S. federal corporate tax rate from 35% to 21% resulted in a $2.6 million benefit as it relates to the re-measurement of indefinite lived deferred tax liabilities. The repeal of the alternative minimum tax resulted in a $1.5 million decrease in the deferred tax asset valuation allowance. The $4.1 million combination of these items is reflected above in the income tax benefit reconciliation on the line labeled as change in federal tax rate and law change. In addition to these adjustments, the Company calculated an estimate related to the mandatory repatriation of foreign earnings resulting in 2017 federal taxable income of approximately $100 million , for which the Company expects to fully offset with the federal net operating loss carryover deferred tax asset.

The Company will finalize the calculation of the mandatory repatriation throughout 2018, but does not anticipate a tax charge. In addition to the items related to the Tax Act, the Company had a current year goodwill impairment charge related to the ATI Cast Products operations which did not have a tax basis, resulting in a $36.6 million tax charge included within the net tax benefit for 2017.

The Company continues to maintain a valuation allowance on the federal, state and some foreign net deferred tax assets as of December 31, 2017. Deferred income taxes result from temporary differences in the recognition of income and expense for financial and income tax reporting purposes, and differences between the fair value of assets acquired in business combinations accounted for as purchases for financial reporting purposes and their corresponding tax bases. Deferred income taxes represent future tax benefits or costs to be recognized when those temporary differences reverse. The categories of assets and liabilities that have resulted in differences in the timing of the recognition of income and expense at December 31, 2017 and 2016 were as follows:

(in millions)	**2017**	2016
Deferred income tax assets		
Pensions	**$ 158.0**	$ 294.9
Postretirement benefits other than pensions	**86.5**	129.5
Net operating loss tax carryovers	**336.1**	407.8
Tax credits	**92.6**	56.7
Deferred compensation and other benefit plans	**13.8**	25.7
Other items	**55.9**	107.4
Gross deferred income tax assets	**742.9**	1,022.0
Valuation allowance for deferred tax assets	**(274.0)**	(291.4)
Total deferred income tax assets	**468.9**	730.6
Deferred income tax liabilities		
Bases of property, plant and equipment	**375.3**	547.1
Inventory valuation	**50.0**	77.6
Bases of amortizable intangible assets	**38.7**	65.6
Other items	**7.0**	43.9
Total deferred tax liabilities	**471.0**	734.2
Net deferred tax liability	**$ (2.1)**	$ (3.6)

Federal deferred tax asset and liability balances at December 31, 2017 have been remeasured as a result of the Tax Act legislation, including the impact of the new 21% U.S. federal tax rate. Additionally, deferred tax balances at December 31, 2016 have been restated to correct classification differences between certain deferred tax assets, liabilities, and the valuation allowance, which was not material to reported results. The correction increased both total deferred income tax assets and liabilities by $48.9 million , with no net impact to the ending balance sheet position.

The following summarizes the carryforward periods for the tax attributes related to net operating losses (NOL) and credits by jurisdiction.

($ in millions)

Jurisdiction	Attribute	Amount	Expiration Period	Amount expiring within 5 years	Amount expiring in 5-20 years
U.S.	NOL	$980	20 years	$—	$980
U.S.	Foreign Tax Credit	$65	10 years	$19	$46
U.S.	Research and Development Credit	$11	20 years	$—	$11
State	NOL	$168	Various	$19	$149
State	Credits	$23	Various	$5	$18
U.K.	NOL	$6	Indefinite	$—	$—
Luxembourg	NOL	$19	Indefinite	$—	$—
Poland	Economic Zone Credit	$12	9 years	$—	$12

Income taxes paid and amounts received as refunds were as follows:

(In millions)	**2017**	2016	2015
Income taxes paid	**$ 10.4**	$ 8.6	$ 10.8
Income tax refunds received	**(7.1)**	(10.5)	(63.3)
Income taxes paid (received), net	**$ 3.3**	$ (1.9)	$ (52.5)

In general, the Company is responsible for filing consolidated U.S. Federal, foreign and combined, unitary or separate state income tax returns. The Company is responsible for paying the taxes relating to such returns, including any subsequent adjustments resulting from the redetermination of such tax liability by the applicable taxing authorities. In 2016 and 2017, the Company received $7.3 million and $3.2 million , respectively, for federal tax refunds of prior years' taxes paid.

Deferred taxes of $2.2 million have been recorded for foreign withholding taxes on earnings expected to be repatriated to the U.S. parent. The Company does not intend to distribute the approximately $100 million taxed under the Tax Act, and has not recorded any deferred taxes related to such amounts. The remaining excess of the amount for financial reporting over the tax basis of investments in foreign subsidiaries is indefinitely reinvested, and the determination of any deferred tax liability on this amount is not practicable.

Uncertain tax positions are recorded using a two-step process based on (1) determining whether it is more likely than not that the tax positions will be sustained on the basis of the technical merits of the position and (2) for those positions that meet the more-likely-than-not-recognition threshold, the Company records the largest amount of the tax benefit that is more than 50 percent likely to be realized upon ultimate settlement with the related tax authority. The changes in the liability for unrecognized income tax benefits for the years ended December 31, 2017 , 2016 and 2015 were as follows:

(in millions)	**2017**	2016	2015
Balance at beginning of year	**$ 22.7**	$ 19.6	$ 76.8
Increases in prior period tax positions	—	7.9	4.3
Decreases in prior period tax positions	**(0.7)**	(0.1)	(0.2)
Increases in current period tax positions	**0.7**	0.6	1.3
Expiration of the statute of limitations	**(0.4)**	(1.1)	(0.5)
Settlements	**(7.6)**	(4.2)	(62.1)
Balance at end of year	**$ 14.7**	$ 22.7	$ 19.6

The liability at December 31, 2017 includes $11.7 million of unrecognized tax benefits that are classified within deferred income taxes as a reduction of net operating loss carryforwards. We recognize accrued interest and penalties related to uncertain tax positions as income tax expense. The amounts accrued for interest and penalty charges for the years ended December 31, 2017, 2016 and 2015 were not significant. At December 31, 2017 and 2016, the accrued liabilities for interest and penalties related to unrecognized tax benefits were $3.2 million and $3.6 million , respectively.

For the year beginning January 1, 2015, $60.9 million of the liability for unrecognized income tax benefits related to temporary differences, which would not impact the effective tax rate upon resolution of the uncertainty. In 2015, the Company resolved these various uncertain tax position matters related to temporary differences which resulted in this $60.9 million long-term liability for uncertain tax positions to be reclassified to a deferred tax liability. The total estimated unrecognized tax benefit that, if recognized, would affect ATI's effective tax rate is approximately $6 million . At this time, the Company believes that it is reasonably possible that approximately $1 million of the estimated unrecognized tax benefits as of December 31, 2017 will be recognized within the next twelve months based on the expiration of statutory review periods.

The Company, and/or one of its subsidiaries, files income tax returns in the U.S. Federal jurisdiction and in various state and foreign jurisdictions. A summary of tax years that remain subject to examination, by major tax jurisdiction, is as follows:

Jurisdiction	Earliest Year Open to Examination
U.S. Federal	2016
States:	
Pennsylvania	2014
Foreign:	
China	2014
Poland	2011
United Kingdom	2015

Note 15. Business Segments

The Company operates in two business segments: High Performance Materials & Components (HPMC) and Flat Rolled Products (FRP). Over 75% of 2017 HPMC business segment sales are to the aerospace and defense markets, and nearly half of HPMC's total sales are products for commercial jet engines. Other key HPMC end markets include medical, oil & gas, and electrical energy. HPMC produces, converts and distributes a wide range of high performance materials, and components, and advanced metallic powder alloys made from titanium and titanium-based alloys, nickel-based alloys and superalloys, and a variety of other specialty metals. These materials are made in a variety of product forms that include precision forgings, castings, machined parts and others.

The FRP segment serves a diverse group of end markets, with the oil & gas market, including chemical and hydrocarbon processing, and the automotive market collectively representing over 40% of 2017 sales. Other major end markets for FRP include food processing equipment and appliances, construction and mining, electronics, communication equipment and computers, and aerospace & defense. FRP produces, converts and distributes nickel-based alloys, specialty alloys, and titanium and titanium-based alloys, and stainless steel in a variety of product forms including plate, sheet, engineered strip, and Precision Rolled Strip products. The business units in this segment include ATI Flat Rolled Products and STAL, in which the Company has a 60% ownership interest. Segment results also include ATI's 50% interest in Uniti, which is accounted for under the equity method. See Note 5 for further information on the Company's joint ventures.

The measure of segment operating profit excludes all effects of LIFO inventory accounting and any related changes in net realizable value inventory reserves which offset the Company's aggregate net debit LIFO valuation balance, income taxes, corporate expenses, net interest expense, closed operations and other expenses, charges for goodwill impairment (see Note 4), restructuring charges and other costs (see Note 16) and debt extinguishment charges (see Note 8). Management believes segment operating profit, as defined, provides an appropriate measure of controllable operating results at the business segment level.

Intersegment sales are generally recorded at full cost or market. Common services are allocated on the basis of estimated utilization.

