

AK STEEL HOLDING CORP

Form 10-K

February 15, 2019

050000002000002000002000000050000002018-12-312038-12-31false--12-31FY20180000918160YesfalseLarge Accelerated

FilerfalsefalseNoYesAKS2020-12-312020-12-312020-12-312020-09-302021-12-312019-06-012019-01-012019-01-012019-01-012019-01-01

Credit Facility contains common restrictions, including limitations on, among other things, distributions and dividends, acquisitions and investments, indebtedness, liens and affiliate transactions. The Credit Facility requires that we maintain a minimum fixed charge coverage ratio of one to one if availability under the Credit Facility is less than \$150.0. The Credit Facility's current availability significantly exceeds \$150.0. Availability is calculated as the lesser of the total commitments under the Credit Facility or eligible collateral after advance rates, less outstanding revolver borrowings and letters of credit. We secure our Credit Facility obligations with our inventory and accounts receivable, and the Credit Facility's availability fluctuates monthly based on the varying levels of eligible collateral.0.1080.0710.0830.1080.0710.0830.050.070.076250.063750.0750.05000.0752019-11-152027-03-152021-10-012025-

0000918160 2018-01-01 2018-12-31 0000918160 2019-02-13 0000918160 2018-06-30 0000918160 2016-01-01 2016-12-31 0000918160 2017-01-01 2017-12-31 0000918160 aks:SuncokeMiddletownMember

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**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

WASHINGTON, D.C. 20549

FORM 10-K

Annual Report pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 for the fiscal year ended December 31, 2018

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 No. 1-13696

AK STEEL HOLDING CORPORATION

(Exact name of registrant as specified in its charter)

Delaware

31-1401455

(State or other jurisdiction of incorporation or organization)

(I.R.S. Employer Identification No.)

9227 Centre Pointe Drive, West Chester, Ohio 45069

(Address of principal executive offices)

(Zip Code)

Registrant's telephone number, including area code: **(513) 425-5000**

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

Title of Each Class

Name of Each Exchange on Which Registered

Common Stock \$0.01 Par Value New York Stock Exchange

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

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

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange 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 every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months. Yes No

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company.

Large accelerated filer Accelerated filer Non-accelerated filer

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. Yes No

Indicate by check mark whether the registrant is a shell company as defined in Rule 12b-2 of the Securities Exchange Act of 1934. Yes No

Aggregate market value of the registrant's voting stock held by non-affiliates at June 30, 2018: \$1,359,812,849

There were 316,308,531 shares of common stock outstanding as of February 13, 2019.

DOCUMENTS INCORPORATED BY REFERENCE

The information required to be furnished pursuant to Part III of this Form 10-K will be set forth in, and incorporated by reference from, the registrant's definitive proxy statement for the annual meeting of stockholders (the "2019 Proxy Statement"), which will be filed with the Securities and Exchange Commission not later than 120 days after the end of the fiscal year ended December 31, 2018.

AK Steel Holding Corporation
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(Dollars in millions, except per share and per ton amounts or as otherwise specifically noted)

PART I**Item 1. Business.****Overview**

AK Steel Holding Corporation (“AK Holding”) was formed under the laws of Delaware in 1993. Through its wholly owned subsidiary, AK Steel Corporation (“AK Steel”), it is a leading producer of flat-rolled carbon, stainless and electrical steel products, primarily for the automotive, infrastructure and manufacturing, and distributors and converters markets. Other subsidiaries also provide customer solutions with carbon and stainless steel tubing products, advanced-engineered solutions, tool design and build, hot- and cold-stamped steel components, and complex assemblies. AK Steel is the successor to Armco Inc. and has built upon Armco’s rich history of creating leading-edge steel innovations since its formation in 1899. Unless the context indicates otherwise, references to “we,” “us” and “our” refer to AK Holding and its subsidiaries.

Our mission is to create innovative, high-quality steel solutions for our customers and our key values of safety, quality, productivity and innovation, along with environmental responsibility and sustainability, are its foundation. We have approximately 9,500 employees in North America and Europe, as well as manufacturing operations across seven states in the eastern U.S., Canada and Mexico.

Our corporate strategy is comprised of three pillars:

- commercializing our innovative new products and services;
- transforming our operations to significantly improve our competitive position; and
- driving future growth into new markets and downstream businesses.

Customers and Markets

We target customers who require comprehensive steel solutions that involve the most technically demanding, highest-quality steel products, “just-in-time” delivery, technical support and product development assistance. Our research and engineering expertise, robust product quality and delivery capabilities, as well as our emphasis on collaborative customer technical support and product planning, are critical factors in our ability to serve our customer markets. Our strategy is to focus on markets for our steel solutions that deliver higher margins, where possible, and reduce amounts sold into the typically lower-margin steel spot markets, which have experienced substantial volatility in pricing over the past several years primarily as a result of shifting international trade environments and related effects on the domestic markets we serve.

We sell our products to customers in three broad market categories: (i) automotive; (ii) infrastructure and manufacturing, which includes electrical power; and (iii) distributors and converters. The following table presents the percentage of our net sales to each of these markets:

Market	2018	2017	2016
Automotive	63 %	65 %	66 %
Infrastructure and Manufacturing	15 %	16 %	16 %
Distributors and Converters	22 %	19 %	18 %

We sold approximately 70% of our flat-rolled steel shipments in 2018 under fixed base price contracts. These contracts are typically one year in duration and expire at various times throughout the year. Some of these contracts have a surcharge mechanism that passes through certain changes in input costs. We sold the remainder of our

flat-rolled steel shipments in 2018 into the spot market at prevailing market prices or under annual contracts that have pricing provisions that are typically linked to a steel index with price adjustments based on a prior monthly or quarterly reference point. The increase in the percent of net sales to the Distributors and Converters market in 2018 is reflective of the substantial increase in spot market pricing from 2017 to 2018 and an increase in tons opportunistically sold into that market in 2018 as a result of the favorable conditions.

Automotive Market

The automotive industry is our core market, and we aim to address the principal needs of major automotive manufacturers and their suppliers. We specialize in manufacturing difficult-to-produce, high-quality steel products combined with demanding delivery performance, customer technical support and collaborative relationships to develop breakthrough steel solutions that help our customers meet their product requirements. In addition, many of our competitors do not have the capability to supply all of the

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products that we make for our automotive customers, such as steel for exposed automotive applications, the most sophisticated grades of advanced high-strength steels (“AHSS”) and value-added stainless chrome products. The exacting requirements for servicing the automotive market generally enable us to justify higher selling prices for products sold to that market than for the commodity types of carbon and stainless steels sold to other markets.

In light of the automotive market’s importance to us, North American light vehicle production has a significant impact on our total sales and shipments. North American light vehicle production for 2018 declined slightly to approximately 17.0 million units from the prior year. Demand for SUVs, trucks, crossovers and larger vehicles continued to increase while demand for smaller sedans and compact cars declined, and we benefited from intentionally targeting larger vehicle platforms to take advantage of the trend. Over the past several years, we have focused on and have been successful in getting sourced on numerous SUV, truck, crossover and larger vehicle platforms. As a result, about three-quarters of the carbon automotive steel that we sell is used to produce these popular larger vehicles. In addition to benefiting from our exposure to consumers’ strong demand for larger vehicles, these vehicles also typically contain a higher volume of steel than smaller sedans and compact cars, providing us the opportunity to sell a greater proportion of our steel products to our automotive customers. Ford Motor Company accounted for 11% and 12% of our net sales in 2018 and 2017, and FCA (an affiliate of Fiat Chrysler Automobiles N.V.) accounted for 10% of our net sales in 2018. No other customer represented more than 10% of our net sales in either year.

Automotive manufacturers are under pressure to achieve heightened federally mandated fuel economy standards through 2025 (the Corporate Average Fuel Economy, or “CAFE,” standards). The CAFE standards generally require automobile manufacturers to meet an average fuel economy goal of 54.5 miles per gallon across the fleet of vehicles they produce by the year 2025, with certain milestones to be met in interim periods. The United States Environmental Protection Agency (“EPA”) and the National Highway Traffic Safety Administration have proposed lowering the fuel economy goal under the CAFE standards. However, California and other states continue to maintain the more stringent emissions standards, and certain auto makers have expressed differing preferences for approaches to regulation aimed at improving fuel efficiencies. As a result, our automotive customers continue to explore various avenues for achieving the standards, including lightweighting of components and developing more efficient engines. Lightweighting efforts include testing alternatives to traditional carbon steels, such as AHSS and other materials. While this could reduce the aggregate volume of steel consumed by the automotive industry, we expect that demand will increase for current and next-generation AHSS and that our AHSS and other innovative steels will command higher margins. We are collaborating with our automotive customers and their suppliers to develop innovative solutions using our developments in lightweighting, efficiency, strength and formability across our extensive product portfolio, in combination with our automotive stamping and tube-making capabilities. We are also working with our customers to develop steels with greater heat resistance for exhaust systems that support new, fuel-efficient engines that run at higher temperatures.

Automotive manufacturers have also been increasing their development of hybrid/electric vehicles (“H/EVs”) in order to meet the CAFE standards and growing customer adoption of H/EVs. Many motors used in H/EVs being sold in the U.S. today are imported from foreign suppliers, but more local sourcing and manufacturing of motors may occur in the future. We believe our strong foundation in electrical steels and long-standing relationships with automotive manufacturers and their other suppliers will provide us with an advantage in this market as it grows and matures in the future.

Infrastructure and Manufacturing Market

The infrastructure and manufacturing market primarily represents sales to manufacturers of heating, ventilation and air conditioning equipment, appliances, and power transmission and distribution transformers, who produce equipment for the electrical grid. Domestic construction activity and the replacement of aging infrastructure directly affects sales of our carbon, stainless and electrical steel products, particularly for grain-oriented electrical steel (“GOES”). Housing

starts in the U.S. improved approximately 5% over the prior year, and we expect a general lift in demand for a variety of our steel products if construction accelerates. We also believe that the market growth of H/EVs may require upgrades to the U.S. electrical grid infrastructure to support increased demand for electricity, and thus increased demand for our GOES products.

Over the past couple of years, electrical steel pricing declined in many international markets, which contributed to GOES imports into the U.S. doubling in the first quarter of 2018 from 2017 and suppressing domestic electrical steel pricing in 2018. We continue to assess various alternatives to ensure that foreign producers of GOES are required to comply with U.S. trade laws, including encouraging the vigorous enforcement of existing laws and regulations.

Distributors and Converters Market

Steel distributors and converters typically source from the commodity carbon, stainless and electrical spot markets. Demand and pricing can be highly dependent on a variety of factors outside our control, including global and domestic commodity steel production capacity, the relative health of countries' economies and whether they are consuming or exporting excess steel capacity, the provisions of international trade agreements and fluctuations in international currencies and, therefore, are subject to a high degree of volatility.

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Because of this volatility and our strategy to focus on value-added products, we have taken deliberate actions to reduce our exposure to these commodity markets.

Geographic Presence

We sell our carbon steel products principally to customers in North America, and we sell our electrical and stainless steel products primarily in North America and Europe. Our customer base is geographically diverse and there is no single country outside the U.S. where our sales are material compared to our total net sales.

Research, Innovation and Operations

Rapidly evolving and highly competitive markets require our customers to seek new, comprehensive steel solutions, and we believe we are well positioned to deliver the most responsive solutions through our broad portfolio of offerings. We are the only steelmaker in North America that can produce all three major categories of flat-rolled steels: carbon, stainless and electrical. In addition to our flat-rolled steels, our broad product portfolio includes carbon and stainless tubular products, sophisticated tool and die designs, and lightweight, complex, hard-to-manufacture components and sub-assemblies for the automotive market. The collaboration across our steel, tube-making, stamping and materials research groups results in the generation of more innovative and comprehensive solutions for our customers, which we believe improves our competitive advantage.

Creating innovative products and breakthrough solutions is a strategic priority, as we believe differentiation through higher value steels to meet challenging requirements enables us to maintain and enhance our margins. We conduct a broad range of research and development activities aimed at improving existing products and processes and developing new ones. Our tradition of leading steel innovation has produced a highly diversified flat-rolled steel product portfolio. In recent years, we have increased our commitment to research and development with greater investment, both in personnel and capabilities. One of these investments, our state-of-the-art Research and Innovation Center in Middletown, Ohio, has resulted in enhanced technical collaboration and increased introduction of new steel solutions to the marketplace.

Awards and Recognition

We are unwavering in our quality expectations, and we take a planned approach to continuously improve our products, processes and services. This approach is key to our strategic partnerships with our customers, and we received several noteworthy awards from them in 2018. In April, we were the only North American steelmaker recognized as a “GM Supplier of the Year” for 2017 for superior performance in quality, execution, innovation and total enterprise cost. In May, both the American Iron and Steel Institute (“AISI”) and the Auto/Steel Partnership recognized AK Steel Research and Innovation employees for distinguished research in steel forming behavior and pre-competitive steel solutions in future vehicle designs.

In October, the U.S. Department of Energy (“DOE”) selected us to receive an award of up to \$1.2 under the Office of Energy Efficiency and Renewable Energy’s Advanced Manufacturing Office program to investigate novel low-density steels, which may ultimately be used in automotive structural applications. The three-year project will be conducted in collaboration with the DOE, Oak Ridge National Laboratory Materials Science and Technology Division, and the Advanced Steel Processing and Products Research Center at the Colorado School of Mines. The objective of the project is to conduct alloy design, laboratory validation, and testing of low-density steels that are alternatives to currently available advanced high strength steels and other lightweight metals. These low-density steels are expected to generate energy savings by bringing efficiencies in manufacturing and lifetime savings in automotive structural applications. This was the second award that we have received from the DOE in the past two years. We are currently in the second year of a three-year project awarded to us in May 2017 by the DOE to develop the next generation of

advanced non-oriented electrical steel (“NOES”) for motors used in a wide variety of industrial and automotive applications. Laboratory proof of concept for this project has been successfully completed and industrial scale trials are currently underway.

Carbon Steel

We sell flat-rolled carbon steel products, consisting of premium-quality coated, cold-rolled, and hot-rolled carbon steel products, primarily to automotive manufacturers and their suppliers, as well as to customers in the infrastructure and manufacturing market. We also sell carbon steel products to distributors, service centers and converters, who may further process these products before reselling them. We are particularly focused on AHSS for the automotive market, and we produce virtually every AHSS grade currently used by our customers. Our AHSS grades, such as Dual Phase 590, 780 and 980, have been adopted by our customers for both stamped and roll-formed parts. Looking forward, our NEXMET 1000 and 1200 grades provide even greater enhancements in strength and formability, and represent the next generation of automotive lightweighting steels for cold-stamping operations.

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Press-Hardenable Steel

We also provide press-hardenable steel (“PHS”) products for hot-stamping applications. Our ULTRALUME® PHS is an aluminized Type 1 heat-treatable boron steel. Our customers depend on ULTRALUME PHS when they require high-strength parts with complex geometries. These steels enable automotive manufacturers to reduce vehicle weight while continuing to keep pace with critical safety requirements.

Third-Generation Advanced High-Strength Steel

We continue to expand our portfolio of third-generation AHSS. Our NEXMET® 440EX product was developed for use in surface-critical, exposed auto body panels. Our NEXMET 1000 and NEXMET 1200 AHSS products enable our customers to achieve significant lightweighting in the unexposed structural components of their vehicles. NEXMET 1200, for example, offers better formability than conventional Dual Phase 600 steel, at twice the strength level. These AHSS products allow automotive engineers to design lightweight parts that meet rigorous service and safety requirements. Product qualification is presently underway with several automotive original equipment manufacturers (“OEMs”) for both galvanized and cold-rolled NEXMET 1000 and NEXMET 1200 AHSS. Also, a number of stamping trials have been completed successfully. The NEXMET family of steels helps our customers achieve vehicle weight savings for ambitious fuel efficiency standards while avoiding significant capital costs required to re-design production facilities to use alternative materials.

Specialty Stainless and Electrical Steel

We continue to develop new and improved specialty stainless and electrical steels for a variety of applications in the automotive, infrastructure and manufacturing, and other markets. For example, we are working with our automotive customers and their exhaust system suppliers to develop new stainless steels for exhaust systems that can withstand higher exhaust gas temperatures associated with future engine designs to achieve increased fuel economy. These steels exhibit improved thermal fatigue and corrosion resistance over currently available materials. We are also developing stainless steels with unique cosmetic appearances (specialized finishes and colors) for use in architectural and appliance applications.

We are a global leader in producing the highest-quality electrical steel products, and our electrical steels are among the most energy efficient in the world. We sell our electrical steel products, which are iron-silicon alloys with unique magnetic properties, primarily to manufacturers of power transmission and distribution transformers and electrical motors and generators, in the infrastructure and manufacturing markets. These customers require high-quality steels with low core losses and high magnetic permeability for the production of efficient electrical transformers, which help to lower costs of electricity generation, transmission and distribution.

We focus on the high-end of the electrical steel market, as GOES is technically challenging to produce and typically commands a higher selling price than grades of NOES. In the second quarter of 2018, we launched our TRAN-COR® X product, which is a high-permeability GOES that will help transformer manufacturers design to higher levels of efficiency while reducing greenhouse gas emissions due to energy loss in electricity transmission and distribution. High-permeability GOES products represent the most technologically advanced and highest-efficiency electrical steels in the world. We believe the superior efficiency of our GOES products is attractive to customers in markets with increasing efficiency standards, such as Europe and the United States. We also continue to work with automotive OEMs and their suppliers to qualify DI-MAX® HF-10X, both as a semi-processed and fully processed NOES designed to meet specific OEM requirements for use in high-speed motors, traction motors, aircraft generators and certain other rotating equipment.

Downstream Steel Applications

In 2017, we expanded our portfolio of steel solutions by acquiring PPHC Holdings, LLC (“Precision Partners”), which provides advanced-engineered solutions, tool design and build, hot- and cold-stamped components and complex assemblies for the automotive market. In addition to Precision Partners, our downstream operations include Combined Metals of Chicago, LLC and AK Tube LLC (“AK Tube”), which manufactures advanced tubular products for automotive and other applications using carbon and stainless steels. We believe that collaboration among Precision Partners, AK Tube and our steelmaking operations can accelerate the adoption of our innovative steel products by automotive manufacturers and their Tier 1 suppliers by enabling us to provide them with steel solutions, rather than simply offering steel.

Our research and technical experts, along with engineers from Precision Partners and AK Tube, have undertaken numerous collaborative projects that are generating robust solutions for our customers. Precision Partners’ expertise in tool design and stamping capabilities has allowed us to create prototype components using AK Steel’s innovative new materials and present customers with new potential steel solutions. This approach has and will continue to demonstrate to customers that they can significantly lightweight automotive parts on an accelerated timeline and in a cost-effective manner by using our highly formable grades of AHSS in place of traditional lower-strength grades.

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In addition, our collaborative projects are enhancing our collective knowledge and experience in the stamping of new, advanced grades of steel, advanced-engineered solutions, and tool design and build. For example, Precision Partners specializes in hot-stamping PHS for automotive applications. AK Steel's experience as a leader in PHS and Precision Partners' expertise in hot-stamping has enabled these teams to have greater insight into these high-growth areas and has accelerated product development and customer adoption of these automotive lightweighting solutions. Likewise, collaboration with AK Tube strategically advances our mission to innovate in AHSS for the automotive industry, as AK Tube has been at the forefront of producing tubular products from third-generation AHSS. We believe the combination of Precision Partners' stamping and advanced die-making capabilities, AK Tube's leading tubemaking capabilities and AK Steel's breakthrough material introductions will enhance our ability to deliver innovative, steel solutions to our customers.

Precision Partners was recently awarded a contract with a major automotive manufacturer to supply a body-side outer subassembly, consisting of a single-piece hot-stamped door ring. They were also awarded a second single-piece hot-stamped door ring on another vehicle platform by a key Tier 1 supplier. Taken together, the two awards represent approximately \$50.0 of projected annual stamping and assembly revenue beginning in mid-2020, in addition to revenue from a large, one-time tooling award. In winning these contracts, Precision Partners has been able to leverage its hot-stamping tooling leadership, in addition to their innovative hot-stamping process, to capture new strategic opportunities and demonstrate that they are one of the few companies in North America that has the technical capabilities to produce a major subassembly and stamping job of this nature.

Sustainability

We are committed to operating in a sustainable manner. Beyond ensuring that we are acting responsibly to serve our communities and the environment, sustainably operating our company also provides us opportunities to grow our business, increase customer collaboration and loyalty, attract, retain and motivate employees, and differentiate us from our competition. Steel is the most recycled material on the planet—more than aluminum, plastic, paper and glass combined each year—which provides a strong foundation for our sustainability efforts. In May 2018, we issued our 2017 Sustainability Report, which provides significantly increased disclosure and transparency regarding our corporate-wide sustainability efforts and highlights our efforts to support our employees, encourage diversity and inclusion, contribute to our communities, and demonstrate our commitment to the environment, among other items. We also disclose our steelmaking operations' energy and water usage, emissions, waste generation and targets for reducing our environmental footprint. In addition, our Sustainability Report includes our scope 1 greenhouse gas emissions, which are generally direct emissions from owned or controlled sources, and reduction targets for those emissions. Our Sustainability Report (which is not incorporated into this Annual Report) can be found in the "Corporate Citizenship" section of our website at www.aksteel.com.

Employee Safety

Our employees and their safety are of paramount importance to us. Our occupational health and safety policies and programs are the cornerstone of our operating philosophy and are integrated into all of our daily operations and activities. We rigorously manage, control and focus on eliminating or minimizing potential exposure to the hazards associated with making and working around steel. Our low recordable injury rate, based on U.S. Occupational Safety and Health Administration ("OSHA") criteria, reflects our effectiveness in protecting our employees. In 2018, three of our facilities operated with zero OSHA recordable injuries for the entire year, and seven of our facilities operated with zero OSHA recordable injuries during the fourth quarter. Our 2018 performance at our steelmaking facilities (year-to-date through the third quarter, which is the latest industry information currently available), measured as the number of OSHA recordable injuries per 200,000 labor hours, was 0.64, which was more than two times better than the industry average.

We consistently lead the U.S. steel industry in safety, outperforming the steel industry average injury frequencies for each of the last ten years, and we have received numerous awards recognizing our safety performance. In May, the American Coke and Coal Chemicals Institute, a leading industry trade organization, granted both our Middletown Works and our Mountain State Carbon coke plants the Max Eward Safety Award for 2017 for operating the safest cokemaking facilities in America. In July, our Coshocton Works and Zanesville Works both received the “Special Award for Safety” from the Ohio Bureau of Workers’ Compensation, division of Safety and Hygiene (“Ohio BWC”), recognizing more than 500,000 hours and at least six months without an injury resulting in a day or more away from work. In 2018, Zanesville Works also received the Ohio BWC’s “100% Award,” recognizing zero injuries or illnesses resulting in a day or more away from work during the previous year.

Environmental Responsibility

We maintain an unwavering commitment to responsible environmental performance throughout our operations. In 2018, we experienced another year of outstanding overall environmental performance. In addition, to emphasize and reinforce the importance of sustainability and environmental responsibility at the company and to continue to drive improved performance in these areas, in January 2018 our Board of Directors incorporated an environmental performance component into our annual management incentive

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plan. After assessing a variety of potential performance categories to incorporate, including an evaluation of areas most ripe for improvement, the Board chose to include air permit deviation events as a category for measuring performance under our annual management incentive plan for 2018. An air permit deviation event occurs when an event at our steelmaking operations results in noncompliance under the Title V air permits that govern those facilities. In 2018, we had our best performance in the past five years in terms of air permit deviation events, recording our lowest annual total during that period.

We believe that our strong environmental performance is a direct result of the proactive approach we take to environmental management and the close collaborative efforts that we employ across the company. We target sustainable performance in all aspects of our operations, including continuous improvement in operations that include air, water and waste management. Our comprehensive environmental policy provides that we will:

- commit the necessary resources to comply with all applicable environmental laws, regulations, permits and agreements applicable to us;
- reduce environmental risks through operating practices and emergency preparedness programs;
 - encourage recycling, recovery and reuse of residual materials, as well as the reduction and prevention of emissions and releases when feasible;
- participate in efforts to develop and implement environmental laws and regulations;
- continually evaluate compliance with applicable environmental laws and regulations; and
- strive for continually improving the effectiveness of our environmental management efforts.

Certain production units in our operations are inherently water-intensive. However, we continuously seek opportunities to reduce water usage and increase water reuse at our steelmaking plants. In addition, our steelmaking facilities are located near abundant sources of water and we do not believe that any of those operations are located in regions that experience high water stress.

The International Organization for Standardization (“ISO”) has certified all of our steelmaking plants with ISO 14001 environmental management certification, and our environmental affairs professionals oversee environmental compliance throughout our organization. We also invest heavily in equipment to help meet our environmental objectives. For example, in 2018, we spent \$126.3 to operate and maintain our environmental controls and invested \$7.1 in environmental projects. In 2019, we plan to invest approximately \$6.0 at our Rockport Works to begin installation of a more modern, environmentally friendly and lower-cost pickling process.

Strategic Opportunities Related to Climate Change

Our strategy of creating new innovative steel solutions and improving existing products enables us to contribute to carbon reduction efforts and the achievement of sustainability goals throughout the product supply chain. Innovative products in each of the carbon, stainless, electrical and tubular steel families further the sustainability goals of many of our customers. For example, in the automotive market our customers are benefiting from our carbon lightweighting solutions to meet their heightened fuel economy targets under the CAFE standards. We are also providing customers with stainless steel and tubular solutions that allow for greater heat resistance in vehicle exhaust systems, enabling exhaust systems to handle the higher engine exhaust temperatures needed for increased fuel economy. In addition, we continue to develop higher-efficiency NOES products for use in future H/EVs and GOES products for their required infrastructure, a market that we anticipate will grow over time. Our steels also contribute to sustainability goals beyond the automotive market. For instance, our GOES products are among the highest-efficiency electrical steels in the world. These GOES products provide low core loss and high magnetic permeability to move electricity across electrical grids in the U.S. and around the world more efficiently through better-performing electrical transformers.

While greenhouse gas emissions are a natural byproduct of steel manufacturing today, we continue to take steps to increase energy efficiency while remaining competitive in the global steel marketplace. For example, through the American Iron and Steel Institute (“AISI”), we participate in the DOE’s Climate VISION agreement. This program assists domestic steelmakers in their continued efforts to lead the global steel sector in voluntary emissions reductions. We are also a member of the federal ENERGY STAR program, which identifies and promotes energy-efficient products to help reduce greenhouse gas emissions. ENERGY STAR is a joint program of the EPA and the DOE, helping businesses and consumers save money and protect the environment through energy-efficient products and practices. As with other companies engaged in the production of steel, certain aspects of our production process are carbon-intensive and current technology does not currently afford us the ability to dramatically lower our direct greenhouse gas emissions without significantly reducing the scope of our operations. However, we and other steel producers in the United States are actively participating in research and development to develop technology, processes and approaches to reduce emissions during the steelmaking processes, but these developments are likely to occur over the longer term.

In addition, the production phase of steelmaking is less carbon-intensive than the processes for producing certain other competing materials, such as aluminum. Thus, while the CAFE standards have motivated the use of alternative materials in some vehicles to help achieve lightweighting goals, we intend to continue to educate governments, the automotive industry and other key stakeholders that

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steel is the most sustainable metal to reduce greenhouse gas emissions across the entire life cycle of a vehicle. These benefits are made even greater when utilizing our advanced steel products for vehicle lightweighting.

As discussed above, we began to share more information publicly during 2018 on greenhouse gas emissions from our steelmaking operations and our targeted emissions reductions. Our Sustainability Report issued in May 2018 included an inventory of our scope 1 greenhouse gas emissions at our steelmaking plants, along with time-bound, quantitative targets for reducing scope 1 greenhouse gas emissions at those plants. Over time, we also plan to expand our efforts to scope 2 greenhouse gas emissions, which generally are indirect emissions from purchased energy sources, as we develop our internal systems for tracking and targeting scope 1 greenhouse gas reductions.

Production Resources

Employees

Approximately 5,700 of our 9,500 employees are represented by labor unions. The labor contracts covering these represented employees expire between 2019 and 2021. See the discussion under *Labor Agreements* in Item 7 for additional information on these agreements.

In October, we partnered with the International Association of Machinists, Local Lodge 1943, to launch an apprenticeship program at our Middletown Works. The Ohio Department of Job and Family Services approved the apprenticeship standards, and the program gives union production employees the opportunity to train to become fully accredited journeymen through classroom work and job training. We have similar programs at other locations.

Raw Materials and Other Inputs

Our steel manufacturing operations require carbon and stainless steel scrap, coal, coke, chrome, iron ore, nickel and zinc as primary raw materials. We also use natural gas, electricity, graphite electrodes and industrial gases. We typically purchase carbon and stainless steel scrap, natural gas, a substantial portion of our electricity and most other raw materials at prevailing market prices, which may fluctuate with market supply and demand. However, we make most of our purchases of iron ore, coke, industrial gases and a portion of our electricity at negotiated prices under annual or multi-year agreements with periodic price adjustments. We purchase substantially all of our iron ore from one supplier under multi-year contracts. We typically purchase most of our metallurgical coal under annual fixed-price agreements, but we also obtain approximately 15% of our metallurgical coal needs from our own mine at AK Coal. Additionally, we may hedge portions of our energy and raw materials purchases to reduce volatility and risk, which is discussed in more detail in *Quantitative and Qualitative Disclosures about Market Risk* in Item 7A.