(In millions)	**2017**	2016	2015
Total sales:			
High Performance Materials & Components	**$ 2,127.0**	$ 1,979.5	$ 2,062.7
Flat Rolled Products	**1,527.5**	1,260.8	1,807.9
Total sales	**3,654.5**	3,240.3	3,870.6
Intersegment sales:			
High Performance Materials & Components	**59.6**	49.1	76.8
Flat Rolled Products	**69.8**	56.6	74.2
Total intersegment sales	**129.4**	105.7	151.0
Sales to external customers:			
High Performance Materials & Components	**2,067.4**	1,930.4	1,985.9
Flat Rolled Products	**1,457.7**	1,204.2	1,733.7
Total sales to external customers	**$ 3,525.1**	$ 3,134.6	$ 3,719.6

Total international sales were $1,454.5 million in 2017 , $1,277.1 million in 2016 , and $1,577.0 million in 2015 . Of these amounts, sales by operations in the United States to customers in other countries were $1,078.6 million in 2017 , $971.4 million in 2016 , and $1,215.8 million in 2015 .

(In millions)	**2017**	2016	2015
Operating profit (loss):			
High Performance Materials & Components	**$ 246.4**	$ 168.7	$ 157.1
Flat Rolled Products	**37.0**	(163.0)	(241.9)
Total operating profit (loss)	**283.4**	5.7	(84.8)
LIFO and net realizable value reserves (See Note 2)	**(0.2)**	0.8	0.1
Corporate expenses	**(50.5)**	(43.4)	(44.7)
Closed operations and other expenses	**(34.0)**	(34.6)	(22.1)
Restructuring and other charges (See Note 16)	**—**	(538.5)	(89.7)
Impairment of goodwill (See Note 4)	**(114.4)**	—	(126.6)
Debt extinguishment charge (See Note 8)	**(37.0)**	—	—
Interest expense, net	**(133.8)**	(124.0)	(110.2)
Loss before income taxes	**$ (86.5)**	$ (734.0)	$ (478.0)

In the third quarter of 2016, the Company announced the indefinite idling of the Rowley, UT titanium sponge facility and the consolidation of certain titanium manufacturing operations. See Note 16 for further explanation. Results for the HPMC segment exclude the Rowley operations beginning with the third quarter of 2016, with such operations being reported in closed operations and other expenses. In October 2016, the Company announced the closure of the Midland, PA commodity stainless operations and the Bagdad, PA grain-oriented electrical steel (GOES) finishing facility. These facilities were indefinitely idled earlier in 2016, and management concluded that the facilities could not be operated at an acceptable rate of return. See Note 16 for further explanation. Results for the FRP segment exclude the ongoing holding costs of these facilities beginning in October 2016, with such costs being reported in closed operations and other expenses.

Restructuring and other charges for the year ended December 31, 2016 are comprised of $471.3 million in long-lived asset impairment charges, $31.7 million of facility shutdown and idling costs, $24.2 million of employee benefit costs and $11.3 million of inventory valuation charges for titanium sponge that are classified in cost of sales (see Note 2 for additional information). The shutdown and idling costs primarily relate to the indefinite idling of the Company’s Rowley, UT titanium sponge facility, and the closures of the Midland, PA commodity stainless operations and the Bagdad, PA GOES finishing facility. The employee benefit costs largely relate to FRP severance charges for salaried workforce reductions and costs associated with the previously mentioned facility idlings and closures. Restructuring and other charges for the year ended December 31, 2015 include $54.5 million in long-lived asset impairment charges, $25.4 million of inventory valuation charges for non-PQ titanium sponge (see Note 2 for additional information) and charges for severance and facility idling costs. See Note 16 for additional information on restructuring charges.

Closed operations and other expenses, which were $34.0 million in 2017 , $34.6 million in 2016 and $22.1 million in 2015 , includes charges incurred in connection with closed operations and other non-operating income or expense. These items are primarily presented in selling and administrative expenses in the consolidated statements of operations. In 2017 , these items included $22.7 million for costs at closed facilities, including legal matters and real estate and other facility costs, $7.3 million for negative foreign currency remeasurement impacts primarily related to our European Treasury Center operation, $2.9 million for closed operations environmental costs, and $4.8 million for retirement benefit expense. These 2017 costs were offset by a $3.7 million benefit for reductions in liabilities for legacy employee benefit programs. In 2016 , the Company recorded $34.6 million in other charges primarily related to closed operations, including $5.8 million for environmental costs, $5.0 million for retirement benefit expense, and $23.8 million for other expenses including legal matters and real estate costs at closed operations, primarily for Rowley following the indefinite idling. In 2015 , the Company recorded $22.1 million in other charges primarily related to closed operations, including $2.3 million for retirement benefit expense, $4.5 million for environmental costs, and $15.3 million for other expenses including legal matters and real estate costs at closed operations.

Certain additional information regarding the Company’s business segments is presented below:

(In millions)	**2017**	2016	2015
Depreciation and amortization:			
High Performance Materials & Components	**$ 109.3**	$ 118.4	$ 131.8
Flat Rolled Products	**45.6**	48.8	55.6
Corporate	**5.9**	3.1	2.5
Total depreciation and amortization	**$ 160.8**	$ 170.3	$ 189.9
Capital expenditures:			
High Performance Materials & Components	**$ 62.7**	$ 89.9	$ 75.8
Flat Rolled Products	**59.1**	111.8	68.0
Corporate	**0.9**	0.5	0.7
Total capital expenditures	**$ 122.7**	$ 202.2	$ 144.5

Identifiable assets:	**2017**	2016	2015
High Performance Materials & Components	**$ 2,662.3**	$ 2,744.3	$ 3,355.5
Flat Rolled Products	**2,218.4**	2,056.4	2,189.5
Discontinued Operations	**0.2**	0.4	0.9
Corporate:			
Deferred Taxes	**7.6**	12.1	—
Cash and cash equivalents and other	**296.9**	356.8	205.8
Total assets	**$ 5,185.4**	$ 5,170.0	$ 5,751.7

In 2016, identifiable assets for the HPMC segment decreased by $521 million from December 31, 2015 as a result of the reporting change and the asset impairment charges for Rowley discussed above. In 2016, identifiable assets for the FRP segment decreased by $32 million from December 31, 2015 as a result of the reporting change to closed operations for the Midland and Bagdad facilities as discussed above.

($ in millions)	**2017**	**Percent of total**	2016	Percent of total	2015	Percent of total
External sales:						
United States	**$ 2,070.6**	**59%**	$ 1,857.5	59%	$ 2,142.6	58%
China	**265.6**	**7%**	214.1	7%	246.9	7%
United Kingdom	**231.6**	**6%**	183.8	6%	198.2	5%
Germany	**217.1**	**6%**	177.7	6%	193.3	5%
France	**165.6**	**5%**	142.6	4%	153.3	4%
Japan	**131.7**	**4%**	151.9	5%	202.3	5%
Canada	**99.8**	**3%**	97.6	3%	154.5	4%
Mexico	**96.1**	**3%**	89.7	3%	78.4	2%
Other	**247.0**	**7%**	219.7	7%	350.1	10%
Total External Sales	**$ 3,525.1**	**100%**	$ 3,134.6	100%	$ 3,719.6	100%

($ in millions)	**2017**	**Percent of total**	2016	Percent of total	2015	Percent of total
Total assets:						
United States	**$ 4,547.7**	**88%**	$ 4,591.5	89%	$ 5,073.1	88%
China	**276.0**	**5%**	249.3	5%	260.0	5%
United Kingdom	**122.7**	**2%**	122.8	2%	154.3	3%
Other	**239.0**	**5%**	206.4	4%	264.3	4%
Total Assets	**$ 5,185.4**	**100%**	$ 5,170.0	100%	$ 5,751.7	100%

Note 16. Restructuring Charges

2016

For the year ended December 31, 2016, the Company recorded restructuring charges of $527.2 million , which are presented as restructuring charges in the consolidated statement of operations. These charges were comprised of $471.3 million in long-lived asset impairment charges, $31.7 million of facility shutdown and idling costs, and $24.2 million of employee benefit costs.

On August 24, 2016, the Company announced the indefinite idling of the Rowley, UT titanium sponge production facility and the consolidation of certain titanium manufacturing operations in the HPMC segment. Over the last several years, significant global capacity had been added to produce titanium sponge, which is a key raw material used to produce ATI's titanium products. In addition, demand for industrial-grade titanium products from global markets continued to be weak. As a result of these factors, titanium sponge, including aerospace quality sponge, could now be purchased from qualified global producers under long-term supply agreements at prices lower than the production costs at ATI's titanium sponge facility in Rowley, UT. ATI entered into long-term cost competitive supply agreements with several producers of premium-grade and standard-grade titanium sponge. The lower cost titanium sponge purchased under these supply agreements replaced the titanium sponge produced at the Rowley facility. As a result of these actions, the Company recorded a non-cash impairment charge of $470.8 million during the quarter ended September 30, 2016 to reduce the carrying value of the Rowley, UT facility to an estimated fair value of $15.0 million . The long-lived asset impairment charge was based on an analysis of the estimated fair value, including asset appraisals using cost, income and market approaches, which represent Level 3 unobservable information in the fair value hierarchy. The indefinite idling of the Rowley, UT facility was completed in the fourth quarter 2016, as was the closure of a small titanium wire production facility in Frackville, PA, and the idling of certain titanium manufacturing operations in Albany, OR. In addition, during the fiscal year ended December 31, 2016, the Company recognized $23.8 million of facility shutdown and idling costs, including contract termination costs, and $7.5 million of employee benefit costs including severance obligations for the elimination of approximately 180 positions associated with these and other HPMC restructuring actions. The Rowley facility was idled in a manner that allows the facility to be restarted in the future if supported by market conditions.