We also attempt to reduce the risk of future supply shortages and price volatility in other ways. If multi-year contracts are available in the marketplace, we may use these contracts to secure sufficient supply to satisfy our key raw material needs. When multi-year contracts are not available, or are not available on acceptable terms, we purchase the remainder of our raw materials needs under annual contracts or make spot purchases. We also regularly evaluate alternative sources and substitute materials. We believe that we have secured, or will be able to secure, adequate supply sources for our raw materials and energy requirements for 2019.

Competition

We principally compete with domestic and foreign producers of flat-rolled carbon, stainless and electrical steel, carbon and stainless tubular products, aluminum, carbon fiber, concrete and other materials that may be used as a substitute for flat-rolled steels in manufactured products. Precision Partners competes against other tooling and stamping companies in a highly fragmented market.

Price, quality, on-time delivery, customer service and product innovation are the primary competitive factors in the steel industry and vary in importance according to the product category and customer requirements. Steel producers that sell to the automotive market face competition from aluminum manufacturers (and, to a lesser extent, other materials) as automotive manufacturers attempt to develop vehicles that will enable them to satisfy more stringent, government-imposed fuel efficiency standards. To address automotive manufacturers' lightweighting needs that the aluminum industry is targeting, we and others in the steel industry are developing AHSS grades that we believe provide weight savings similar to aluminum, while being stronger, less costly, more sustainable, easier to repair and more environmentally friendly. In addition, our automotive customers who continue to use steel, as opposed to aluminum and other alternative materials, are able to avoid the significant capital expenditures required to re-tool their manufacturing process to accommodate the use of non-steel materials.

Mini-mills generally offer a narrower range of products than integrated steel mills, but have been expanding their product capabilities in recent years. In addition, mini-mills have some competitive cost advantages as a result of their different production processes and

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lower labor costs associated with what are often non-union workforces. However, mini-mills do not have the equipment capabilities to produce the product range that we offer, nor do they possess our depth of research and development.

Domestic steel producers, including us, face significant competition from foreign producers. For many reasons, these foreign producers often are able to sell products in the U.S. at prices substantially lower than domestic producers. Depending on the country of origin, these reasons may include generous government subsidies; lower labor, raw material, energy and regulatory costs; less stringent environmental regulations; less stringent safety requirements; the maintenance of artificially low exchange rates against the U.S. dollar; and preferential trade practices in their home countries. In recent years, the annual level of imports of foreign steel into the United States has increased over historical levels and is affected to varying degrees by the relative level of steel production in China and other countries, the strength of demand for steel outside the U.S. and the relative strength or weakness of the U.S. dollar against various foreign currencies. Imports of finished steel into the United States accounted for approximately 23%, 27% and 26% of domestic steel market consumption in 2018, 2017 and 2016, levels that are higher than the historic norm.

We continue to provide pension and healthcare benefits to a great number of our retirees, resulting in a competitive disadvantage compared to certain other domestic and foreign steel producers that do not provide such benefits to any or most of their retirees. However, we have taken a number of actions to reduce pension and healthcare benefits costs, including negotiating progressive labor agreements that have significantly reduced total employment costs at all of our union-represented facilities, transferring all responsibility for healthcare benefits for various groups of retirees to Voluntary Employee Benefits Association trusts, offering voluntary lump-sum settlements to pension plan participants, lowering retiree benefit costs for salaried employees, and transferring pension obligations to highly rated insurance companies. These actions have not only reduced some of the risks associated with our pension fund obligations, but more importantly have reduced our risk exposure to the financial markets that drive pension funding requirements. We continue to actively seek opportunities to reduce pension and healthcare benefits costs.

Executive Officers of the Registrant

The following table provides the name, age and principal position of each of our executive officers as of February 13, 2019:

Name	Age	Position
Roger K. Newport	54	Chief Executive Officer
Kirk W. Reich	50	President and Chief Operating Officer
Joseph C. Alter	41	Vice President, General Counsel and Corporate Secretary
Brian K. Bishop	47	Vice President, Carbon Steel Operations
Stephanie S. Bisselberg	48	Vice President, Human Resources
Renee S. Filiatraut	55	Vice President, Litigation, Labor and External Affairs
Gregory A. Hoffbauer	52	Vice President, Controller and Chief Accounting Officer
Michael A. Kercksmar	47	Vice President, Specialty Steel Operations
Scott M. Lauschke	49	Vice President, Sales and Customer Service
Maurice A. Reed	56	Vice President, Strategic Planning and Business Development
Christopher J. Ross	51	Vice President and Treasurer
Jaime Vasquez	56	Vice President, Finance and Chief Financial Officer

Roger K. Newport has served as Chief Executive Officer since January 2016. Prior to that, Mr. Newport served as Executive Vice President, Finance and Chief Financial Officer since May 2015. Prior to that, Mr. Newport served as Senior Vice President, Finance and Chief Financial Officer since May 2014, and as Vice President, Finance and Chief Financial Officer since May 2012. Prior to that, Mr. Newport served in a variety of other capacities since joining us in

1985, including Vice President—Business Planning and Development, Controller and Chief Accounting Officer, Assistant Treasurer, Investor Relations, Manager—Financial Planning and Analysis, Product Manager, Senior Product Specialist and Senior Auditor.

Kirk W. Reich has served as President and Chief Operating Officer since January 2016. Prior to that, Mr. Reich served as Executive Vice President, Manufacturing since May 2015. Before assuming that role, Mr. Reich served as Senior Vice President, Manufacturing since May 2014, and as Vice President, Procurement and Supply Chain Management since May 2012. Prior to that, Mr. Reich served in a variety of other capacities since joining us in 1989, including Vice President—Specialty Steel Operations, General Manager—Middletown Works, Manager—Mobile Maintenance/Maintenance Technology, General Manager—Mansfield Works, Manager—Processing and Shipping, Technical Manager, Process Manager and Civil Engineer.

Joseph C. Alter has served as Vice President, General Counsel and Corporate Secretary since May 2015. Prior to that, Mr. Alter served as Vice President, General Counsel and Chief Compliance Officer since May 2014 and Assistant General Counsel, Corporate and

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Chief Compliance Officer since December 2012. Since joining us in 2009, Mr. Alter served as Corporate Counsel and Chief Compliance Officer and as Corporate Counsel. Prior to joining us, Mr. Alter was Corporate Counsel at Convergys Corporation and an attorney with the law firm of Keating Muething & Klekamp PLL.

Brian K. Bishop has served as Vice President, Carbon Steel Operations since March 2016. Prior to that, Mr. Bishop served as Director, Carbon Steel Operations since July 2015 and General Manager, Dearborn Works since September 2014. Prior to that, Mr. Bishop was General Manager—Maintenance, Repair and Operations Purchasing since May 2013. Since joining us in 1995, Mr. Bishop progressed through a number of positions, including General Manager—Middletown Works, General Manager—Mansfield Works, Manager—Occupational Safety and Health and Shift Manager at Middletown Works.

Stephanie S. Bisselberg has served as Vice President, Human Resources since April 2013. She also served as Assistant General Counsel—Labor, Labor Counsel and Assistant Labor Counsel since joining us in 2004. Prior to joining us, Ms. Bisselberg was an attorney with the law firm of Taft, Stettinius and Hollister LLP.

Renee S. Filiatraut has served as Vice President, Litigation, Labor and External Affairs since May 2014. Prior to that, Ms. Filiatraut served as Assistant General Counsel, Litigation since December 2012. Before joining us as Litigation Counsel in 2011, Ms. Filiatraut was a Partner with Thompson Hine LLP.

Gregory A. Hoffbauer has served as Vice President, Controller and Chief Accounting Officer since January 2016. Prior to that, Mr. Hoffbauer served as Controller and Chief Accounting Officer since February 2013. Before joining us as Assistant Controller in 2011, Mr. Hoffbauer was Director of Accounting with NewPage Corporation. Mr. Hoffbauer also was Controller for Day International, Inc. and served in a number of increasingly responsible accounting and auditing positions for Deloitte & Touche LLP, including Audit Senior Manager.

Michael A. Kerksmar has served as Vice President, Specialty Steel Operations since March 2016. Prior to that, Mr. Kerksmar served as Director, Specialty Steel Operations since July 2015 and General Manager, Coshocton Works and Zanesville Works since June 2013. Mr. Kerksmar served in a number of roles since joining us in 1997, including General Manager—Mansfield Works, Manager—Occupational Safety and Health at Middletown Works, Department Manager—South Coating, and Shift Manager in the cold strip mill at Middletown Works.

Scott M. Lauschke has served as Vice President, Sales and Customer Service since joining us in February 2015. Before joining us, Mr. Lauschke was Vice President and General Manager of AFGlobal Corporation from July 2013 through November 2014. Before that, Mr. Lauschke served in various roles of increasing responsibility at The Timken Company, including General Sales Manager.

Maurice A. Reed has served as Vice President, Strategic Planning and Business Development since August 2018. Prior to that, he served as Vice President, Engineering, Raw Materials and Energy since May 2012. Prior to that, Mr. Reed served in a variety of other capacities since joining us in 1996, including Director—Engineering and Raw Materials, Director—Engineering and Energy, General Manager—Engineering, Operations Support and Primary Process Research and General Manager—Engineering. Before joining us, Mr. Reed held a number of increasingly responsible engineering technology positions for National Steel Corporation.

Christopher J. Ross has served as Vice President and Treasurer since January 2018. Prior to that, Mr. Ross was Treasurer since February 2016 and General Manager, Cash Management and Finance since August 2012. Mr. Ross served in a number of roles since joining us in 1997, including General Manager—Strategic Planning and Financial Analysis, General Manager—Investor Relations and Diversified Business Group, Assistant Treasurer, Manager—Investor Relations, Product Manager—Hot Dip Galvanized and Electrogalvanized, Senior Accountant—Financial Planning and Analysis and Cost Accountant at Middletown Works.

Jaime Vasquez has served as Vice President, Finance and Chief Financial Officer since January 2016. Before joining us in September 2014 as Director, Finance, Mr. Vasquez held several positions with Carpenter Technology Corporation, including Vice President, Chief Financial Officer for the Performance Engineered Products Group from October 2013; Vice President, Corporate Development; President, Asia Pacific; and Vice President, Treasurer and Investor Relations.

Available Information

We maintain a website at www.aksteel.com. Information about us is available on the website free of charge, including 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. Such information is posted to the website as soon as reasonably practicable after submission to the Securities and Exchange Commission. Information on our website is not incorporated by reference into this report.

Table of Contents**Item 1A. Risk Factors.**

We caution readers that our business activities involve risks and uncertainties that could cause actual results to differ materially from those we currently expect. While the items listed below represent the most significant risks to us, we regularly monitor and report risks to the Board of Directors through a formal Total Enterprise Risk Management program.

Risk of reduced selling prices, shipments and profits associated with a highly competitive and cyclical industry.

The competitive landscape in the steel industry reflects shifting domestic and international political priorities, an uncertain global trade landscape, and intense competition from domestic and foreign competitors producing steel and substitute products. These conditions directly impact our pricing. It is impossible to predict whether the domestic and/or global economies or industry sectors of those economies that are key to our sales will continue to improve and generate enough demand to absorb some of the existing excess capacity in the steel industry, as well as new or expanded capacity. Also, we cannot know how customers or competitors will react to these and other factors and how their actions could affect market dynamics and sales of, and prices for, our products. Market price and demand for steel are very hard to predict and decreases in either or both could adversely impact our sales, financial results and cash flows. In addition, our direct sales to the automotive industry generate approximately 63% of our revenue and we make additional sales to distributors and converters whom, we believe, ultimately resell some of that volume to the automotive market. If automotive demand should decline substantially or we lose market share to competitors, our sales, financial results and cash flows could be severely impacted.

Risk of domestic and global steel overcapacity. Significant global steel capacity and new or expanded production capacity in the United States in recent years has caused and continues to cause capacity to exceed demand globally, as well as in our primary markets in North America. In fact, significant increases in production capacity and a restart of previously idled capacity in the U.S. by our competitors has occurred in recent periods, as new carbon and stainless steelmaking and finishing facilities have begun or may soon begin production. In addition, foreign competitors have substantially increased their production capacity in the last few years and, in some instances appear to have targeted the U.S. market for imports. Also, some foreign economies, such as China, seem to be slowing relative to recent historical norms, resulting in an increased volume of steel products that cannot be consumed by industries in those foreign steel producers' own countries. These and other factors have contributed to a high level of imports of foreign steel into the U.S. in recent years compared to historical levels and create a risk of even greater levels of imports, depending upon foreign market and economic conditions, the value of the U.S. dollar relative to other currencies, and other variables beyond our control. A significant further increase in domestic capacity or foreign imports could adversely affect our sales, financial results and cash flows.

Risks related to U.S. government actions on trade agreements and treaties, laws, regulations or policies affecting trade. The U.S. government has altered its approach to international trade policy, both generally and with respect to the matters directly and indirectly affecting the steel industry. In 2018, the U.S. government undertook certain unilateral actions affecting trade and also renegotiated existing bilateral or multi-lateral trade agreements or entered into new agreements or treaties with foreign countries. In March 2018, President Trump signed a proclamation pursuant to Section 232 imposing a 25 percent tariff on imported steel. In retaliation against the Section 232 tariffs, the European Union, Mexico and Canada subsequently imposed their own tariffs against certain steel products and other goods imported from the U.S. The Section 232 tariffs have generally resulted in higher steel prices in the U.S. generally and for us specifically, particularly for our steel sales to the distributors and converters and infrastructure and manufacturing markets. In the event the Section 232 tariffs are removed or substantially lessened, whether through legal challenge, legislation or otherwise, imports of foreign steel would likely increase and steel prices in the U.S. would likely fall, which would materially adversely affect our sales, financial results and cash flows. In addition, in October 2018, the Trump administration announced that the U.S. had reached an agreement with Canada and Mexico on the United States-Mexico-Canada Trade Agreement ("USMCA"), which is being proposed to replace the

existing North American Free Trade Agreement (“NAFTA”) among those countries. Because all of our manufacturing facilities are located in North America and our principal market is automotive manufacturing in North America, we believe that the USMCA has the potential to positively impact our business by incentivizing automakers and other manufacturers to increase manufacturing production in North America and to use North American steel. However, it is difficult to predict the short- and long-term implications of changes in trade policy and, therefore whether USMCA or other new or renegotiated trade agreements, treaties, laws, regulations of policies will have a beneficial or detrimental impact on our business and our customers’ and suppliers’ business. Adverse effects could occur directly from a disruption to trade and commercial transactions and/or indirectly by adversely affecting the U.S. economy or certain sectors thereof, thereby impacting demand for our customers’ products, and in turn negatively affecting demand for our products. Key links of the supply chain for some of our key customers, including automotive manufacturers, could be negatively impacted by USMCA or other new or renegotiated trade agreements, treaties, laws, regulations of policies. Any of these actions and their direct and indirect impacts could materially adversely affect our sales, financial results and cash flows.

Risk of changes in the cost of raw materials, supplies and energy. The price that we pay for energy and key supplies and raw materials, such as electricity, natural gas, industrial gases, graphite electrodes, iron ore, chrome, zinc and coal, can fluctuate significantly based on market factors. In some cases the prices at which we sell steel will not change in tandem with changes in our raw materials, supplies and energy costs. Global demand and supply, particularly Chinese demand and supply, for certain raw

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materials can have a significant influence on our costs for those raw materials, especially iron ore and coal, as well as supplies for production whose prices are impacted by raw material prices, such as graphite electrodes and refractory materials. However, our sales prices are generally driven by North American demand, which can result in a compression in our margins in cases where raw material costs increase and our sales prices do not move enough to cover those increases. The majority of our shipments are sold under contracts that do not allow us to pass through all increases in raw materials, supplies and energy costs. Some of our shipments to contract customers include variable-pricing mechanisms allowing us to adjust the total sales price based upon changes in specified raw materials, supplies and energy costs. Those adjustments, however, rarely reflect all of our underlying raw materials, supplies and energy cost changes. The scope of the adjustment may also be limited by the terms of the negotiated language, including limitations on when the adjustment occurs. For shipments we make to the spot market, market conditions or timing of sales may not allow us to recover the full amount of an increase in raw material, supplies or energy costs. In such circumstances, a significant increase in raw material, supplies or energy costs likely would adversely impact our financial results and cash flows. Conversely, in certain circumstances, we may not realize all of the benefits when the price for certain raw materials, supplies or energy declines. For example, this can occur when we lock in the price of a raw material over a set period and the spot market price for the material declines during that period. Our need to consume existing inventories may also delay the impact of a change in prices of raw materials or supplies. New inventory may not be purchased until some portion of the existing inventory is consumed. The impact of this risk is particularly significant for iron ore and coke because of the volumes held in inventory. We manage our exposure to the risk of iron ore price increases by hedging a portion of our annual iron ore supply and by entering supply agreements where the IODEX, the global iron ore price index, is only one factor affecting our price of iron ore pellets. Significant changes in raw material costs may also increase the potential for inventory value write-downs in the event of a reduction in selling prices and our inability to realize the cost of the inventory.

Risk from our significant amount of debt and other obligations. On December 31, 2018, we had \$2,035.4 of indebtedness outstanding. We also had pension and other postretirement benefit obligations totaling \$868.6. We anticipate making approximately \$45.0 of required annual pension contributions for 2019. Based on current funding projections, we expect to make contributions to the master pension trust of approximately \$50.0 for 2020 and \$50.0 for 2021, though funding projections for 2020 and beyond could be materially affected by differences between expected and actual returns on plan assets, actuarial data and assumptions relating to plan participants, the discount rate used to measure the pension obligations and changes to regulatory funding requirements. We also have the ability to borrow additional amounts under our \$1,350.0 revolving credit facility (the “Credit Facility”). At December 31, 2018, we had \$335.0 of outstanding borrowings under the Credit Facility with outstanding letters of credit of \$73.2, resulting in maximum remaining availability of \$941.8 under the Credit Facility (subject to customary borrowing conditions, including a borrowing base). Borrowing capacity under the Credit Facility is determined by the value of eligible collateral less outstanding borrowings and letters of credit. At December 31, 2018, borrowing availability under the Credit Facility was \$941.8 based on eligible collateral at that time. On November 15, 2019, our \$148.5 million in principal amount of Exchangeable Notes due 2019 will become due. At or prior to the maturity of those Exchangeable Notes, we intend to repay or refinance them, subject to market conditions. Our debt and pension obligations, along with other financial obligations, could have important consequences. For example, they could increase our vulnerability to general adverse economic and industry conditions; require a substantial portion of our cash flows to be dedicated to interest payments and debt service, reducing the amount of cash flows available for other purposes, such as working capital, capital expenditures, acquisitions, joint ventures or general corporate purposes; limit our ability to obtain future additional financing; reduce our planning flexibility for, or ability to react to, changes in our business and the industry; and place us at a competitive disadvantage with competitors who may have less indebtedness and other obligations or greater access to financing.

Risk of severe financial hardship or bankruptcy of one or more of our major customers or key suppliers. Sales and operations of a majority of our customers are sensitive to general economic conditions, especially as they affect the North American automotive and housing industries. If there is a significant weakening of current economic

conditions, whether because of secular or cyclical issues, it could lead to financial difficulties or even bankruptcy filings by our customers. The concentration of customers in a specific industry, such as the automotive industry, may increase our risk because of the likelihood that circumstances may affect multiple customers at the same time. The nature of that impact would likely include lost sales or losses associated with the potential inability to collect all outstanding accounts receivable. Such an event could also negatively impact our financial results and cash flows. In addition, many of our key suppliers, particularly those who supply us with critical raw materials for the steelmaking process, have recently faced severe financial challenges or bankruptcy and other suppliers may face such circumstances in the future. Also, we purchase substantially all of our iron ore from one supplier under two multi-year contracts. This reliance on a single supplier for a primary raw material may increase our risk of increased costs from substitute suppliers or supply chain disruptions in the event of its financial hardship or bankruptcy. Key suppliers facing financial hardship or operating in bankruptcy could experience operational disruption or even face liquidation, which could result in our inability to secure replacement raw materials on a timely basis, or at all, or cause us to incur increased costs to do so. Such events could adversely impact our operations, financial results and cash flows.

Risk related to our significant proportion of sales to the automotive market. In 2018, approximately 63% of our sales were to the automotive market. In addition to the size of our exposure to the automotive industry, we face risks related to our relative concentration of sales to certain specific automotive manufacturers. In 2018, two customers accounted for 11% and 10% of our net sales. Automotive production and sales are cyclical and sensitive to general economic conditions and other factors, including interest

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rates, consumer credit, and consumer spending and preferences. If automotive production and sales decline, our sales and shipments to the automotive market are likely to decline in a corresponding manner. Adverse impacts that we may sustain as a result include, without limitation, lower margins because of the need to sell our steel to less profitable customers and markets, higher fixed costs from lower steel production if we are unable to sell the same amount of steel to other customers and markets, and/or lower sales, shipments and margins generally as our competitors face similar challenges and compete vigorously in other markets. These adverse impacts would negatively affect our sales, financial results and cash flows. Additionally, the trend toward lightweighting in the automotive industry, which requires lighter gauges of steel at higher strengths, could result in a lower volume of steel required by that industry over time. Moreover, competition for automotive business has intensified in recent years, as steel producers and companies producing alternative materials have focused their efforts on capturing and/or expanding their market share of automotive business because of less favorable conditions in other markets for steel and other metals, including commodity products and steel for use in the oil and gas markets. As a result, the potential exists that we may lose market share to existing or new entrants or that automotive manufacturers will take advantage of the intense competition among potential suppliers to pressure our pricing and margins in order to maintain or expand our market share with them, which could negatively affect our sales, financial results and cash flows.

Risk of reduced demand in key product markets due to competition from aluminum and other alternatives to steel. The automotive market is important to our business, both in terms of volume and margins. Automotive manufacturers are under pressure to meet the government-mandated CAFE standards, which require increasing fuel economy for automobiles in the future. Automotive manufacturers have begun to incorporate aluminum and other alternative materials into their vehicles and continue to investigate the potential risks and benefits of expanding the use of non-steel materials. For example, one major automotive company previously elected to substitute aluminum for carbon steel in the body of some of its vehicles. Although automotive manufacturers have incorporated aluminum and other competing materials at a much slower rate than some experts previously expected, if demand for steel from one or more of our major automotive customers was to significantly decline because of increased use of aluminum or other competing materials in substitution for steel, it likely would negatively affect our sales, financial results and cash flows.

Risks of excess inventory of raw materials. We have certain raw material supply contracts that include minimum annual purchases, subject to exceptions for *force majeure* and other circumstances. If our need for a particular raw material is reduced for an extended period significantly below what we projected at the contract's inception, or what we projected at the time an annual nomination was made under certain contracts, we could be required to purchase quantities of raw materials that exceed our anticipated annual needs. If our existing supply contracts require us to purchase raw materials in quantities beyond our needs, and if we do not succeed in reaching an agreement with a particular raw material supplier to reduce the quantity of raw materials we purchase from that supplier, then we would likely be required to purchase more of a particular raw material in a given year than we need, negatively affecting our financial results, liquidity and cash flows.

Risk of supply chain disruptions or poor quality of raw materials or supplies. Our sales, financial results and cash flows could be adversely affected by transportation, raw material, energy or other key supply disruptions, or poor quality of raw materials, particularly scrap, coal, coke, iron ore and alloys. In addition, we may experience supply chain disruptions or increased costs from transportation-related challenges due to new or enhanced regulation, changes to providers' operations, labor shortages or other factors. Disruptions or quality issues, whether the result of severe financial hardships or bankruptcies of suppliers, natural or man-made disasters, other adverse weather events, or other unforeseen events, could reduce production or increase costs at one or more of our plants and potentially adversely affect customers or markets to which we sell our products. Any significant disruption or quality issue in any of the areas addressed above would adversely affect our sales, financial results and cash flows.

Risk of production disruption or reduced production levels. When business conditions permit, we attempt to operate our facilities at production levels that are at or near capacity. High production levels are important to our financial results because they enable us to spread fixed costs over a greater number of production tons. We have implemented a strategy to target markets for our products that deliver higher margins, where possible, and reduce amounts sold into the typically lower-margin spot markets. This ongoing strategy relies on our ability to sell higher-margin products that overcome the effects of lower production volumes on our fixed costs. If we are unable to sustain this strategy successfully, it would adversely affect our sales, financial results and cash flows. Production disruptions could be caused by unanticipated plant outages or equipment failures, a lack of redundancy for key production assets, or lack of adequate raw materials, energy or other supplies, particularly under circumstances where we lack adequate redundant facilities. Production disruptions could result in significant costs and potential liability to us, as well as negative publicity and damage to our reputation with current or potential customers. In addition, the occurrence of natural or man-made disasters, adverse weather conditions or similar events could significantly disrupt our operations, negatively impact the operations of other companies or contractors we depend upon, or adversely affect customers or markets who buy our products. Any significant disruption or reduced level of production would adversely affect our sales, financial results and cash flows.

Risks associated with our healthcare obligations. We provide healthcare coverage to our active employees and to a significant portion of our retirees, as well as certain members of their families. We are self-insured for substantially all of our healthcare coverage. While we have reduced our exposure to rising healthcare costs to a significant degree through cost sharing, cost caps and VEBA trusts, the cost of providing such healthcare coverage may be greater on a relative basis for us than for our competitors because they either

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provide a lesser level of benefits, require that their participants pay more for their benefits, or do not provide coverage to as broad a group of participants (e.g., they do not provide retiree healthcare benefits). In addition, our costs for retiree healthcare obligations could be affected by fluctuations in interest rates or by federal healthcare legislation.

Risks associated with our pension obligations. We have a substantial pension obligation that, along with the related pension expense (income) and funding requirements, is directly affected by various changes in assumptions, including the selection of appropriate mortality assumptions and discount rates. These items also are affected by the rate and timing of employee retirements, actual experience compared to actuarial projections and asset returns in the securities markets. Such changes could increase our cost for those obligations, which could have a material adverse effect on our results and ability to meet those obligations. In addition, changes in the laws governing pensions could also materially adversely affect our costs and ability to meet our pension obligations. Also, under the method of accounting we use for pension obligation reporting, we recognize into our results of operations, as a “corridor” adjustment, any unrecognized actuarial net gains or losses that exceed 10% of the larger of projected benefit obligations or plan assets. These corridor adjustments are driven mainly by changes in assumptions and by events and circumstances beyond our control, primarily changes in interest rates, performance of the financial markets, and mortality and retirement projections. A corridor adjustment, if required after a re-measurement of our pension obligations, historically has been recorded in the fourth quarter of the year, though one may be recorded at any time if an interim remeasurement occurs. A corridor adjustment can have a significant impact on our financial statements when it occurs, although its immediate recognition reduces the impact of unrealized gains or losses on future periods. A corridor charge does not have any immediate impact on our cash flows. We also contribute to multiemployer pension plans according to collective bargaining agreements that cover certain union-represented employees. Participating in these multiemployer plans exposes us to potential liabilities if the multiemployer plan is unable to pay its unfunded obligations or we choose to stop participating in the plan.

Risk of not reaching new labor agreements on a timely basis. Most of our hourly employees are represented by various labor unions and are covered by collective bargaining agreements with expiration dates between March 2019 and September 2021. Five of those contracts are scheduled to expire in 2019. With our January 28, 2019, announcement of plans to permanently close the Ashland Works facility by the end of 2019, we expect to engage in negotiations with the United Steelworkers, Local 1865, over the coming months regarding the plant closure in accordance with applicable law and the terms and conditions of the labor agreement. The labor agreement, with an original expiration date of September 1, 2018, is by mutual agreement being extended on a rolling 60-day basis, subject to further notification of termination by either party. The labor contract with the United Steelworkers, Local 1190, which governs approximately 230 production employees at Mountain State Carbon LLC, expires on March 1, 2019. The labor contract with the United Auto Workers, Local 3303, which governs approximately 1,170 production employees at Butler Works, expires on April 16, 2019. The labor contract with the United Auto Workers, Local 4104, which represents approximately 100 production employees at Zanesville Works, expires on May 31, 2019. The labor contract with the United Auto Workers, Local 3462, which governs approximately 300 production employees at Coshocton Works, expires on September 30, 2019. Other than the agreement at Ashland Works, we intend to negotiate with these unions to reach new, competitive labor agreements in advance of the current expiration dates. We cannot predict, however, when new, competitive labor agreements with the unions will be reached or what the impact of such agreements will be on our operating costs, operating income and cash flows. There is the potential of work stoppages at these locations in 2019 and beyond if we cannot reach timely agreements in contract negotiations before the contract expirations. If work stoppages occur, they could have a material impact on our operations, financial results and cash flows. For labor contracts at other locations that expire after 2019, a similar risk applies.

Risks associated with major litigation, arbitrations, environmental issues and other contingencies. We have described several significant legal and environmental proceedings in Note 10 to the consolidated financial statements in Item 8. For environmental issues, changes in application or scope of laws or regulations applicable to us, or negative outcomes in pending or future litigation, could have significant adverse impacts, including requiring capital

expenditures to ensure compliance with the laws, regulations, or court decisions, increased difficulty in obtaining future permits or meeting future permit requirements, incurring costs for emission allowances, restriction of production, and higher prices for certain raw materials. One or more of these adverse developments could negatively impact our operations, financial results and cash flows. For litigation, arbitrations and other legal proceedings, it is not possible to predict with certainty the outcome of such matters and we could incur future judgments, fines or penalties or enter into settlements of lawsuits, arbitrations and claims that could have an adverse effect on our business, results of operations and financial condition. In addition, while we maintain insurance coverage for certain claims, we may not be able to obtain insurance on acceptable terms in the future and, if we obtain such insurance, it may not provide adequate coverage against all claims. We establish reserves based on our assessment of contingencies, including contingencies for claims asserted against us in connection with litigation, arbitrations and environmental issues. Adverse developments in litigation, arbitrations, environmental issues or other legal proceedings may affect our assessment and estimates of the loss contingency recorded as a reserve and require us to make payments in excess of our reserves, which could negatively affect our operations, financial results and cash flows.