On October 25, 2016, the Company announced the closure of the Midland, PA commodity stainless operations and the Bagdad, PA grain-oriented electrical steel (GOES) finishing facility. These facilities, which were part of the Company's Flat Rolled Products (FRP) operations, were indefinitely idled earlier in 2016, and management concluded that the facilities could not be operated at an acceptable rate of return. As a result of these actions, the Company recorded $8.4 million during the year ended December 31, 2016 of closure-related costs and asset impairments, and $4.9 million of employee benefit costs, including $3.4 million of special termination benefits for pension and other postretirement benefit plans.

Also during 2016, an $11.8 million charge was recorded for severance obligations in the FRP operations, for the reduction of approximately one-third of FRP's salaried workforce through the elimination of over 250 positions, which was largely completed by the end of 2016.

2015

For the year ended December 31, 2015, the Company recorded restructuring charges of $64.3 million , which are presented as restructuring charges in the consolidated statement of operations. These charges were comprised of $54.5 million in long-lived asset impairment charges, $3.5 million in facility idling costs, and $6.3 million in employee severance charges. The long-lived asset impairment charges were based on analysis of the estimated fair values, including asset appraisals using income and market approaches, which represents Level 3 unobservable information in the fair value hierarchy.

- In December 2015, the Company announced the following rightsizing actions to better align its Flat Rolled Products operations to the challenging market conditions for its commodity products:

    - Idling the commodity stainless melt and sheet finishing operations at the Midland, PA facility, which was completed in January 2016. A $24.2 million impairment charge was recognized to reduce the carrying value of the Midland facility to estimated fair value.

    - Idling GOES operations in Western PA, including the Bagdad, PA finishing facility, which was completed in April 2016. A $30.3 million impairment charge was recognized to reduce the carrying value of GOES operations assets to estimated fair value.

  A $3.5 million charge for future idling costs of the Midland and GOES operations was also recognized.

- As announced in October 2015, in the fourth quarter 2015 the Company implemented a salaried workforce reduction of approximately 100 employees, in response to business conditions, in both the HPMC segment and at ATI's headquarters. Severance charges of $6.3 million were recorded in the fourth quarter for this action.

Reserves for restructuring charges at December 31, 2017 and 2016 consist of severance and employee benefit costs and closure costs incurred in both 2015 and 2016, which were substantially paid in 2017. Restructuring reserves are as follows:

	Severance and Employee Benefit Costs	Closure Costs	Total Restructuring Reserves
Balance at December 31, 2015	$ 4.5	$ 3.6	$ 8.1
Additions	20.8	28.0	48.8
Payments	(11.4)	(12.4)	(23.8)
Balance at December 31, 2016	13.9	19.2	33.1
Reversals	(1.6)	(1.1)	$ (2.7)
Payments	(11.5)	(17.3)	$ (28.8)
Balance at December 31, 2017	$ 0.8	$ 0.8	$ 1.6

Note 17. Redeemable Noncontrolling Interest

During 2016, the 15% redeemable noncontrolling interest in ATI Flowform Products was purchased by ATI at the $12.1 million acquisition date carrying value, resulting in no remaining redeemable noncontrolling interest held in ATI Flowform Products as of December 31, 2017 and 2016.

The previous holders of the 15% redeemable noncontrolling interest in ATI Flowform Products had a put option to require the Company to purchase their equity interest at a specified redemption value. The put option could not be separated from the noncontrolling interest, and the combination of a noncontrolling interest and the redemption feature required classification as redeemable noncontrolling interest in the consolidated balance sheet, separate from Stockholders' Equity. The carrying amount of the redeemable noncontrolling interest approximated its maximum redemption value. Any subsequent change in maximum redemption value was adjusted through retained earnings. The adjustment to the carrying amount for the year ended December 31, 2015 reduced retained earnings by $0.3 million . The Company applied the two-class method of calculating earnings per share, and as such this adjustment to the carrying amount was reflected in earnings per share. The redeemable noncontrolling interest was $12.1 million as of December 31, 2015, which was unchanged from the acquisition date value.

Note 18. Per Share Information

The following table sets forth the computation of basic and diluted net loss per common share:

(In millions, except per share amounts)

For the Years Ended December 31,	**2017**	2016	2015
Numerator:			
Numerator for basic net loss per common share -			
Net loss attributable to ATI	**$ (91.9)**	$ (640.9)	$ (377.9)
Redeemable noncontrolling interest (Note 17)	**—**	—	(0.3)
Effect of dilutive securities:			
4.75% Convertible Senior Notes due 2022	**—**	—	—
Numerator for diluted net loss per common share -			
Net loss attributable to ATI after assumed conversions	**$ (91.9)**	$ (640.9)	$ (378.2)
Denominator:			
Denominator for basic net loss per common share—weighted average shares	**110.1**	107.3	107.3
Effect of dilutive securities:			
Share-based compensation	**—**	—	—
4.75% Convertible Senior Notes due 2022	**—**	—	—
Denominator for diluted net loss per common share—adjusted weighted average shares and assumed conversions	**110.1**	107.3	107.3
Basic net loss attributable to ATI per common share	**$ (0.83)**	$ (5.97)	$ (3.53)
Diluted net loss attributable to ATI per common share	**$ (0.83)**	$ (5.97)	$ (3.53)

Common stock that would be issuable upon the assumed conversion of the 2022 Convertible Notes and other option equivalents and contingently issuable shares are excluded from the computation of contingently issuable shares, and therefore, from the denominator for diluted earnings per share, if the effect of inclusion would have been anti-dilutive. Excluded shares were 20.8 million for 2017 , 13.1 million for 2016 and 0.8 million for 2015 .

Note 19. Financial Information for Subsidiary and Guarantor Parent

The payment obligations under the $150.0 million 6.95% Debentures due 2025 issued by Allegheny Ludlum, LLC (formerly known as Allegheny Ludlum Corporation) (the “Subsidiary”) are fully and unconditionally guaranteed by ATI (the “Guarantor Parent”). In accordance with positions established by the U.S. Securities and Exchange Commission, the following financial information sets forth separately financial information with respect to the Subsidiary, the Non-guarantor Subsidiaries and the Guarantor Parent. The principal elimination entries eliminate investments in subsidiaries and certain intercompany balances and transactions.

ATI is the plan sponsor for the ATI Pension Plan, the U.S. qualified defined benefit pension plan which covers certain current and former employees of the Subsidiary and the Non-guarantor Subsidiaries. As a result, the balance sheets presented for the Subsidiary and the Non-guarantor Subsidiaries do not include any ATI Pension Plan assets or liabilities, or the related deferred taxes. The ATI Pension Plan assets, liabilities and related deferred taxes and pension income or expense are recognized by the Guarantor Parent. Management and royalty fees charged to the Subsidiary and to the Non-guarantor Subsidiaries by the Guarantor Parent have been excluded solely for purposes of this presentation.

Allegheny Technologies Incorporated
Financial Information for Subsidiary and Guarantor Parent
Balance Sheets
December 31, 2017

(In millions)	Guarantor Parent	Subsidiary	Non-guarantor Subsidiaries	Eliminations	Consolidated
Assets:					
Cash and cash equivalents	$ 2.1	$ 13.5	$ 126.0	$ —	$ 141.6
Accounts receivable, net	0.2	141.6	403.5	—	545.3
Intercompany notes receivable	—	—	3,505.6	(3,505.6)	—
Inventories, net	—	207.9	968.2	—	1,176.1
Prepaid expenses and other current assets	6.6	4.5	41.6	—	52.7
Total current assets	8.9	367.5	5,044.9	(3,505.6)	1,915.7
Property, plant and equipment, net	0.9	1,581.6	913.2	—	2,495.7
Goodwill	—	—	531.4	—	531.4
Intercompany notes receivable	—	—	200.0	(200.0)	—
Investments in subsidiaries	5,645.6	37.7	—	(5,683.3)	—
Other assets	25.4	18.0	199.2	—	242.6
Total assets	$ 5,680.8	$ 2,004.8	$ 6,888.7	$ (9,388.9)	$ 5,185.4
Liabilities and stockholders’ equity:					
Accounts payable	$ 3.0	$ 180.3	$ 236.8	$ —	$ 420.1
Accrued liabilities	54.1	88.5	139.8	—	282.4
Intercompany notes payable	1,836.5	1,669.1	—	(3,505.6)	—
Short-term debt and current portion of long-term debt	0.3	0.6	9.2	—	10.1
Total current liabilities	1,893.9	1,938.5	385.8	(3,505.6)	712.6
Long-term debt	1,275.7	150.7	104.2	—	1,530.6
Intercompany notes payable	—	200.0	—	(200.0)	—
Accrued postretirement benefits	—	250.2	67.6	—	317.8
Pension liabilities	644.3	4.4	48.3	—	697.0
Deferred income taxes	9.7	—	—	—	9.7
Other long-term liabilities	12.7	17.2	43.3	—	73.2
Total liabilities	3,836.3	2,561.0	649.2	(3,705.6)	3,340.9
Total stockholders’ equity (deficit)	1,844.5	(556.2)	6,239.5	(5,683.3)	1,844.5
Total liabilities and stockholders’ equity	$ 5,680.8	$ 2,004.8	$ 6,888.7	$ (9,388.9)	$ 5,185.4