Risk associated with regulatory compliance and changes. Our business and the businesses of our customers and suppliers are subject to a wide variety of government regulations, including those relating to environmental permitting requirements. The regulations promulgated or adopted by various government agencies, and the interpretations and application of such regulations, are

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dynamic and constantly evolving. If new regulations arise, the application of existing regulations expands, or the interpretation of applicable regulations changes, we may incur additional costs for compliance, including capital expenditures. For example, the EPA is required to routinely reassess the National Ambient Air Quality Standards (“NAAQS”) for criteria pollutants like nitrogen dioxide, sulfur dioxide, lead, ozone and particulate matter. These standards are frequently subject to litigation and revision. Revisions to the NAAQS could require us to make significant capital expenditures to ensure compliance and could make it more difficult for us to obtain required permits in the future. These risks are higher for our facilities that are located in non-attainment areas. Complex foreign and U.S. laws and regulations apply to our domestic and international operations, including but not limited to the Foreign Corrupt Practices Act and other anti-bribery laws, regulations related to import/export controls, the Office of Foreign Assets Control sanctions program, anti-boycott provisions, the European Union’s General Data Protection Regulation (GDPR) and other U.S. and foreign privacy regulations, and transportation and logistics regulations. These laws and regulations and changes in these laws and regulations may increase our cost of doing business in international jurisdictions and expose our operations and our employees to elevated risk. We have implemented policies and processes designed to comply with these laws and regulations, but failure by our employees, contractors or agents to comply with these laws and regulations could result in possible administrative, civil or criminal liability and reputational harm to us and our employees. We may also be indirectly affected through regulatory changes that impact our customers or suppliers. Regulatory changes that impact our customers could reduce the quantity of our products they demand or the price of our products that they are willing to pay. Regulatory changes that impact our suppliers could decrease the supply of products or availability of services they sell to us or could increase the price they demand for products or services they sell to us.

Risks associated with climate change and greenhouse gas emissions. Our business and operations, as well as the business and operations of our key suppliers and customers, may become subject to legislation or regulation intended to limit climate change or greenhouse gas emissions. It is possible that limitations on greenhouse gas emissions may be imposed in the United States through legislation or regulation. For example, the EPA has issued and/or proposed regulations addressing greenhouse gas emissions, including regulations that will require large sources and suppliers in the United States to report greenhouse gas emissions. In addition, the U.S. Congress has introduced from time to time legislation aimed at limiting carbon emissions from carbon-intensive business operations. The CAFE standards and other existing and future climate change-related legislation and regulation could also affect our customers, and in particular our automotive customers, as they may elect to use lower volumes of steel to achieve mandates related to emissions. Similarly, our suppliers may incur cost increases in order to comply with climate control legislation and regulation, which they could in turn attempt to pass through to us in the form of higher prices for critical goods and/or services. It is impossible, however, to forecast the terms of the final regulations and legislation, if any, and the resulting effects on us. Depending upon the terms of any such legislation or regulation, however, we could suffer negative financial impacts because of increased energy, operational, environmental and other costs to comply with the limitations that would be imposed on greenhouse gas emissions. In addition, depending upon whether similar limitations are imposed globally, the regulations and/or legislation could negatively impact our ability to compete with foreign steel companies situated in areas not subject to such limitations. Unless and until all of the terms of such regulation and legislation are known, however, we cannot reasonably or reliably estimate their impact on our financial condition, operating performance or ability to compete.

Risks associated with financial, credit, capital and banking markets. In the ordinary course of business, we seek to access financial, credit, capital and/or banking markets at competitive rates. Currently, we believe we have adequate access to these markets to meet our reasonably anticipated business needs. We provide and receive normal trade financing to our customers and from our suppliers. If access to competitive financial, credit, capital and/or banking markets by us, or our customers or suppliers, is impaired, our operations, financial results and cash flows could be adversely impacted.

Risk associated with derivative contracts to hedge commodity pricing volatility. We use cash-settled commodity price swaps and options to reduce pricing volatility for a portion of our raw material, energy and other commodity purchases. We employ a systematic approach in order to mitigate the risk of potential volatile price movements of certain commodities. This approach is intended to protect us against a sharp rise in the price of commodities. However, engaging in the use of swaps, options and similar agreements for hedging entails a variety of risks. For example, if the price of an underlying commodity falls below the price at which we hedged the commodity, we will benefit from the lower market price for the commodity purchased, but may not realize the full benefit of the lower commodity price because of the hedged transaction. In certain circumstances we also could be required to provide collateral for a potential derivative liability or close our hedging transaction for the commodity. Additionally, there may be a timing lag (particularly for iron ore) between a decline in the price of a commodity underlying a derivative contract, which could require us to make payments in the short-term to provide collateral or settle the relevant hedging transaction, and the period when we experience the benefits of the lower cost input through physical purchases of the commodity the hedge covers. Further, for derivatives designated as cash flow hedges, we initially record the effective gains and losses in accumulated other comprehensive income (loss) and reclassify them to earnings in the same period we recognize the effect of the associated hedged transaction. We record all derivative gains or losses for which hedge accounting treatment has not been elected or from hedge ineffectiveness to earnings in the period the gain or loss occurs. Changes in the fair value of derivatives for which hedge accounting treatment has not been elected or greater hedge ineffectiveness than we anticipated on cash flow hedges may result in increased volatility in our reported earnings. For example, we immediately recognize changes in the fair value of our iron ore derivative contracts in earnings when the fair value changes, instead of when we

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recognize the underlying cost of iron ore, thus potentially increasing the volatility of our results of operations. Each of these risks related to our hedging transactions could adversely affect our financial results and cash flows.

Risks related to the potential permanent idling of facilities. We perform strategic reviews of our business on an ongoing basis, which includes evaluating each of our plants and operating units to assess their strategic benefits, competitiveness and viability. As part of these reviews, we may idle—whether temporarily or permanently—certain of our existing facilities in order to reduce or eliminate participation in markets where we determine that our returns are not acceptable. For example, in January 2019 we announced our intention to close our largely idled Ashland Works plant, including the blast furnace and steelmaking operations (“Ashland Works Hot End”), which had been temporarily idled since December 2015 as part of our strategy to limit our exposure to the carbon steel spot market. Our closure of Ashland Works will result in the incurrence and acceleration of cash expenses, including those relating to labor benefit obligations, a multiemployer plan withdrawal liability, take-or-pay supply agreements and accelerated environmental remediation costs, as well as charges for impairment of those assets and the effects on pension and OPEB liabilities. In addition, we will endeavor to transition products produced at the Ashland Works coating line to our other facilities in the United States. Customers could respond negatively to this requested transition and take current or future business from us. Alternatively, we could fail to meet customer specifications at the facilities to which these products will be transitioned, resulting in customer dissatisfaction or claims, or face other unanticipated operational issues. Other risks associated with the closure of Ashland Works include, without limitation, our failure to achieve the projected savings, costs or actions resulting from closure negotiations with the labor union at Ashland Works, and higher than expected closure costs. For operations other than Ashland Works, we could incur similar types of cash and non-cash costs if we elect to temporarily or permanently idle any of our other currently operating assets or facilities as part of our ongoing strategic reviews. If we elect to permanently idle other material facilities or assets, it could adversely affect our operations, financial results and cash flows.

Risk of inability to fully realize benefits of margin enhancement initiatives. In recent years we have undertaken several significant projects in an effort to lower costs and enhance margins. These projects and initiatives include efforts to focus production and sales on higher margin products, increase our operating rates and lower our costs. We identified a number of areas for enhancing profitability, including increasing our percentage of contract sales, producing and selling a greater value-added mix of products and developing new products that can command higher prices from customers. For example, we have recently undertaken several significant information technology (“IT”) projects, including new and upgraded enterprise systems that affect key areas of our business and operations. Although we anticipate that these IT projects will increase our efficiency, should these projects face unexpected challenges, whether during implementation, adoption or other stages, it could have adverse impacts on our business or operations. Generally, if one or more of these key cost-savings or margin enhancement projects are unsuccessful, or are significantly less effective in achieving the level and timing of combined cost savings or margin enhancement than we anticipated, or if we do not achieve results as quickly as anticipated, our financial results and cash flows could be adversely impacted.

Risk of IT security threats, cybercrime and exposure of private information. We rely on IT systems and networks in almost every aspect of our business activities. In addition, we and certain of our third-party data processing providers collect and store sensitive data, and our vendors or suppliers may collect and store sensitive data about us in their information system environments. We have taken, and intend to continue to take, what we believe are appropriate and reasonable steps to prevent security breaches in our systems and networks. In recent years, however, both the number and sophistication of IT security threats and cybercrimes have increased. Additionally, regulation has increased for companies to prevent security breaches and notify stakeholders if data is exposed. These IT security threats and increasingly sophisticated cybercrimes pose a risk to system security and the confidentiality, availability and integrity of our data. A breach in security could expose us to risks of production downtimes and operations disruptions, misuse of information or systems, or the compromise of confidential information, which in turn could adversely affect our reputation, competitive position, business and financial results.

Risk of failure to achieve expected benefits of the Precision Partners acquisition. We may be unable to achieve the strategic, operational, financial and other benefits contemplated as part of the acquisition of Precision Partners to the full extent expected or in a timely manner. If we are not as successful or timely as we expect in integrating Precision Partners, we may not fully realize the potential growth opportunities, ability to provide enhanced solutions to our customers, leveraging and acceleration of combined research and innovation efforts, and anticipated financial and non-financial benefits and opportunities from the acquisition. Goodwill is a significant part of Precision Partners' assets and our inability to realize the benefits of the acquisition could result in an impairment of goodwill. These circumstances, either alone or in combination, could have other adverse effects on our business, financial results and cash flows.

Risks associated with changes in tax laws and regulations. We are a large corporation with operations in the U.S. and other jurisdictions. As such, we are subject to tax laws and regulations of the U.S. federal, state and local governments, as well as various foreign jurisdictions. We compute our income tax provision based on enacted tax rates in the jurisdictions in which we operate. Significant judgment is required in determining our tax provision for income taxes. Changes in tax laws or regulations may be enacted that could adversely affect our overall tax assets and liabilities. For example, on December 22, 2017, the U.S. government enacted the Tax Cuts and Jobs Act (the "Tax Act"). The changes included in the Tax Act are broad and complex. The final transition impacts of the

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Tax Act may differ from the estimates provided elsewhere in this Annual Report, possibly materially, due to, among other things, changes in interpretations of the Tax Act, any legislative action to address questions that arise because of the Tax Act, any changes in accounting standards for income taxes or related interpretations in response to the Tax Act, or any updates or changes to estimates we have used to calculate the transition impacts. Any changes in enacted tax laws (such as the recent U.S. tax legislation), rules or regulatory or judicial interpretations, any adverse outcome in connection with tax audits in any jurisdiction, or any change in the pronouncements relating to accounting for income taxes could materially and adversely impact our financial condition and results of operations.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

We lease our corporate headquarters in West Chester, Ohio, through 2029, with two five-year options to extend the lease. We own our Research and Innovation Center located in Middletown, Ohio. We also lease an administration building located in Dearborn, Michigan.

Our operations consist primarily of eight steelmaking and finishing plants in the United States. We own all of our steelmaking and finishing facilities. In addition, we operate two coke plants, a metallurgical coal production facility, three tube manufacturing plants and eight tooling and stamping operations in the United States, Canada and Mexico.

Ashland Works is located in Ashland, Kentucky, and its coating line helps to complete finishing of material processed at Middletown Works. In January 2019, we announced that we plan to close the Ashland Works facility. See Note 2 to our consolidated financial statements for more information.

Butler Works is located in Butler, Pennsylvania, and produces stainless, electrical and carbon steel. Melting takes place in a highly-efficient electric arc furnace that feeds an argon-oxygen decarburization unit for the specialty steels. A ladle metallurgy furnace feeds two double-strand continuous casters. Butler Works also includes a hot rolling mill, annealing and pickling units and two tandem cold rolling mills. It also has various intermediate and finishing operations for both stainless and electrical steels.

Coshocton Works is located in Coshocton, Ohio, and consists of a stainless steel finishing plant containing two Sendzimer mills and two Z-high mills for cold reduction, four annealing and pickling lines, nine bell annealing furnaces, four hydrogen annealing furnaces, two bright annealing lines and other processing equipment, including temper rolling, slitting and packaging facilities.

Dearborn Works is located in Dearborn, Michigan and its operations include carbon steel melting, casting, hot and cold rolling and finishing operations for carbon steel. It consists of a blast furnace, basic oxygen furnaces, two ladle metallurgy furnaces, a vacuum degasser and two slab casters. Dearborn Works also has a hot rolling mill, a pickle line/tandem cold mill, batch anneal shops, a temper mill and a hot-dip galvanizing line for finishing products.

Mansfield Works is located in Mansfield, Ohio, and produces stainless steel. Operations include a melt shop with two electric arc furnaces, an argon-oxygen decarburization unit, a ladle metallurgy furnace, a thin-slab continuous caster and a hot rolling mill.

Middletown Works is located in Middletown, Ohio, and melts carbon steel and processes carbon and stainless steel. It consists of a coke facility, blast furnace, basic oxygen furnaces, a CAS-OB, a vacuum degasser and continuous caster for the production of carbon steel. Middletown Works also has a hot rolling mill, cold rolling mill, two pickling lines,

four annealing facilities, two temper mills and three coating lines for finishing products.

Rockport Works is located near Rockport, Indiana, and consists of a carbon and stainless steel finishing plant containing a continuous cold rolling mill, a continuous hot-dip galvanizing and galvannealing line, a continuous carbon and stainless steel pickling line, a continuous stainless steel annealing and pickling line, hydrogen annealing facilities and a temper mill.

Zanesville Works is located in Zanesville, Ohio, and consists of a finishing plant for some of the stainless and electrical steel produced at Butler Works and Mansfield Works and has a Sendzimer cold rolling mill, annealing and pickling lines, high-temperature box anneal and other decarburization and coating units.

AK Tube, a subsidiary, owns a plant in Walbridge, Ohio, which operates six electric resistance welded tube mills and a slitter. It also has a plant on leased property in Columbus, Indiana, which operates seven electric resistance welded tube mills, two high-speed cold saws and one nick-and-shear cutting machine. AK Tube's leased plant in Queretaro, Mexico, operates one electric resistance welded tube mill and one high-speed cold saw.

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AK Coal, a subsidiary, produces metallurgical coal from reserves in Somerset County, Pennsylvania.

Mountain State Carbon, LLC, a subsidiary, produces furnace and foundry coke from its cokemaking facility in Follansbee, West Virginia, which consists of four batteries.