Allegheny Technologies Incorporated
Financial Information for Subsidiary and Guarantor Parent
Statements of Operations
For the year ended December 31, 2017

(In millions)	Guarantor Parent	Subsidiary	Non-guarantor Subsidiaries	Eliminations	Consolidated
Sales	$ —	$ 1,178.9	$ 2,346.2	$ —	$ 3,525.1
Cost of sales	42.4	1,103.5	1,930.2	—	3,076.1
Gross profit (loss)	(42.4)	75.4	416.0	—	449.0
Selling and administrative expenses	91.0	37.6	125.7	—	254.3
Impairment of goodwill	—	—	114.4	—	114.4
Operating income (loss)	(133.4)	37.8	175.9	—	80.3
Interest income (expense), net	(155.8)	(90.0)	112.0	—	(133.8)
Debt extinguishment charge	(37.0)	—	—	—	(37.0)
Other income (expense) including equity in income of unconsolidated subsidiaries	239.7	1.6	2.4	(239.7)	4.0
Income (loss) before income taxes	(86.5)	(50.6)	290.3	(239.7)	(86.5)
Income tax provision (benefit)	(6.8)	(16.6)	131.4	(114.8)	(6.8)
Net income (loss)	(79.7)	(34.0)	158.9	(124.9)	(79.7)
Less: Net income attributable to noncontrolling interest	—	—	12.2	—	12.2
Net income (loss) attributable to ATI	$ (79.7)	$ (34.0)	$ 146.7	$ (124.9)	$ (91.9)

Allegheny Technologies Incorporated
Financial Information for Subsidiary and Guarantor Parent
Statements of Comprehensive Income (Loss)
For the year ended December 31, 2017

(In millions)	Guarantor Parent	Subsidiary	Non-guarantor Subsidiaries	Eliminations	Consolidated
Net income (loss)	$ (79.7)	$ (34.0)	$ 158.9	$ (124.9)	$ (79.7)
Other comprehensive income (loss)					
Currency translation adjustment arising during the period	39.1	—	39.1	(39.1)	39.1
Net derivative gain on hedge transactions	7.1	—	—	—	7.1
Pension and postretirement benefits	27.3	(5.8)	(10.7)	16.5	27.3
Other comprehensive income (loss), net of tax	73.5	(5.8)	28.4	(22.6)	73.5
Comprehensive income (loss)	(6.2)	(39.8)	187.3	(147.5)	(6.2)
Less: Comprehensive income attributable to noncontrolling interest	—	—	19.8	—	19.8
Comprehensive income (loss) attributable to ATI	$ (6.2)	$ (39.8)	$ 167.5	$ (147.5)	$ (26.0)

Condensed Statements of Cash Flows
For the year ended December 31, 2017

(In millions)	Guarantor Parent	Subsidiary	Non-guarantor Subsidiaries	Eliminations	Consolidated
Cash flows provided by (used in) operating activities	$ (78.8)	$ (101.5)	$ 214.7	$ (12.0)	$ 22.4
Investing Activities:					
Purchases of property, plant and equipment	(0.9)	(38.5)	(83.3)	—	(122.7)
Net receipts (payments) on intercompany activity	—	—	(223.9)	223.9	—
Asset disposals and other	—	0.1	3.0	—	3.1
Cash flows provided by (used in) investing activities	(0.9)	(38.4)	(304.2)	223.9	(119.6)
Financing Activities:					
Borrowings on long-term debt	—	—	8.5	—	8.5
Payments on long-term debt and capital leases	(350.4)	(0.3)	(2.3)	—	(353.0)
Net borrowings under credit facilities	—	—	1.6	—	1.6
Debt issuance costs	—	—	(0.8)	—	(0.8)
Debt extinguishment charge	(35.8)	—	—	—	(35.8)
Net receipts (payments) on intercompany activity	72.7	151.2	—	(223.9)	—
Issuance of common stock	397.8	—	—	—	397.8
Dividends paid to stockholders	—	—	(12.0)	12.0	—
Dividends paid to noncontrolling interests	—	—	(8.0)	—	(8.0)
Sale to noncontrolling interests	—	—	3.7	—	3.7
Shares repurchased for income tax withholding on share-based compensation and other	(4.8)	—	—	—	(4.8)
Cash flows provided by (used in) financing activities	79.5	150.9	(9.3)	(211.9)	9.2
Increase (decrease) in cash and cash equivalents	$ (0.2)	$ 11.0	$ (98.8)	$ —	$ (88.0)

Allegheny Technologies Incorporated
Financial Information for Subsidiary and Guarantor Parent
Balance Sheets
December 31, 2016

(In millions)	Guarantor Parent	Subsidiary	Non-guarantor Subsidiaries	Eliminations	Consolidated
Assets:					
Cash and cash equivalents	$ 2.3	$ 2.5	$ 224.8	$ —	$ 229.6
Accounts receivable, net	0.1	107.8	344.2	—	452.1
Intercompany notes receivable	—	—	2,892.9	(2,892.9)	—
Inventories, net	—	106.7	930.3	—	1,037.0
Prepaid expenses and other current assets	6.6	5.2	36.0	—	47.8
Total current assets	9.0	222.2	4,428.2	(2,892.9)	1,766.5
Property, plant and equipment, net	1.3	1,583.6	914.0	—	2,498.9
Goodwill	—	—	641.9	—	641.9
Intercompany notes receivable	—	—	200.0	(200.0)	—
Investments in subsidiaries	5,241.2	37.7	—	(5,278.9)	—
Other assets	23.0	25.5	214.2	—	262.7
Total assets	$ 5,274.5	$ 1,869.0	$ 6,398.3	$ (8,371.8)	$ 5,170.0
Liabilities and stockholders' equity:					
Accounts payable	$ 3.1	$ 97.4	$ 193.8	$ —	$ 294.3
Accrued liabilities	54.6	83.3	171.4	—	309.3
Intercompany notes payable	1,341.1	1,551.8	—	(2,892.9)	—
Short-term debt and current portion of long-term debt	0.4	0.3	104.4	—	105.1
Total current liabilities	1,399.2	1,732.8	469.6	(2,892.9)	708.7
Long-term debt	1,621.7	150.0	0.2	—	1,771.9
Intercompany notes payable	—	200.0	—	(200.0)	—
Accrued postretirement benefits	—	244.0	73.7	—	317.7
Pension liabilities	778.5	5.2	44.2	—	827.9
Deferred income taxes	15.6	—	—	—	15.6
Other long-term liabilities	14.7	18.1	50.6	—	83.4
Total liabilities	3,829.7	2,350.1	638.3	(3,092.9)	3,725.2
Total stockholders' equity (deficit)	1,444.8	(481.1)	5,760.0	(5,278.9)	1,444.8
Total liabilities and stockholders' equity	$ 5,274.5	$ 1,869.0	$ 6,398.3	$ (8,371.8)	$ 5,170.0

Allegheny Technologies Incorporated
Financial Information for Subsidiary and Guarantor Parent
Statements of Operations
For the year ended December 31, 2016

(In millions)	Guarantor Parent	Subsidiary	Non-guarantor Subsidiaries	Eliminations	Consolidated
Sales	$ —	$ 983.6	$ 2,151.0	$ —	$ 3,134.6
Cost of sales	53.4	1,102.0	1,816.7	—	2,972.1
Gross profit (loss)	(53.4)	(118.4)	334.3	—	162.5
Selling and administrative expenses	89.9	32.3	125.5	—	247.7
Restructuring charges	—	25.1	502.1	—	527.2
Operating loss	(143.3)	(175.8)	(293.3)	—	(612.4)
Interest income (expense), net	(138.3)	(70.7)	85.0	—	(124.0)
Other income (expense) including equity in income of unconsolidated subsidiaries	(452.4)	1.0	1.4	452.4	2.4
Income (loss) before income taxes	(734.0)	(245.5)	(206.9)	452.4	(734.0)
Income tax provision (benefit)	(106.9)	(85.5)	(66.7)	152.2	(106.9)
Net income (loss)	(627.1)	(160.0)	(140.2)	300.2	(627.1)
Less: Net income attributable to noncontrolling interest	—	—	13.8	—	13.8
Net income (loss) attributable to ATI	$ (627.1)	$ (160.0)	$ (154.0)	$ 300.2	$ (640.9)

Allegheny Technologies Incorporated
Financial Information for Subsidiary and Guarantor Parent
Statements of Comprehensive Income (Loss)
For the year ended December 31, 2016

(In millions)	Guarantor Parent	Subsidiary	Non-guarantor Subsidiaries	Eliminations	Consolidated
Net income (loss)	$ (627.1)	$ (160.0)	$ (140.2)	$ 300.2	$ (627.1)
Other comprehensive income (loss)					
Currency translation adjustment arising during the period	(47.1)	—	(47.1)	47.1	(47.1)
Net derivative gain on hedge transactions	19.6	—	—	—	19.6
Pension and postretirement benefits	(61.4)	17.2	1.8	(19.0)	(61.4)
Other comprehensive income (loss), net of tax	(88.9)	17.2	(45.3)	28.1	(88.9)
Comprehensive income (loss)	(716.0)	(142.8)	(185.5)	328.3	(716.0)
Less: Comprehensive income attributable to noncontrolling interest	—	—	4.1	—	4.1
Comprehensive income (loss) attributable to ATI	$ (716.0)	$ (142.8)	$ (189.6)	$ 328.3	$ (720.1)

Condensed Statements of Cash Flows
For the year ended December 31, 2016

(In millions)	Guarantor Parent	Subsidiary	Non-guarantor Subsidiaries	Eliminations	Consolidated
Cash flows provided by (used in) operating activities	$ (78.5)	$ (232.3)	$ 291.1	$ (24.0)	$ (43.7)
Investing Activities:					
Purchases of property, plant and equipment	(0.5)	(98.7)	(103.0)	—	(202.2)
Net receipts (payments) on intercompany activity	—	—	(160.0)	160.0	—
Asset disposals and other	—	0.2	2.0	—	2.2
Cash flows provided by (used in) investing activities	(0.5)	(98.5)	(261.0)	160.0	(200.0)
Financing Activities:					
Borrowings on long-term debt	287.5	—	100.0	—	387.5
Payments on long-term debt and capital leases	(0.7)	(0.2)	(1.8)	—	(2.7)
Net borrowings under credit facilities	—	—	3.1	—	3.1
Debt issuance costs	(9.4)	—	(1.0)	—	(10.4)
Net receipts (payments) on intercompany acivity	(170.7)	330.7	—	(160.0)	—
Dividends paid to stockholders	(25.8)	—	(24.0)	24.0	(25.8)
Dividends paid to noncontrolling interests	—	—	(16.0)	—	(16.0)
Acquisition of noncontrolling interests	—	—	(12.2)	—	(12.2)
Cash flows provided by (used in) financing activities	80.9	330.5	48.1	(136.0)	323.5
Increase (decrease) in cash and cash equivalents	$ 1.9	$ (0.3)	$ 78.2	$ —	$ 79.8

Allegheny Technologies Incorporated
Financial Information for Subsidiary and Guarantor Parent
Statements of Operations
For the year ended December 31, 2015

(In millions)	Guarantor Parent	Subsidiary	Non-guarantor Subsidiaries	Eliminations	Consolidated
Sales	$ —	$ 1,453.2	$ 2,266.4	$ —	$ 3,719.6
Cost of sales	27.3	1,643.2	1,988.8	—	3,659.3
Gross profit (loss)	(27.3)	(190.0)	277.6	—	60.3
Selling and administrative expenses	88.2	29.4	121.2	—	238.8
Impairment of goodwill	—	126.6	—	—	126.6
Restructuring charges	1.6	58.0	4.7	—	64.3
Operating income (loss)	(117.1)	(404.0)	151.7	—	(369.4)
Interest income (expense), net	(117.3)	(50.9)	58.0	—	(110.2)
Other income (expense) including equity in income of unconsolidated subsidiaries	(243.6)	1.1	0.8	243.3	1.6
Income (loss) before income taxes	(478.0)	(453.8)	210.5	243.3	(478.0)
Income tax provision (benefit)	(112.1)	(165.7)	51.6	114.1	(112.1)
Net income (loss)	(365.9)	(288.1)	158.9	129.2	(365.9)
Less: Net income attributable to noncontrolling interest	—	—	12.0	—	12.0
Net income (loss) attributable to ATI	$ (365.9)	$ (288.1)	$ 146.9	$ 129.2	$ (377.9)

Allegheny Technologies Incorporated
Financial Information for Subsidiary and Guarantor Parent
Statements of Comprehensive Income (Loss)
For the year ended December 31, 2015

(In millions)	Guarantor Parent	Subsidiary	Non-guarantor Subsidiaries	Eliminations	Consolidated
Net income (loss)	$ (365.9)	$ (288.1)	$ 158.9	$ 129.2	$ (365.9)
Other comprehensive income (loss)					
Currency translation adjustment arising during the period	(37.0)	—	(37.0)	37.0	(37.0)
Net derivative loss on hedge transactions	(32.0)	—	—	—	(32.0)
Pension and postretirement benefits	(19.7)	29.8	3.1	(32.9)	(19.7)
Other comprehensive income (loss), net of tax	(88.7)	29.8	(33.9)	4.1	(88.7)
Comprehensive income (loss)	(454.6)	(258.3)	125.0	133.3	(454.6)
Less: Comprehensive income attributable to noncontrolling interest	—	—	6.4	—	6.4
Comprehensive income (loss) attributable to ATI	$ (454.6)	$ (258.3)	$ 118.6	$ 133.3	$ (461.0)

Condensed Statements of Cash Flows
For the year ended December 31, 2015

(In millions)	Guarantor Parent	Subsidiary	Non-guarantor Subsidiaries	Eliminations	Consolidated
Cash flows provided by (used in) operating activities	$ (70.0)	$ (134.8)	$ 360.2	$ (24.0)	$ 131.4
Investing Activities:					
Purchases of property, plant and equipment	(0.6)	(66.9)	(77.0)	—	(144.5)
Net receipts (payments) on intercompany activity	—	—	(327.9)	327.9	—
Purchases of businesses, net of cash acquired	—	—	(0.5)	—	(0.5)
Asset disposals and other	—	0.2	(0.3)	—	(0.1)
Cash flows provided by (used in) investing activities	(0.6)	(66.7)	(405.7)	327.9	(145.1)
Financing Activities:					
Payments on long-terms debt and capital leases	(0.6)	(0.1)	(22.9)	—	(23.6)
Net receipts (payments) on intercompany activity	137.3	190.6	—	(327.9)	—
Dividends paid to stockholders	(66.5)	—	(24.0)	24.0	(66.5)
Dividends paid to noncontrolling interests	—	—	(16.0)	—	(16.0)
Other	(1.4)	—	1.5	—	0.1
Cash flows provided by (used in) financing activities	68.8	190.5	(61.4)	(303.9)	(106.0)
Increase (decrease) in cash and cash equivalents	$ (1.8)	$ (11.0)	$ (106.9)	$ —	$ (119.7)

Note 20. Commitments and Contingencies

Rental expense under operating leases was $21.1 million in 2017 , $22.6 million in 2016 , and $23.1 million in 2015 . Future minimum rental commitments under operating leases with non-cancelable terms of more than one year at December 31, 2017 , were as follows: $20.0 million in 2018 , $13.5 million in 2019 , $12.5 million in 2020 , $11.3 million in 2021 , $6.2 million in 2022 and $13.9 million thereafter. Commitments for expenditures on property, plant and equipment at December 31, 2017 were approximately $62.8 million .

The Company is subject to various domestic and international environmental laws and regulations that govern the discharge of pollutants and disposal of wastes, and which may require that it investigate and remediate the effects of the release or disposal of materials at sites associated with past and present operations. The Company could incur substantial cleanup costs, fines, and civil or criminal sanctions, third party property damage or personal injury claims as a result of violations or liabilities under these laws or noncompliance with environmental permits required at its facilities. The Company is currently involved in the investigation and remediation of a number of its current and former sites, as well as third party sites.

Environmental liabilities are recorded when the Company’s liability is probable and the costs are reasonably estimable. In many cases, however, the Company is not able to determine whether it is liable or, if liability is probable, to reasonably estimate the loss or range of loss. Estimates of the Company’s liability remain subject to additional uncertainties, including the nature and extent of site contamination, available remediation alternatives, the extent of corrective actions that may be required, and the number, participation, and financial condition of other potentially responsible parties (PRPs). The Company adjusts its accruals to reflect new information as appropriate. Future adjustments could have a material adverse effect on the Company’s consolidated results of operations in a given period, but the Company cannot reliably predict the amounts of such future adjustments.

At December 31, 2017 , the Company’s reserves for environmental remediation obligations totaled approximately $12 million , of which $7 million was included in other current liabilities. The reserve includes estimated probable future costs of $2 million for federal Superfund and comparable state-managed sites; $8 million for formerly owned or operated sites for which the Company has remediation or indemnification obligations; $1 million for owned or controlled sites at which Company operations have been discontinued; and $1 million for sites utilized by the Company in its ongoing operations. The Company continues to evaluate whether it may be able to recover a portion of future costs for environmental liabilities from third parties and to pursue such recoveries where appropriate.

Based on currently available information, it is reasonably possible that the costs for active matters may exceed the Company’s recorded reserves by as much as $15 million . Future investigation or remediation activities may result in the discovery of additional hazardous materials, potentially higher levels of contamination than discovered during prior investigation, and may impact costs of the success or lack thereof in remedial solutions. Therefore, future developments, administrative actions or liabilities relating to environmental matters could have a material adverse effect on the Company’s consolidated financial condition or results of operations.

The timing of expenditures depends on a number of factors that vary by site. The Company expects that it will expend present accruals over many years and that remediation of all sites with which it has been identified will be completed within thirty years.

A number of other lawsuits, claims and proceedings have been or may be asserted against the Company relating to the conduct of its currently and formerly owned businesses, including those pertaining to product liability, patent infringement, commercial, government contracting, construction, employment, employee and retiree benefits, taxes, environmental, health and safety, occupational disease, and stockholder and corporate governance matters. While the outcome of litigation cannot be predicted with certainty, and some of these lawsuits, claims or proceedings may be determined adversely to the Company, management does not believe that the disposition of any such pending matters is likely to have a material adverse effect on the Company’s consolidated financial condition or liquidity, although the resolution in any reporting period of one or more of these matters could have a material adverse effect on the Company’s consolidated results of operations for that period.