Precision Partners, a subsidiary, provides advanced-engineered solutions, tool design and build, hot- and cold-stamped steel components and complex assemblies for the automotive market across eight plants in Ontario, Alabama and Kentucky. Its facilities feature five large-bed, hot-stamping presses providing nine lines of production; 80 cold-stamping presses ranging from 200 tons to 3,000 tons of pressing capacity; 17 large-bed, high-tonnage tryout presses with prove-out capabilities for new tool builds; and 125 multi-axis welding assembly cells. Precision Partners owns one facility in Ontario and the remainder are leased.

Item 3. Legal Proceedings.

Information for this item may be found in Note 10 to the consolidated financial statements in Item 8, which is incorporated herein by reference.

Item 4. Mine Safety Disclosures.

The operation of AK Coal's North Fork Mine and Coal Innovations, LLC coal wash plant (collectively, the "AK Coal Operations") are subject to regulation by the Mine Safety and Health Administration ("MSHA") under the Federal Mine Safety and Health Act of 1977, as amended ("Mine Act"). MSHA inspects mining and processing operations, such as the AK Coal Operations, on a regular basis and issues various citations and orders when it believes a violation has occurred under the Mine Act. Exhibit 95.1 to this Annual Report presents citations and orders from MSHA and other regulatory matters required to be disclosed by Section 1503(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act or otherwise under this Item 4.

Table of Contents**PART II****Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.**

AK Holding's common stock is listed on the New York Stock Exchange (symbol: AKS). As of February 13, 2019, there were 316,308,531 shares of common stock outstanding and held of record by 3,564 stockholders. Because depositories, brokers and other nominees held many of these shares, the number of record holders is not representative of the number of beneficial holders. There were no unregistered sales of equity securities in the year ended December 31, 2018.

ISSUER PURCHASES OF EQUITY SECURITIES

Period	Total Number of Shares Purchased (a)	Average Price Paid Per Share (a)	Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs (b)	Approximate Dollar Value of Shares that May Yet be Purchased Under the Plans or Programs (b)
October 2018	760	\$ 4.68	—	
November 2018	—	—	—	
December 2018	—	—	—	
Total	760	4.68	—	\$ 125.6

(a) Employees may have us withhold shares to pay federal, state and local taxes due upon the vesting of restricted stock or performance shares under the terms of the AK Steel Holding Corporation Stock Incentive Plan. In this event, the withheld shares have a fair market value equal to the minimum statutory withholding rate that tax authorities could impose on the transaction. We repurchase the withheld shares at the quoted average of the reported high and low sales prices on the day we withhold the shares.

(b) On October 21, 2008, the Board of Directors authorized us to repurchase, from time to time, up to \$150.0 of our outstanding equity securities. The Board of Directors' authorization specified no expiration date. We did not repurchase any of our equity securities under this authorization in 2018.

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The following graph compares cumulative total stockholder return on AK Holding's common stock for the five-year period from January 1, 2014 through December 31, 2018, with the cumulative total return for the same period of (i) the Standard & Poor's Small Cap 600 Stock Index, and (ii) the New York Stock Exchange Arca Steel Index. These comparisons assume an investment of \$100 at the beginning of the period and reinvestment of dividends.

	January 1, 2014	December 31,				
	2014	2014	2015	2016	2017	2018
AK Holding	\$ 100	\$72	\$ 27	\$125	\$ 69	\$ 27
NYSE Arca Steel	100	72	40	77	93	73
S&P 600 Small Cap	100	104	101	126	141	127

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The following selected historical consolidated financial data should be read along with the consolidated financial statements presented in Item 8 and *Management's Discussion and Analysis of Financial Condition and Results of Operations* presented in Item 7.

	2018	2017	2016	2015	2014
	(dollars in millions, except per share and per ton data)				
Statement of Operations Data:					
Net sales	\$6,818.2	\$6,080.5	\$5,882.5	\$6,692.9	\$6,505.7
Operating profit (loss)	364.4	260.2	217.6	(67.4)	17.6
Net income (loss) attributable to AK Steel Holding Corporation (a)	186.0	103.5	(16.8)	(652.3)	(114.2)
Basic earnings (loss) per share	0.59	0.33	(0.07)	(3.67)	(0.77)
Diluted earnings (loss) per share (a)	0.59	0.32	(0.07)	(3.67)	(0.77)
Other Data:					
Total flat-rolled shipments (in thousands of tons)	5,683.4	5,596.2	5,936.4	6,974.0	6,007.2
Selling price per flat-rolled ton	\$1,091	\$1,022	\$955	\$929	\$1,042
Balance Sheet Data:					
Cash and cash equivalents	\$48.6	\$38.0	\$173.2	\$56.6	\$70.2
Working capital	1,072.7	1,070.1	1,077.1	899.5	1,195.4
Total assets	4,515.7	4,474.8	4,101.7	4,157.8	5,052.8
Long-term debt	1,993.7	2,110.1	1,816.6	2,354.1	2,422.0
Current portion of pension and other postretirement benefit obligations	38.7	40.1	41.3	77.7	55.6
Pension and other postretirement benefit obligations (excluding current portion)	829.9	894.2	1,093.7	1,146.9	1,225.3
Total equity (deficit)	429.5	300.6	149.8	(528.4)	142.0

Under our method of accounting for pensions and other postretirement benefits, we recorded pension corridor charges of \$78.4 (\$0.34 per diluted share), \$144.3 (\$0.81 per diluted share) and \$2.0 (\$0.01 per diluted share) in 2016, 2015 and 2014, and OPEB corridor credits of \$35.3 (\$0.15 per diluted share) and \$13.1 (\$0.07 per diluted share) in 2016 and 2015. In 2018, we also recorded pension settlement charges of \$14.5 (\$0.05 per diluted share). In 2017, we recorded an asset impairment charge of \$75.6 (\$0.24 per diluted share) related to the temporarily (a) idled Ashland Works Hot End and a credit of \$19.3 (\$0.06 per diluted share) for the reversal of a liability for transportation costs. In 2016, we also recorded pension settlement charges of \$25.0 (\$0.11 per diluted share) and costs of \$69.5 (\$0.30 per diluted share) to terminate a pellet offtake agreement and for related transportation costs. In 2015, we also recorded a charge for a temporary facility idling of \$28.1 (\$0.16 per diluted share) and impairments of our investments in our former Magnetation LLC joint venture ("Magnetation") of \$256.3 (\$1.44 per diluted share) and AFSG Holdings, Inc. ("AFSG") of \$41.6 (\$0.23 per diluted share).

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.**Executive Overview**

We are a leading producer of flat-rolled carbon, stainless and electrical steel products, primarily for the automotive, infrastructure and manufacturing, including electrical power, and distributors and converters markets. Our downstream businesses also provide customer solutions with carbon and stainless steel tubing products, high-end stainless steel finishing, advanced-engineered solutions, tool design and build, hot- and cold-stamped steel components and complex assemblies.

Our mission is to create innovative, high-quality steel solutions for our customers and our key values of safety, quality, productivity and innovation, along with environmental responsibility and sustainability, are its foundation. We target customers who require the most technically demanding, highest-quality steel products, “just-in-time” delivery, technical support and product development assistance. Our robust product quality and delivery capabilities, as well as our emphasis on collaborative customer technical support and product planning, are critical factors in our ability to serve our customer markets. We focus on value-added steel solutions rather than sales into commodity steel markets.

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Table of Contents**2018 Financial Overview**

Our 2018 net income of \$186.0, or \$0.59 per diluted share of common stock, marked a significant improvement from our 2017 net income of \$103.5, or \$0.32 per diluted share. As another step to strengthen our balance sheet, we entered into a de-risking pension annuity transaction in the fourth quarter of 2018. As a result of its successful completion, a pension settlement charge of \$14.5, or \$0.05 per diluted share, was recorded in the fourth quarter of 2018. Excluding this item, 2018 adjusted net income was \$200.5, or \$0.64 per diluted share, compared to 2017 adjusted net income of \$159.8, or \$0.50 per diluted share. Our adjusted EBITDA (as defined in *Non-GAAP Financial Measures*) was \$563.4, or 8.3% of net sales, for 2018, compared to adjusted EBITDA of \$528.5, or 8.7% of net sales, for 2017. Our 2017 reported results reflected net charges totaling \$56.3, or \$0.18 per diluted share.

The average selling price per flat-rolled steel ton increased by 7% in 2018 from 2017, primarily due to higher prices for carbon spot market sales and automotive sales, partially offset by the effect on product mix of lower shipments to the automotive market. The impact of the higher prices was also partially offset by outage costs in 2018 totaling \$91.1, up from \$84.9 in 2017, and higher costs for transportation, raw materials and supplies. We recorded unrealized gains on iron ore derivatives of \$0.2 in 2018, as compared to unrealized gains of \$31.6 in 2017.

During 2018, we continued to reduce our leverage and long-term liabilities. During the course of the year, we reduced our outstanding long-term debt by \$116.4 and our total pension and other postretirement benefit obligations by \$65.7. We also continued to take proactive steps to further de-risk exposure to our pension plan by transferring \$278.8 of pension obligations for approximately 5,400 retirees or their beneficiaries to a highly rated insurance company.

On January 1, 2018, we changed our accounting method for valuing inventories to the average cost method for inventories previously valued using the last-in, first-out (“LIFO”) method. We believe that the average cost method is preferable since it improves comparability with our peers, more closely tracks the physical flow of our inventory, better matches revenue with expenses, and aligns with how we internally manage our business. The effects of the change in accounting method from LIFO to average cost have been retrospectively applied to all periods presented in all sections of this Annual Report, including *Management’s Discussion and Analysis*. See Note 2 to our consolidated financial statements for more information related to the change in accounting principle.

On August 4, 2017, we acquired Precision Partners, which provides advanced-engineered solutions, tool design and build, hot- and cold-stamped steel components and complex assemblies for the automotive market. Our financial results include the effects of the acquisition and Precision Partners’ operations for periods after the acquisition, affecting comparability between periods. See *Precision Partners* for more information.

2018 Compared to 2017*Steel Shipments*

Flat-rolled steel shipments in 2018 were 5,683,400 tons, a 2% increase compared to 2017 shipments of 5,596,200 tons. The increase was a result of higher demand from the distributors and converters market, which was partially offset by a 3% decline in shipments to the automotive market. Shipments of flat-rolled steel by product category for 2018 and 2017, as a percent of total flat-rolled steel shipments, were as follows:

Table of Contents**Flat-Rolled Steel Shipments by Product Category***Net Sales*

The following table presents information on net sales:

	2018	2017	Increase
Net sales	\$6,818.2	\$6,080.5	12 %
Average net selling price per ton	1,091	1,022	7 %
Net sales outside the United States	634.8	627.1	
Net sales outside the United States as a percent of net sales	9	% 10	%

The increase in net sales was driven by higher shipments and better steel pricing, which includes the effect of surcharges. The increase in average net selling price per ton was primarily driven by higher selling prices in the carbon spot market and for automotive sales.

The following table presents the percentage of net sales to each of our markets:

Market	2018	2017
Automotive	63 %	65 %
Infrastructure and Manufacturing	15 %	16 %
Distributors and Converters	22 %	19 %

Cost of Products Sold

Cost of products sold in 2018 was \$5,911.0, or 86.7% of net sales, and increased from 2017 cost of products sold of \$5,253.1, or 86.4% of net sales, largely due to higher costs for raw materials, transportation and supplies, including graphite electrodes. Cost of products sold included planned maintenance outage costs of \$40.2 in 2018, compared to \$84.9 in 2017. The higher planned maintenance outage costs in 2017 were primarily a result of larger planned maintenance projects at our Middletown Works blast furnace and steelmaking shops and our Mansfield Works melt shop. We also had unplanned outage costs at our Middletown Works in 2018 totaling \$50.9, partially offset by insurance recoveries totaling \$15.1. We recorded mark-to-market gains of \$0.2 and \$31.6 for 2018 and 2017 from iron ore derivatives that do not qualify as cash flow hedges for accounting purposes.

Selling and Administrative Expense

Selling and administrative expense increased to \$322.6 in 2018 from \$284.9 in 2017. The increase was primarily related to the inclusion of Precision Partners, which we acquired in August 2017, and higher variable compensation expense.

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Depreciation Expense

Depreciation expense decreased to \$220.2 in 2018 from \$226.0 in 2017. Depreciation expense for the acquired Precision Partners property, plant and equipment was offset by lower depreciation expense as a result of the fourth quarter 2017 impairment of the Ashland Works Hot End long-lived assets.

Charges (Credit) for Termination of Pellet Agreement and Related Transportation Costs

In 2017, we reached an agreement for transportation services that provides a timeframe to begin using the rail cars that were idled after the termination of a pellet supply agreement. As a result, we recorded a credit of \$19.3 to reduce the unpaid liability. See Note 4 to the consolidated financial statements for further information.

Asset Impairment Charge

In 2017, we recognized a non-cash asset impairment charge of \$75.6, primarily related to the long-lived assets associated with the temporarily idled Ashland Works Hot End. See Note 2 to the consolidated financial statements for further information.

Operating Profit

Operating profit for 2018 of \$364.4 was higher than 2017 operating profit of \$260.2. Included in the 2017 operating profit was the credit of \$19.3 to reduce the transportation liability related to our terminated iron ore pellet offtake agreement and a non-cash asset impairment charge of \$75.6, primarily for the Ashland Works Hot End fixed assets. Also included in operating profit was SunCoke Middletown's operating profit of \$58.4 and \$61.7 for 2018 and 2017.

Interest Expense

Interest expense for 2018 decreased to \$151.6 from \$152.3 in 2017. The decrease from 2017 primarily reflected our successful 2017 actions to reduce our principal amount of senior unsecured notes and to refinance debt with lower interest rates, partially offset by higher average borrowings outstanding on our Credit Facility in 2018.

Pension and Other Postretirement Employee Benefit ("OPEB") Expense (Income)

Pension and OPEB income of \$19.2 in 2018 decreased from income of \$71.9 in 2017. The decrease in income was primarily due to lower amortization of prior service credits, partially offset by lower interest costs. We also recorded settlement losses of \$14.5 in 2018 as a result of the purchase of a non-participating annuity contract for certain retirees and lump sum payouts to new retirees.

Other (Income) Expense

Other (income) expense was income of \$(5.9) in 2018 and expense of \$17.1 in 2017. The expense in 2017 was primarily a result of expenses of \$21.5 that we incurred in connection with the refinancing of debt in 2017.

Income Tax Expense (Benefit)

The Tax Act, signed into law on December 22, 2017, reduced corporate income tax rates and the corresponding value of our deferred tax assets. As a result, the company's income tax expense for 2017 includes a \$4.3 non-cash credit related to this change. During 2018, we reduced our valuation allowance and recorded an income tax benefit of \$5.3 as a result of changes to the tax net operating loss carryover rules included in the Tax Act that allow us to use certain

indefinite-lived deferred tax liabilities as a source of future income to realize deferred tax assets. As a result, we recorded an income tax benefit of \$6.2 in 2018, compared to an income tax benefit of \$2.2 in 2017.