Note 21. Selected Quarterly Financial Data
(Unaudited)

	Quarter Ended			
(In millions, except per share amounts)	**March 31**	**June 30**	**September 30**	**December 31**
2017 -				
Sales	$ 865.9	$ 880.2	$ 869.1	$ 909.9
Gross Profit	112.8	112.3	93.3	130.6
Net income (loss)	21.1	13.4	(119.4)	5.2
Net income (loss) attributable to ATI	17.5	10.1	(121.2)	1.7
Basic income (loss) attributable to ATI per common share	$ 0.16	$ 0.09	$ (1.12)	$ 0.01
Diluted income (loss) attributable to ATI per common share	$ 0.16	$ 0.09	$ (1.12)	$ 0.01
Average shares outstanding	108.8	108.9	108.9	118.6
2016 -				
Sales	$ 757.5	$ 810.5	$ 770.5	$ 796.1
Gross Profit (loss)	(33.2)	48.2	50.2	97.3
Net income (loss)	(98.1)	(15.5)	(527.2)	13.7
Net income (loss) attributable to ATI	(101.2)	(18.8)	(530.8)	9.9
Basic income (loss) attributable to ATI per common share	$ (0.94)	$ (0.18)	$ (4.95)	$ 0.09
Diluted income (loss) attributable to ATI per common share	$ (0.94)	$ (0.18)	$ (4.95)	$ 0.09
Average shares outstanding	109.0	108.9	108.9	108.9

Third quarter 2017 includes a $114.4 million pre-tax ($113.6 million , net of tax) non-cash goodwill impairment charge for the Company’s Cast Products business. See Note 4 for further explanation.

Fourth quarter 2017 includes a $37.0 million pre-tax and net of tax debt extinguishment charge for the full redemption of the $350 million , 9.375% Senior Notes due 2019. Fourth quarter 2017 also includes $4.1 million of tax benefits from the 2017 Tax Cuts and Jobs Act legislation. Fourth quarter 2017 shares outstanding reflect the Company's issuance of 17 million shares of common stock on November 7, 2017 (see Note 13 for further explanation).

First quarter 2016 results include a $9.0 million pre-tax ($6.7 million , net of tax) charge for severance obligations in the FRP operations, and $26.4 million pre-tax ($19.7 million , net of tax) of work stoppage and return-to-work costs primarily affecting FRP operations following the ratification of the new labor agreement for USW-represented employees. First quarter 2016 results also include $12.0 million of below-normal income tax benefits compared to those that would apply at a standard 35% tax rate.

Second quarter 2016 results include $22.4 million pre-tax ($8.4 million , net of tax) of work stoppage and return-to-work costs affecting FRP operations, and $11.4 million of above-normal income tax benefits compared to those that would apply at a standard 35% tax rate.

Third quarter 2016 results include $471.3 million pre-tax ($310.3 million , net of tax) long-lived asset impairment charges, $16.3 million pre-tax ($10.7 million , net of tax) of facility shutdown and idling costs, and $11.3 million pre-tax ($7.4 million , net of tax) of inventory valuation charges for titanium sponge. These charges primarily related to the indefinite idling of the Company’s Rowley, UT titanium sponge facility. In addition, third quarter 2016 results include a $173.1 million charge for income tax valuation allowances recorded on U.S. federal deferred tax assets.

Fourth quarter 2016 results include $15.4 million pre-tax ($10.0 million , net of tax) of facility shutdown and idling costs primarily related to the indefinite idling of the Company’s Rowley, UT titanium sponge facility, the consolidation of certain titanium manufacturing operations and the permanent closure of the Midland, PA commodity stainless steel melt and sheet finishing facility and the Bagdad, PA GOES finishing facility. In addition, fourth quarter 2016 results include $13.2 million pre-tax ($8.6 million , net of tax) of employee benefit costs associated with these facility idlings and closures as well as additional FRP severance charges for salaried workforce reductions. Fourth quarter 2016 results also include $32.4 million for above-normal income tax benefits compared to those that would apply at a standard 35% tax rate. The above-normal income tax benefit is due primarily to a $22.5 million correcting adjustment to reduce income tax valuation allowances on U.S. deferred tax assets that were established in the third quarter 2016; the correcting adjustment was not deemed material to the third quarter results.

Net of tax amounts presented above generally use the effective tax rate for the applicable quarterly period which differs from the effective tax rate for the full year. In periods with significant tax valuation allowance adjustments, net of tax amounts use a standard 35% tax rate, with separate identification by quarter of unusual income tax provision or benefit effects.

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

Not applicable.

Item 9A. Controls and Procedures

(a) Evaluation of Disclosure Controls and Procedures.

In accordance with Securities Exchange Act Rules 13-1-15(e) and 15d-15(e), our management, under the supervision of our Chief Executive Officer and Chief Financial Officer, conducted an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the period covered by this Annual Report on Form 10-K. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of December 31, 2017.

(b) Management's Report on Internal Control over Financial Reporting.

Management is responsible for establishing and maintaining adequate internal control over financial reporting for the Company. Internal control over financial reporting is defined in Rules 13a-15(f) and 15d-15(f) promulgated under the Securities Exchange Act of 1934, as amended, as a process designed by, or under the supervision of, the company's principal executive and principal financial officers and effected by the company's board of directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles and includes those policies and procedures that:

Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the company;

Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and

Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the company's assets that could have a material effect on the financial statements.

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

Internal control over financial reporting cannot provide absolute assurance of achieving financial reporting objectives because of its inherent limitations. Internal control over financial reporting is a process that involves human diligence and compliance and is subject to lapses in judgment and breakdowns resulting from human failures. Internal control over financial reporting can also be circumvented by collusion or improper management override. Because of such limitations, there is a risk that material misstatements may not be prevented or detected on a timely basis by internal control over financial reporting. However, these inherent limitations are known features of the financial reporting process. Therefore, it is possible to design into the process safeguards to reduce, though not eliminate, this risk.

The Company's management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2017. In making this assessment, the Company's management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (COSO) in Internal Control-Integrated Framework.

Based on that assessment, the Chief Executive Officer and Chief Financial Officer concluded as of December 31, 2017, the Company's internal control over financial reporting was effective based on those criteria.

The Company's independent registered public accounting firm that audited the consolidated financial statements included in this Annual Report issued an attestation report on effectiveness of the Company's internal control over financial reporting as of December 31, 2017.

(c) Changes to Internal Control over Financial Reporting.

There were no changes to our internal control over financial reporting that occurred during the quarter ended December 31, 2017 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management's Certifications

The certifications of the Company's Chief Executive Officer and Chief Financial Officer required by the Sarbanes-Oxley Act are included as Exhibits 31 and 32 to this Annual Report on Form 10-K. In addition, in 2017, the Company's Chief Executive Officer provided to the New York Stock Exchange the annual CEO certification pursuant to Section 303A regarding the Company's compliance with the New York Stock Exchange's corporate governance listing standards.

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of
Allegheny Technologies Incorporated and Subsidiaries

Opinion on Internal Control over Financial Reporting

We have audited Allegheny Technologies Incorporated and Subsidiaries' internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Allegheny Technologies Incorporated and Subsidiaries (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2017 and 2016, and the related consolidated statements of operations, comprehensive income (loss), cash flows and changes in equity for each of the three years in the period ended December 31, 2017, and the related notes and our report dated February 20, 2018 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

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

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

/s/ Ernst & Young LLP

Pittsburgh, Pennsylvania
February 20, 2018

Item 9B. Other Information

Not applicable.

PART III

Item 10. Directors and Executive Officers of the Registrant

The information concerning our directors required by this item is incorporated and made part hereof by reference to the material appearing under the heading “Our Corporate Governance” and “Election of Directors” and the information concerning our executive officers required by this item is incorporated and made part hereof by reference to the material appearing under the heading “Members of ATI's Executive Management,” in the Allegheny Technologies Proxy Statement for the 2018 Annual Meeting of Stockholders (the “ 2018 Proxy Statement”), which will be filed with the Securities and Exchange Commission, pursuant to Regulation 14A, not later than 120 days after the end of the fiscal year. Information concerning the Audit Committee and its financial expert required by this item is incorporated and made part hereof by reference to the material appearing under the heading “Our Corporate Governance-Board Information- Board Committees” in the 2018 Proxy Statement. Information required by this item regarding compliance with Section 16(a) of the Exchange Act is incorporated and made a part hereof by reference to the material appearing under the heading “Stock Ownership Information- Section 16(a) Beneficial Ownership Reporting Compliance” in the 2018 Proxy Statement.

Allegheny Technologies has adopted *Corporate Guidelines for Business Conduct and Ethics* that apply to all employees including its principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. The *Corporate Guidelines for Business Conduct and Ethics* as well as the charters for the Company’s Audit, Finance, Nominating and Governance, Personnel and Compensation, and Technology Committees, as well as periodic and current reports filed with the SEC, are available through the Company’s website at http://www.atimetals.com and are available in print free of charge to any shareholder upon request. To obtain a copy, contact the Corporate Secretary, Allegheny Technologies Incorporated, 1000 Six PPG Place, Pittsburgh, Pennsylvania 15222-5479 (telephone: 412-394-2800). The Company intends to post on its website any waiver from or amendment to the guidelines that apply to the Company’s Principal Executive Officer, Principal Financial Officer or Principal Accounting Officer or Controller (or persons performing similar functions) that relate to elements of the code of ethics identified by the Securities and Exchange Commission in Item 406(b) of Regulation S-K.

Item 11. Executive Compensation

Information required by this item is incorporated by reference to “Our Corporate Governance- Director Compensation,” “Executive Compensation” and “Compensation Committee Interlocks and Insider Participation” as set forth in the 2018 Proxy Statement.

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

Information relating to the ownership of equity securities by certain beneficial owners and management is incorporated by reference to “Stock Ownership Information” as set forth in the 2018 Proxy Statement.

Equity Compensation Plan Information

Information about our equity compensation plans at December 31, 2017 was as follows:

	(a)		
(In thousands, except per share amounts)	Number of Shares to be Issued Upon Exercise of Outstanding Options, Warrants and Rights (1)	Weighted Average Exercise Price of Outstanding Options, Warrants and Rights (2)	Number of Shares Remaining Available for Future Issuance Under Equity Compensation Plans (3) (excluding securities reflected in column (a))
Equity Compensation Plans Approved by Shareholders	3,017	$ —	5,621
Equity Compensation Plans Not Approved by Shareholders	—	—	—
Total	3,017	$ —	5,621

(1) Includes stock-settled equity awards previously granted under the Allegheny Technologies Incorporate 2015 Incentive Plan (the “2015 Incentive Plan”) and the Allegheny Technologies Incorporate 2017 Incentive Plan (the “2017 Incentive Plan”). Amounts reflected for such performance-based awards represent the maximum number of shares to be awarded at the conclusion of the applicable performance cycle.

(2) Outstanding stock-settled awards are not included in this calculation.

(3) Represents shares available for issuance under the 2017 Incentive Plan (which provides for the issuance of stock options, stock appreciation rights, restricted shares, restricted stock units, performance and other stock-based awards). See Note 13. Stockholders' Equity for a discussion of the Company's stock-based compensation plans.

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

Information required by this item is incorporated by reference to "Related Party Transactions" and "Our Corporate Governance- Board Information- Board Composition and Independence" as set forth in the 2018 Proxy Statement.

Item 14. Principal Accountant Fees and Services

Information required by this item is incorporated by reference to "Ratification of Selection of Independent Auditors" as set forth in the 2018 Proxy Statement.

PART IV

Item 15. Exhibits, Financial Statements and Financial Statement Schedules

(a) Financial Statements, Financial Statement Schedules and Exhibits:

(1) Financial Statements

The following consolidated financial statements and report are filed as part of this report under Item 8 – "Financial Statements and Supplementary Data":

Report of Ernst & Young LLP, Independent Registered Public Accounting Firm

Consolidated Statements of Operations — Years Ended December 31, 2017 , 2016 , and 2015

Consolidated Statements of Comprehensive Income (Loss) — Years Ended December 31, 2017 , 2016 , and 2015

Consolidated Balance Sheets at December 31, 2017 and 2016

Consolidated Statements of Cash Flows — Years Ended December 31, 2017 , 2016 , and 2015

Statements of Changes in Consolidated Equity — Years Ended December 31, 2017 , 2016 , and 2015

Notes to Consolidated Financial Statements

(2) Financial Statement Schedules

All schedules set forth in the applicable accounting regulations of the Securities and Exchange Commission either are not required under the related instructions or are not applicable and, therefore, have been omitted.

(3) Exhibits

Exhibits required to be filed by Item 601 of Regulation S-K are listed below. Documents not designated as being incorporated herein by reference are filed herewith. The paragraph numbers correspond to the exhibit numbers designated in Item 601 of Regulation S-K.

EXHIBIT INDEX

Exhibit No.	Description
3.1	Certificate of Incorporation of Allegheny Technologies Incorporated, as amended (incorporated by reference to Exhibit 3.1 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 1999 (File No. 1-12001)).
3.2	Third Amended and Restated Bylaws of Allegheny Technologies Incorporated (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K dated August 10, 2016 (File No. 1-12001)).
4.1	Indenture dated as of December 15, 1995 between Allegheny Ludlum Corporation and The Chase Manhattan Bank (National Association), as trustee, relating to Allegheny Ludlum Corporation's 6.95% Debentures due 2025 (incorporated by reference to Exhibit 4(a) to Allegheny Ludlum Corporation's Report on Form 10-K for the year ended December 31, 1995 (File No. 1-9498)), and First Supplemental Indenture by and among Allegheny Technologies Incorporated, Allegheny Ludlum Corporation and The Chase Manhattan Bank (National Association), as Trustee, dated as of August 15, 1996 (incorporated by reference to Exhibit 4.1 to Registrant's Current Report on Form 8-K dated August 15, 1996 (File No. 1-12001)).
4.2	Supplemental Indenture, dated as of December 22, 2011, among Allegheny Ludlum Corporation, ALC Merger, LLC, and The Bank of New York Mellon (as successor to The Chase Manhattan Bank (National Association)), as Trustee (incorporated by reference to Exhibit 4.4 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2011 (File No. 1-12001)).
4.3	Indenture, dated June 1, 2009, between Allegheny Technologies Incorporated and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K dated June 3, 2009 (File No. 1-12001)).
4.4	Third Supplemental Indenture, dated January 7, 2011, between Allegheny Technologies Incorporated and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K dated January 7, 2011 (File No. 1-12001)).
4.5	Form of 5.950% Senior Note due 2021 (incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K dated January 7, 2011 (File No. 1-12001)).
4.6	Fourth Supplemental Indenture, dated July 12, 2013, between Allegheny Technologies Incorporated and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K dated July 12, 2013 (File No. 1-12001)).
4.7	Form of 5.875% Senior Note due 2023 (incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K dated July 12, 2013 (File No. 1-12001)).
4.8	Fifth Supplemental Indenture, dated May 24, 2016, between Allegheny Technologies Incorporated and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K dated May 24, 2016 (File No. 1-12001)).
4.9	Form of 4.75% Convertible Senior Note due 2022 (incorporated by reference to Exhibit A to Exhibit 4.2 to the Registrant's Current Report on Form 8-K dated May 24, 2016 (File No. 1-12004)).
10.1	Allegheny Technologies Incorporated Fee Continuation Plan for Non-Employee Directors, as amended (incorporated by reference to Exhibit 10.3 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2004 (File No. 1-12001)).*
10.2	Supplemental Pension Plan for Certain Key Employees of Allegheny Technologies Incorporated and its subsidiaries (formerly known as the Allegheny Ludlum Corporation Key Man Salary Continuation Plan) (incorporated by reference to Exhibit 10.7 to the Company's Annual Report on Form 10-K for the year ended December 31, 1997 (File No. 1-12001)).*
10.3	Allegheny Technologies Incorporated Benefit Restoration Plan, as amended (incorporated by reference to Exhibit 10.8 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 1999 (File No. 1-12001)).*
10.4	Amendment to the Allegheny Technologies Incorporated Pension Plan effective January 1, 2003 (incorporated by reference to Exhibit 10.20 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2003 (File No. 1-12001)).*
10.5	Administrative Rules for the Non-Employee Director Restricted Stock Program, effective as of May 2, 2007, as amended through May 7, 2010 (incorporated by reference to Exhibit 10.5 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2010 (File No. 1-12001)).*
10.6	Allegheny Technologies Incorporated 2007 Incentive Plan As Amended and Restated, effective May 7, 2010 (incorporated by reference to Exhibit 99.1 to the Registrant's Registration Statement on Form S-8 dated May 7, 2010 (File No 333-166628)).*
10.7	Aircraft Time Sharing Agreement, effective as of January 1, 2012, by and between Allegheny Technologies Incorporated and Richard J. Harshman (incorporated by reference to Exhibit 10.34 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2011 (File No. 1-12001)).