Net Income (Loss) and Adjusted Net Income (Loss) Attributable to AK Steel Holding Corporation

Net income attributable to AK Holding in 2018 was \$186.0, or \$0.59 per diluted share. Net income in 2018 included a pension settlement loss of \$14.5, or \$0.05 per diluted share. Excluding this item, we reported adjusted net income attributable to AK Holding of \$200.5, or \$0.64 per diluted share, for 2018.

Net income attributable to AK Holding in 2017 was \$103.5, or \$0.32 per diluted share. The net income in 2017 included a credit of \$19.3, or \$0.06 per diluted share, to adjust the transportation liability associated with a terminated pellet offtake agreement and an asset impairment charge of \$75.6, or \$0.24 per diluted share. Excluding these items, we reported adjusted net income attributable to AK Holding of \$159.8, or \$0.50 per diluted share, for 2017.

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Adjusted EBITDA was \$563.4, or 8.3% of net sales, for 2018, as compared to \$528.5, or 8.7% of net sales, for 2017.

2017 Compared to 2016*Steel Shipments*

Flat-rolled steel shipments in 2017 were 5,596,200 tons, a 6% decrease from 2016 flat-rolled steel shipments of 5,936,400 tons. The decrease in flat-rolled steel shipments was principally driven by a 10% decline in shipments to the automotive market compared to 2016, primarily as a result of reduced North American light vehicle production. Shipments of flat-rolled steel by product category for 2017 and 2016 as a percent of total flat-rolled steel shipments, were as follows:

Shipments by Product Category*Net Sales*

The following table presents information on net sales:

	2017	2016	Increase
Net sales	\$6,080.5	\$5,882.5	3 %
Average net selling price per ton	1,022	955	7 %
Net sales outside the United States	627.1	655.6	
Net sales outside the United States as a percent of net sales	10	% 11	%

The increases in net sales and average net selling price per ton reflect our strategy of producing and selling higher-value carbon, stainless and electrical steels, higher prices on both automotive and spot market sales, and higher surcharges on specialty steel products. Revenues for 2017 also included net sales of Precision Partners following the August 4, 2017 acquisition. The decrease in net sales to customers outside the United States was primarily due to lower international sales of carbon and electrical steel.

The following table presents the percentage of net sales to each of our markets:

Market	2017	2016
Automotive	65 %	66 %
Infrastructure and Manufacturing	16 %	16 %
Distributors and Converters	19 %	18 %

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Cost of Products Sold

Cost of products sold in 2017 was \$5,253.1, or 86.4% of net sales, and increased from 2016 cost of products sold of \$5,099.7, or 86.7% of net sales, largely due to higher costs for raw materials, primarily scrap, chrome and other alloys. Cost of products sold included planned maintenance outage costs of \$84.9 in 2017, compared to \$62.1 in 2016. The higher planned maintenance outage costs in 2017 were primarily a result of larger planned maintenance projects at our Middletown Works blast furnace and steelmaking shops and our Mansfield Works melt shop.

Beginning in the third quarter of 2016, our iron ore derivatives no longer qualified for hedge accounting treatment. Therefore, we recorded adjustments to mark these derivatives to fair value each period and recognized the resulting unrealized gains or losses immediately in cost of products sold, versus recognizing them in the period that iron ore purchases affect earnings. In 2017, we recognized \$31.6 of unrealized gains since the market price of iron ore and the fair value of the derivative contracts increased. Cost of products sold for the fourth quarter of 2016 included \$33.8 of unrealized gains on iron ore derivatives contracts that were scheduled to settle in 2017 and 2018. As a result, cost of products sold for 2017 did not reflect \$36.0 of realized gains from the contracts that settled during the year, but that were recognized in prior periods.

Selling and Administrative Expense

Selling and administrative expense increased to \$284.9 in 2017 from \$279.1 in 2016. The increase included acquisition costs of \$6.2 in 2017 related to the Precision Partners acquisition and on-going expenses after its acquisition, partially offset by lower costs for employee incentive compensation in 2017 than in 2016.

Depreciation Expense

Depreciation expense increased slightly to \$226.0 in 2017 from \$216.6 in 2016. We recognized \$5.8 of depreciation expense for Precision Partners' property, plant, and equipment since the August 4, 2017 acquisition.

Charges (Credit) for Termination of Pellet Agreement and Related Transportation Costs

In the fourth quarter of 2016, the United States Bankruptcy Court for the District of Minnesota approved a settlement agreement with certain third parties to terminate our long-term iron ore pellet offtake agreement with Magnetation LLC and to wind down Magnetation's business. In connection with that approval, we recognized charges of \$69.5 in the fourth quarter of 2016 that covered both a \$36.6 payment we made to the bankruptcy estate in the quarter and additional charges of \$32.9 for remaining obligations under contracts with other third parties to transport pellets to our facilities. In the fourth quarter of 2017, we reached an agreement for transportation services that provides a timeframe to begin using the rail cars that were idled after the termination of the pellet supply agreement. As a result, we recorded a credit of \$19.3 to reduce the unpaid liability during the fourth quarter of 2017. See Note 4 to the consolidated financial statements for further information.

Asset Impairment Charge

In 2017, we recognized a non-cash asset impairment charge of \$75.6, primarily related to the long-lived assets associated with the temporarily idled Ashland Works Hot End. See Note 2 to the consolidated financial statements for further information.

Operating Profit

Operating profit for 2017 of \$260.2 was higher than 2016 operating profit of \$217.6. The 2017 operating profit included the credit of \$19.3 to reduce the transportation liability related to our terminated iron ore pellet offtake agreement and a non-cash asset impairment charge of \$75.6, primarily for the Ashland Works Hot End fixed assets. The 2016 operating profit included charges for the termination of the Magnetation pellet offtake agreement and related transportation costs of \$69.5. Also included was operating profit from SunCoke Middletown of \$61.7 and \$66.0 for 2017 and 2016.

Interest Expense

Interest expense for 2017 decreased to \$152.3 from \$163.9 in 2016. The decrease from 2016 primarily reflected our successful actions to reduce our principal amount of senior unsecured notes and to refinance debt with lower interest rates in 2017.

Pension and OPEB Expense (Income)

Pension and OPEB income was \$71.9 in 2017, compared to expense of \$16.5 in 2016. The change in income was principally a result of lower amortization of unrealized actuarial losses in 2017, as well as a net corridor charge and a pension settlement charge in 2016.

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In 2017, we incurred no pension or OPEB corridor adjustments. In 2016, we incurred a pension corridor charge of \$78.4 and an OPEB corridor credit of \$35.3. Although the corridor adjustments reduce reported operating and net income, they do not affect our cash flows in the current period. However, we expect to ultimately settle the pension and OPEB obligations in cash. See *Critical Accounting Estimates* for information on our policy for measurement and recognition of corridor adjustments. We also recorded settlement losses of \$25.0 in 2016 as a result of the purchase of non-participating annuity contracts for certain retirees and lump sum payouts to new retirees.

Other (Income) Expense

Other (income) expense was expense of \$17.1 and \$4.9 for 2017 and 2016, primarily as a result of expenses of \$21.5 and \$9.4 that we incurred in connection with the refinancing of debt in 2017 and 2016. See Note 6 to the consolidated financial statements for further information on long-term debt financing.

Income Tax Expense (Benefit)

The Tax Cuts and Jobs Act of 2017, signed into law on December 22, 2017, reduced corporate income tax rates and the corresponding value of our deferred tax liabilities. As a result, the company's income tax expense for the fourth quarter of 2017 includes a \$4.3 non-cash credit related to this change. We do not expect to incur cash tax liabilities in the near term, including any transition tax on undistributed earnings of our foreign subsidiaries, associated with the U.S. tax legislation due to the availability of existing net operating loss carryforwards.

Other than the effects of the new tax law, our income tax provision is primarily related to the allocation of income tax expense to other comprehensive income. The 2016 results included non-cash income tax benefits of \$15.5 from allocating income tax expense to other comprehensive income. As a result, we recorded an income tax benefit of \$2.2 in 2017, compared to an income tax benefit of \$16.9 in 2016.

Net Income (Loss) and Adjusted Net Income (Loss) Attributable to AK Steel Holding Corporation

Net income attributable to AK Holding in 2017 was \$103.5, or \$0.32 per diluted share. The net income in 2017 included a credit of \$19.3, or \$0.06 per diluted share, to adjust the transportation liability associated with a terminated pellet offtake agreement and an asset impairment charge of \$75.6, or \$0.24 per diluted share. Excluding the above items, we reported adjusted net income of \$159.8, or \$0.50 per diluted share, for 2017.

Net loss attributable to AK Holding in 2016 was \$16.8, or \$0.07 per diluted share. The net loss in 2016 included a pension corridor charge of \$78.4, an OPEB corridor credit of \$35.3, and pension settlement charges of \$25.0, netting to \$68.1, or \$0.30 per diluted share. Additionally, the net loss in 2016 included charges to terminate a pellet offtake agreement and related transportation costs of \$69.5, or \$0.06 per diluted share. Excluding these charges, our adjusted net income was \$120.8, or \$0.53 per diluted share, for 2016.

Adjusted EBITDA

Adjusted EBITDA was \$528.5, or 8.7% of net sales, for 2017, and \$472.8, or 8.0% of net sales, for 2016.

Non-GAAP Financial Measures

In certain of our disclosures, we have reported adjusted EBITDA, adjusted EBITDA margin and adjusted net income (loss) attributable to AK Holding that exclude the effects of noncontrolling interests, pension and OPEB net corridor and settlement charges, charges (credit) for the termination of an iron ore pellet offtake agreement and related transportation costs, impairment charges for our investments in Magnetation and AFSG, charges for temporarily

idling facilities and an asset impairment charge. We believe that reporting adjusted net income (loss) attributable to AK Holding (as a total and on a per share basis) with these items excluded more clearly reflects our current operating results and provides investors with a better understanding of our overall financial performance. Adjustments to net income (loss) attributable to AK Holding do not result in an income tax effect as any gross income tax effects are offset by a corresponding change in the deferred income tax valuation allowance.

EBITDA is an acronym for earnings before interest, taxes, depreciation and amortization. It is a metric that is sometimes used to compare the results of different companies by removing the effects of different factors that might otherwise make comparisons inaccurate or inappropriate. For purposes of this report, we have made the adjustments to EBITDA noted in the preceding paragraph. The adjusted results, although not financial measures under generally accepted accounting principles in the United States (“GAAP”) and not identically applied by other companies, facilitate the ability to analyze our financial results in relation to those of our competitors and to our prior financial performance by excluding items that otherwise would distort the comparison. Adjusted EBITDA, adjusted EBITDA margin and adjusted net income (loss) are not, however, intended as alternative measures of operating

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results or cash flow from operations as determined in accordance with GAAP and are not necessarily comparable to similarly titled measures used by other companies.

We recognize in our results of operations, as a corridor adjustment, any unrecognized actuarial net gains or losses that exceed 10% of the larger of projected benefit obligations or plan assets. Amounts inside this 10% corridor are amortized over the plan participants' life expectancy. The need for a corridor charge is considered at any remeasurement date, but has generally only been recorded in the fourth quarter at the time of the annual remeasurement. After excluding the corridor charge, the remaining pension and OPEB expenses included in the non-GAAP measure are comparable to the accounting for pension and OPEB expenses on a GAAP basis in the first three quarters of the year and we believe this is useful to investors in analyzing our results on a quarter-to-quarter basis, as well as analyzing our results on a year-to-year basis. As a result of the corridor method of accounting, our subsequent financial results on both a GAAP and a non-GAAP basis do not contain any amortization of prior period actuarial gains or losses that exceeded the corridor threshold because those amounts were immediately recognized as a corridor adjustment in the period incurred. Actuarial net gains and losses occur when actual experience differs from any of the many assumptions used to value the benefit plans, or when the assumptions change, as they may each year when we perform a valuation. The two most significant of those assumptions are the discount rate we use to value projected plan obligations and the rate of return on plan assets. In addition, changes in other actuarial assumptions and the degree by which the unrealized gains or losses are within the corridor threshold before remeasurement will affect the corridor adjustment calculation. The effect of prevailing interest rates on the discount rate as of a measurement date and actual return on plan assets compared to the expected return will have a significant impact on our liability, corridor adjustment and following year's expense for these benefit plans. For example, actuarial assumptions we made to remeasure the funded status of our pension and OPEB obligations in the fourth quarter of 2016 affected actuarial losses and the related pension/OPEB net corridor charge. The net corridor charge reflected (i) a decrease in the discount rate assumption used to determine pension liabilities from 4.15% at December 31, 2015 to 3.35% at the October 2016 remeasurement (an actuarial loss of approximately \$221.1), partially offset by (ii) gains from changes in pension and OPEB mortality assumptions, lower claims costs and other demographic factors (netting to a gain of approximately \$76.4) and (iii) the net effect of the difference between the expected annualized return on assets of 7.25% (\$129.4) and the actual annualized return on assets of 12.7% as of the October 2016 remeasurement (\$228.8) (netting to a gain of \$99.4). We believe that the corridor method of accounting for pension and OPEB obligations is rarely used by other publicly traded companies. However, because other companies use different approaches to recognize actuarial gains and losses, our resulting pension and OPEB expense on a GAAP basis or a non-GAAP basis may not be comparable to other companies' pension and OPEB expense on a GAAP basis. Although the net corridor charge reduces reported operating and net income, it does not affect our cash flows in the current period. However, we expect to ultimately settle the pension and OPEB obligations in cash.

Neither current shareholders nor potential investors in our securities should rely on adjusted EBITDA, adjusted EBITDA margin or adjusted net income (loss) as a substitute for any GAAP financial measure and we encourage investors and potential investors to review the following reconciliations of adjusted EBITDA and adjusted net income (loss).