Exhibit No.	Description
10.8	Form of Performance/Restricted Stock Agreement dated February 22, 2012 (incorporated by reference to Exhibit 10.3 to the Registrant's Quarterly Report on Form 10- for the quarter ended March 31, 2012 (File No. 1-12001)).*
10.9	Form of Clawback Agreement regarding incentive payments under the Annual Incentive Plan dated March 15, 2012 (incorporated by reference to Exhibit 10.6 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2012 (File No. 1-12001)).*
10.10	Form of Clawback Agreement regarding incentive payments under the long-term incentive plans dated March 15, 2012 (incorporated by reference to Exhibit 10.7 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2012 (File No. 1-12001)).*
10.11	Amendment No. 1 to the Allegheny Technologies Incorporated 2007 Incentive Plan, as Amended and Restated, effective May 11, 2012 (incorporated by reference to Exhibit 99.2 to the Registrant's Registration Statement on Form S-8 dated May 17, 2012 (File No. 333-181491)).*
10.12	Form of Performance/Restricted Stock Agreement dated February 28, 2013 (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2013 (File No. 1-12001)).*
10.13	Amended and Restated Change in Control Severance Agreement between the Company and Richard J. Harshman, dated August 2, 2013 (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2013 (File No. 1-12001)).*
10.14	Form of Amended and Restated Change in Control Severance Agreement (incorporated by reference to Exhibit 10.3 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2013 (File No. 1-12001)).*
10.15	Form of 2014 Performance/Restricted Stock Award Agreement (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2014 (File No. 1-12001)).*
10.16	Form of Amended and Restated Change in Control Severance Agreement (incorporated by reference to Exhibit 10.5 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2014 (File No. 1-12001)).*
10.17	Form of Long Term Shareholder Value Award Agreement (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2015 (File No. 1-12001)).*
10.18	Form of Performance/Restricted Stock Award Agreement (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2015 (File No. 1-12001)).*
10.19	Form of Total Shareholder Return Award Agreement (incorporated by reference to Exhibit 10.3 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2015 (File No. 1-12001)).*
10.20	Allegheny Technologies Incorporated Defined Contribution Restoration Plan, as amended and restated as of January 1, 2015 (incorporated by reference to Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2015 (File No. 1-12001)).*
10.21	Allegheny Technologies Incorporated 2015 Incentive Plan (incorporated by reference to Appendix A to the Registrant's Definitive Proxy Statement filed on March 20, 2015 (File No 1-12001)).*
10.22	Administrative Rules for the Non-Employee Director Restricted Stock Program, effective as of May 1, 2015 (incorporated by reference to Exhibit 10.5 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2015 (File No. 1-12001)).*
10.23	Form of Long Term Incentive Award Agreement (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q filed on May 6, 2016 (File No. 1-12001)).*
10.24	Form of Annual Performance Plan (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q filed on May 6, 2016 (File No. 1-12001)).*
10.25	Allegheny Technologies Incorporated 2017 Incentive Plan (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2017 (File No. 1-12001)).*
10.26	Revolving Credit and Security Agreement, dated as of September 15, 2015, by and among the borrowers party thereto, the guarantors party thereto, the lenders party thereto, PNC Bank, National Association, as Lender and Agent, and PNC Capital Markets LLC, as Sole Lead Arranger and Sole Bookrunner (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K dated September 25, 2015 (File No. 1-12001)).
10.27	First Amendment to Revolving Credit and Security Agreement, dated as of May 13, 2016, by and among the borrowers party thereto, the guarantors party thereto, the lenders party thereto and PNC Bank, National Association, as agent for the lenders (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K dated May 16, 2016 (File No. 1-12001)).
10.28	Acknowledgement Letter Agreement, dated as of July 7, 2016, between TDY Industries, LLC, as borrowing agent, and PNC Bank, National Association, as agent for the lenders (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q filed August 3, 2016 (File No. 1-12001)).).

Exhibit No.	Description
10.29	Second Amendment to Revolving Credit and Security Agreement, dated June 21, 2017, by and among the borrowers party thereto, the guarantors party thereto, the lenders party thereto, and PNC Bank, National Association, in its capacity as agent for the lenders (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed June 27, 2017).
12.1	Computation of Ratio of Earnings to Fixed Charges (filed herewith).
21.1	Subsidiaries of the Registrant (filed herewith).
23.1	Consent of Ernst & Young LLP (filed herewith).
31.1	Certification of Chief Executive Officer required by Securities and Exchange Commission Rule 13a-14(a) or 15d-14(a) (filed herewith).
31.2	Certification of Principal Financial Officer required by Securities and Exchange Commission Rule 13a-14(a) or 15d-14(a) (filed herewith).
32.1	Certification pursuant to 18 U.S.C. Section 1350 (filed herewith).
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

* *Management contract or compensatory plan or arrangement required to be filed as an Exhibit to this Report.*

Certain instruments defining the rights of holders of long-term debt of the Company and its subsidiaries have been omitted from the Exhibits in accordance with Item 601(b)(4)(iii) of Regulation S-K. A copy of any omitted document will be furnished to the Commission upon request.

Item 16. Form 10-K Summary

Not applicable.

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.

ALLEGHENY TECHNOLOGIES INCORPORATED

Date:	February 20, 2018	By	/s/ Richard J. Harshman Richard J. Harshman *Chairman, President and Chief Executive Officer*

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 as of the 20th day of February, 2018 .

/s/ Richard J. Harshman Richard J. Harshman *Chairman, President and Chief Executive Officer and Director*	/s/ Patrick J. DeCourcy Patrick J. DeCourcy *Senior Vice President, Finance and Chief Financial Officer (Principal Financial Officer)*
	/s/ Karl D. Schwartz Karl D. Schwartz *Vice President, Controller and Chief Accounting Officer (Principal Accounting Officer)*
/s/ Carolyn Corvi Carolyn Corvi *Director*	/s/ David J. Morehouse David J. Morehouse *Director*
/s/ Diane C. Creel Diane C. Creel *Director*	/s/ John R. Pipski John R. Pipski *Director*
/s/ James C. Diggs James C. Diggs *Director*	/s/ James E. Rohr James E. Rohr *Director*
/s/ J. Brett Harvey J. Brett Harvey *Director*	/s/ John D. Turner John D. Turner *Director*
/s/ Barbara S. Jeremiah Barbara S. Jeremiah *Director*	

Exhibit 12.1

Allegheny Technologies Incorporated

Computation of Ratio of Earnings to Fixed Charges

(Unaudited)

(Dollars in millions)

For the Years Ended December 31,	2017	2016	2015	2014	2013
Income (loss) from continuing operations before income tax provision and cumulative effect of change in accounting principle	$ (86.5)	$ (734.0)	$ (478.0)	$ 1.5	$ (154.8)
Distributed earnings net of (income) loss recognized on less than fifty percent owned persons	(0.6)	2.3	0.1	8.9	15.3
Noncontrolling interest in the income of subsidiary with fixed charges	(12.2)	(13.8)	(12.0)	(12.2)	(7.6)
	$ (99.3)	$ (745.5)	$ (489.9)	$ (1.8)	$ (147.1)
Fixed Charges:					
Interest expense	$ 130.1	$ 121.6	$ 109.8	$ 107.9	$ 62.3
Portion of rents deemed to be interest	7.0	7.7	7.8	7.6	7.5
Capitalized interest	2.6	4.7	2.2	5.3	45.7
Debt extinguishment charge	37.0	—	—	—	—
Amortization of debt expense	4.8	3.8	1.8	1.9	3.8
Fixed Charges excluding capitalized interest	181.5	137.8	121.6	122.7	119.3
Earnings adjustments:					
Capitalized interest	(2.6)	(4.7)	(2.2)	(5.3)	(45.7)
Earnings, as adjusted	$ 79.6	$ (612.4)	$ (370.5)	$ 115.6	$ (73.5)
Ratio of earnings to fixed charges	— (1)	— (1)	— (1)	— (1)	— (1)

(1) For the years ended December 31, 2017, 2016, 2015, 2014 and 2013, fixed charges exceeded earnings by $101.9 million, $750.2 million, $492.1 million, $7.1 million and $192.8 million, respectively.

Exhibit 21.1

SUBSIDIARIES OF THE REGISTRANT

The following lists the subsidiaries of Allegheny Technologies Incorporated, excluding those subsidiaries which, considered in the aggregate as a single subsidiary, do not constitute a significant subsidiary.

Name of Subsidiary	**State or Country of Incorporation**
ALC Funding Corporation	Delaware
Allegheny Ludlum, LLC	Pennsylvania
ATI Flat Rolled Products Holdings LLC	Pennsylvania
ATI Funding Corporation	Delaware
ATI Ladish LLC	Wisconsin
ATI Operating Holdings, LLC	Delaware
ATI Properties, Inc.	Delaware
Pacific Cast Technologies Inc	Nevada
Shanghai STAL Precision Stainless Steel Company Limited(1)	China
TDY Holdings, LLC	Delaware
TDY Industries, LLC	California

[1] Owned 60% by the registrant and 40% by China Baowu Steel Group Corporation Limited.

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

(1) Registration Statement (Form S-3 No. 333-204209) of Allegheny Technologies Incorporated, and

(2) Registration Statements (Form S-8 Nos. 333-203784, 333-217942, 333-188641, 333-181491, 333-166628, 333-145651, 333-142559, 333-129485, 333-59161, 333-10229, and 333-45965) pertaining to the employee benefit plans of Allegheny Technologies Incorporated;

of our reports dated February 20, 2018 , with respect to the consolidated financial statements of Allegheny Technologies Incorporated and Subsidiaries and the effectiveness of internal control over financial reporting of Allegheny Technologies Incorporated and Subsidiaries included in this Annual Report (Form 10-K) of Allegheny Technologies Incorporated and Subsidiaries for the year ended December 31, 2017 .

/s/ Ernst & Young LLP

Pittsburgh, Pennsylvania

February 20, 2018

Exhibit 31.1

CERTIFICATIONS

I, Richard J. Harshman, certify that:

1. I have reviewed this report on Form 10-K of Allegheny Technologies Incorporated;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this annual report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant’s other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c. Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d. Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

   a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

   b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: February 20, 2018

/s/ Richard J. Harshman

Richard J. Harshman
President and Chief Executive Officer

Exhibit 31.2

CERTIFICATIONS

I, Patrick J. DeCourcy, certify that:

1. I have reviewed this report on Form 10-K of Allegheny Technologies Incorporated;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this annual report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 20, 2018

/s/ Patrick J. DeCourcy

Patrick J. DeCourcy
Senior Vice President, Finance and
Chief Financial Officer

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of Allegheny Technologies Incorporated (the “Company”) on Form 10-K for the period ended December 31, 2017 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), each of the undersigned, in the capacities and on the dates indicated below, hereby certifies pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to his knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 20, 2018

/s/ Richard J. Harshman
Richard J. Harshman
President and Chief Executive Officer

Date: February 20, 2018

/s/ Patrick J. DeCourcy
Patrick J. DeCourcy
Senior Vice President, Finance and
Chief Financial Officer