Reconciliation of Adjusted EBITDA

	2018	2017	2016
Net income (loss) attributable to AK Holding	\$186.0	\$103.5	\$(16.8)
Net income attributable to noncontrolling interests	58.1	61.4	66.0
Income tax expense (benefit)	(6.2)	(2.2)	(16.9)
Interest expense, net	150.7	150.9	162.3
Depreciation and amortization	237.0	236.3	221.4
EBITDA	625.6	549.9	416.0
Less: EBITDA of noncontrolling interests (a)	76.7	77.7	80.8

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Pension and OPEB net corridor and settlement charges	14.5	—	68.1
Charges (credit) for termination of pellet agreement and related transportation costs	—	(19.3)	69.5
Asset impairment charge	—	75.6	—
Adjusted EBITDA	\$563.4	\$528.5	\$472.8
Adjusted EBITDA margin	8.3 %	8.7 %	8.0 %

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(a) The reconciliation of net income attributable to noncontrolling interests to EBITDA of noncontrolling interests is as follows:

	2018	2017	2016
Net income attributable to noncontrolling interests	\$58.1	\$61.4	\$66.0
Depreciation	18.6	16.3	14.8
EBITDA of noncontrolling interests	\$76.7	\$77.7	\$80.8

Reconciliation of Adjusted Net Income

	2018	2017	2016
Reconciliation to Net Income (Loss) Attributable to AK Holding			
Net income (loss) attributable to AK Holding, as reported	\$186.0	\$103.5	\$(16.8)
Pension and OPEB net corridor and settlement charges	14.5	—	68.1
Charges (credit) for termination of pellet agreement and related transportation costs	—	(19.3)	69.5
Asset impairment charge	—	75.6	—
Adjusted net income attributable to AK Holding	\$200.5	\$159.8	\$120.8

Reconciliation to Diluted Earnings (Loss) per Share

Diluted earnings (loss) per share, as reported	\$0.59	\$0.32	\$(0.07)
Pension and OPEB net corridor and settlement charges	0.05	—	0.30
Charges (credit) for termination of pellet agreement and related transportation costs	—	(0.06)	0.30
Asset impairment charge	—	0.24	—
Adjusted diluted earnings per share	\$0.64	\$0.50	\$0.53

Liquidity and Capital Resources

At December 31, 2018, we had total liquidity of \$988.8, consisting of \$47.0 of cash and cash equivalents and \$941.8 of availability under the Credit Facility. Our obligations under the Credit Facility are secured by inventory and accounts receivable. Availability under the Credit Facility fluctuates monthly based on our varying levels of eligible collateral. Our eligible collateral was in excess of \$1,350.0 at December 31, 2018, after application of applicable advance rates. At December 31, 2018, we had \$335.0 of outstanding borrowings under the Credit Facility, and \$73.2 of outstanding letters of credit that further reduced availability. During the year ended December 31, 2018, our borrowings from the Credit Facility ranged from \$315.0 to \$570.0, with outstanding borrowings averaging \$429.0 per day.

We believe that our current sources of liquidity will be adequate to meet our obligations for the foreseeable future. We expect to fund future liquidity requirements for items such as capital investments, employee and retiree benefit obligations, scheduled debt maturities and debt redemptions with internally generated cash and other financing sources. As part of our efforts to improve our capital structure, we regularly evaluate accessing the capital markets as a source of liquidity if we view conditions as favorable. Consolidated cash and cash equivalents of \$48.6 at December 31, 2018, includes \$1.6 of cash and cash equivalents of consolidated variable interest entities, which are not available for our use. We may use the Credit Facility as necessary to fund requirements for working capital, capital investments and other general corporate purposes. We are focused on reducing debt through free cash flow generation. In 2019, our only scheduled debt maturity is our \$148.5 of 5.0% Exchangeable Senior Notes (the “Exchangeable Notes”) due November 2019. We intend to refinance the Exchangeable Notes prior to maturity or use availability under our Credit facility to repay them. We believe that we would continue to have sufficient liquidity if we were to borrow under the Credit Facility to retire the Exchangeable Notes. Our Credit Facility is scheduled to expire in September 2022 and any amounts outstanding under it at the time of expiration would need to be repaid or refinanced.

From time to time, we may repurchase, as we have done previously, outstanding notes in the open market on an unsolicited basis, by tender offer, through privately negotiated transactions or otherwise. Our forward-looking statements on liquidity are based on currently available information and expectations and, if the information or expectations are inaccurate or conditions deteriorate, there could be a material adverse effect on our liquidity.

We have significant debt maturities and other obligations that will be due in future periods, including possible required cash contributions to our qualified pension plan. For further information, see the *Contractual Obligations* section.

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Cash from operating activities totaled \$364.7 for 2018, which includes \$76.6 that was generated by and can only be used by SunCoke Middletown for its operations or for distribution to its equity owners. Cash generated from a \$119.6 increase in accounts payable was partially offset by a \$125.0 increase in accounts receivable. During the year, we made required annual pension contributions of \$49.9 and payments for other pension and OPEB benefits of \$36.6. The remaining cash from operations was generated from normal business activities for the year.

Investing and Financing Activities

During 2018, net cash used for investing activities totaled \$151.9, primarily for capital investments.

Net cash from financing activities in 2018 was \$202.2, primarily from payments on the Credit Facility. During 2018, we also repurchased aggregate principal amount of \$15.0 of our senior unsecured notes at a discount, resulting in gains of \$2.0. The total cash used for financing activities also includes \$73.7 of payments from SunCoke Middletown to SunCoke.

Restrictions Under Debt Agreements

The indentures governing our senior indebtedness and tax-exempt fixed-rate industrial revenue bonds (“IRBs”) (collectively, the “Notes”) and Credit Facility contain restrictions and covenants that may limit our operating flexibility. The Credit Facility contains customary restrictions, including limitations on, among other things, distributions and dividends, acquisitions and investments, dispositions, indebtedness, liens and affiliate transactions. Availability is calculated as the lesser of the total commitments under the Credit Facility or eligible collateral after advance rates, less outstanding revolver borrowings and letters of credit. The Credit Facility requires us to maintain a minimum fixed charge coverage ratio of one to one if availability under the Credit Facility is less than \$135.0. We are in compliance with restrictions and covenants under our Credit Facility and Notes and, in the absence of any significant and sustained material adverse events, expect that we will remain in compliance for the foreseeable future.

The indentures governing the Notes (other than the Exchangeable Notes) include customary restrictions on (a) the incurrence of additional debt by certain of our subsidiaries, (b) the incurrence of certain liens, (c) the amount of sale/leaseback transactions, and (d) our ability to merge or consolidate with other entities or to sell, lease or transfer all or substantially all of our assets to another entity. They also contain customary events of default. In addition, the indenture governing the 7.50% Senior Secured Notes due July 2023 includes covenants with customary restrictions on the use of proceeds from the sale of collateral. The indenture governing the Exchangeable Notes does not contain any financial or operating covenants or restrictions on the payments of dividends, the incurrence of indebtedness or the issuance or repurchase of securities by us.

We do not expect any of these restrictions to affect or limit our ability to conduct our business in the ordinary course. During 2018, we were in compliance with all the terms and conditions of our debt agreements.

Capital Investments

Cash used for capital investments in 2018 totaled \$152.0. For 2019, we expect to make capital investments of \$170.0 to \$190.0, including about \$25.0 to \$30.0 of growth-related investments for our downstream businesses. These amounts could be adjusted based on changes in market conditions or operational needs. In the near-term, we expect to fund these investments from cash generated from operations or from borrowings under our Credit Facility.

Employee Benefit Obligations

In addition to actions taken in prior years to reduce the growth of employee benefit obligations, we continue to actively seek options to de-risk our pension and OPEB obligations. Actions taken in prior years include closing our major pension plan to new participants, freezing all benefits under the plan, and transferring a portion of the pension obligations and related assets to an insurance company.

Pension and OPEB obligations declined by approximately \$65.7 in 2018, primarily due to contributing \$49.9 to the pension trust and making benefit payments during the year. We will be required to make contributions to our plan's pension trust of varying amounts until it is fully funded, and some of these contributions could be substantial. We are required to make approximately \$45.0 of pension contributions in 2019. Based on current actuarial assumptions, we expect to make required annual pension contributions of approximately \$50.0 for 2020 and \$50.0 for 2021. The amount and timing of future required contributions to the pension trust depend on assumptions about future events. The most significant of these assumptions are the future investment performance of the pension funds, actuarial data about plan participants and the interest rate we use to discount benefits to their present value. In addition, the amount and timing of future contributions may be affected by future activities we may take to reduce and de-risk our pension obligations. Because of the variability of factors underlying these assumptions, including the possibility of future pension legislation or increased pension insurance premiums, the reliability of estimated future pension contributions decreases as the length of time until

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we must make the contribution increases. We changed our assumption for future expected returns on plan assets to 6.75% from 7.00%, effective January 1, 2019. This change will reduce our pension income in 2019 from 2018 by approximately \$4.0.

We provide healthcare benefits to a significant portion of our employees and retirees. OPEB benefits have been either eliminated for new employees or are subject to caps on the share of benefits we pay. Based on the assumptions used to value other postretirement benefits, primarily retiree healthcare and life insurance benefits, annual cash payments for these benefits are expected to be in a range that trends down from \$37.5 in 2019 to \$8.8 over the next 30 years.

In recent years, we have made multiple advances in reducing and de-risking our pension obligations. During 2018, we transferred \$278.8 of pension obligations to an insurance company for approximately 5,400 retirees or their beneficiaries. Since mid-2016, we have transferred a total of \$494.0 in pension trust assets to purchase three non-participating annuity contracts that require the insurance companies to pay the transferred pension obligations to over 15,400 pension participants.

Ashland Works Closure

In January 2019, we announced that we intend to permanently close our largely idled Ashland Works, subject to negotiations with the labor union at that facility. More than three years ago, we idled most of the Ashland Works operations, including the blast furnace, but continued to operate a single hot dip galvanizing coating line with approximately 230 employees. We plan to increase our operating efficiency and lower our costs by completing the shutdown of the blast furnace and steelmaking operations within the next several months, and by working with our customers to transition, before the end of this year, products coated at Ashland Works to our other operations in the United States that have available capacity. This will increase those operations' utilization rates. Production volumes and customer shipments are not expected to be impacted by the closure. Once fully implemented, these actions are projected to result in annual savings of over \$40.0, primarily from switching production to lower-cost operations, reducing the costs for on-going maintenance, utilities and supplier obligations at Ashland Works, and lowering costs for transportation by being able to process steel closer to the end customer and eliminate additional product movement between our facilities. These savings, combined with the positive impact of the Administration's policies to address unfair trade practices, will help facilitate our longer-term growth plans. It will also help maintain and enhance our more cost-effective steelmaking facilities and further drive growth and innovation.

Factors that influenced our decision to close Ashland Works included an uncertain global trade landscape influenced by shifting domestic and international political priorities, Ashland Works' high cost of production and continued intense competition from domestic and foreign steel competitors. These conditions directly impact our pricing, which in turn directly impacts our assessment of the demand forecasts for the markets we serve. Despite several successful trade actions, we continue to see a high level of carbon steel imports driven by global overcapacity, particularly in China. We also have seen significant capacity restarted or new capacity additions announced in the United States.

We expect to record a charge of approximately \$80.0 during the first quarter of 2019, which includes approximately \$20.0 for termination of certain take-or-pay supply agreements, approximately \$30.0 for supplemental unemployment and other employee benefit costs, an estimated multiemployer plan withdrawal liability of \$25.0 and approximately \$5.0 for other costs. The supplemental unemployment and other employee benefit costs are expected to be paid primarily in 2020 and 2021. With respect to the \$80.0 charge, we expect to make cash payments of approximately \$15.0 in 2019, \$30.0 in 2020 and the remaining amount over several years thereafter. The actual multiemployer plan withdrawal liability will not be known until 2020 and is expected to be paid over a number of years. In addition to the \$80.0 charge recorded in the first quarter of 2019, we expect to record expenses of approximately \$14.0 during the full-year 2019, consisting of cash costs of approximately \$10.0 related to closing the facility and \$4.0 of accelerated depreciation related to the coating line fixed assets. These cash costs related to closing the facility will decline in

future years and the accelerated depreciation expense will only be incurred in 2019. On-going costs for maintenance of the equipment, utilities and supplier obligations related to the idled Ashland Works Hot End were \$20.4, \$21.2, and \$22.1 for the years ended December 31, 2018, 2017 and 2016.

Off-Balance Sheet Arrangements

There were no material off-balance sheet arrangements as of December 31, 2018.

Selected Factors that Affect Our Operating Results

Automotive Market

We sell a significant portion of our carbon and stainless steel flat-rolled and tubular products directly to automotive manufacturers and their Tier 1 suppliers, as well as to distributors, service centers and converters who in some cases resell the products to the automotive industry. Because the automotive market is an important element of our business and growth strategy, North American light vehicle production has a significant impact on our total sales and shipments. In 2018, North American light vehicle production declined

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slightly to approximately 17.0 million units from the prior year. As a result, our flat-rolled steel shipments to the automotive industry declined 3%. Substantially all of Precision Partners' revenue is from the automotive market and growth in its hot-stamping and cold-stamping business drove a higher level of revenue in 2018 than in 2017.

Carbon Steel Spot Market

Since 2016, we have intentionally and substantially reduced our sales and shipments to the commodity carbon steel spot market and implemented a strategy to focus our product mix on value-added steel products. Generally, sales into the carbon steel spot market are at prevailing market prices, which are highly volatile, and are subject to intense competition from both low-cost domestic producers and cheap, unfairly traded foreign imports. Fluctuations in spot market prices have a direct effect on our results and are driven by factors mostly outside our control. In addition, the spot market price fluctuations do not always directly correlate with our raw material and energy costs and, consequently, we have limited ability to pass through increases in costs to customers absent increases in the market price.

Specialty Electrical and Stainless Steel Markets

We are a leading manufacturer of GOES and other electrical steels, which we sell to customers primarily in North America and Europe. We have experienced a substantial decline in shipments to international markets due to global overcapacity and both direct and indirect effects of European and Chinese trade actions.

We are also a leading manufacturer of value-added stainless steel, primarily for the automotive market. Stainless steel is typically priced with a fixed base price and surcharges to reflect changes in the cost of certain raw materials. Thus, while we expect revenues will generally offset changes in costs, there may be a timing lag from the change in costs in one period to the change in revenue in a different period.

Trade Matters

Section 232 Investigation of Imported Foreign Steel

On April 19, 2017, the Commerce Department initiated an investigation pursuant to Section 232 of the Trade Expansion Act, as amended by the Trade Act of 1974 ("Section 232"), into whether imports of foreign steel into the U.S. pose a threat to U.S. national security. On March 8, 2018, President Trump signed a proclamation pursuant to Section 232 imposing a 25 percent tariff on imported steel. Following the proclamation, the U.S. government announced various agreements for exemptions from the Section 232 steel tariff for certain countries, including Argentina, Australia, Brazil and South Korea. Some of these countries, such as South Korea and Brazil, have agreed to a quota system that limits their annual imports of steel into the U.S. In addition, although steel products from the European Union, Canada and Mexico were initially exempted from the tariff, on June 1, 2018, those exemptions expired and the Section 232 tariff was applied to steel imports from these countries as well. In retaliation against the Section 232 tariffs, the European Union, Mexico and Canada subsequently imposed their own tariffs against certain steel products and other goods imported from the U.S. The Mexican retaliatory tariffs went into effect on June 5, 2018, the European Union's tariffs began to apply on June 22, 2018, and Canadian tariffs became effective on July 1, 2018.

We ship steel products into Canada, Mexico and the European Union and are required to pay tariffs on certain of our shipments. We may at some point in the future recover a portion of the tariffs we have paid to Canada under the country's duty drawback rules. These rules provide for the reimbursement for tariffs paid on the portion of products imported into that country that are exported from Canada as part of a final product. Our understanding is that the U.S. government has been and will continue to negotiate with the European Union, Mexico and Canada for a resolution to

the trade issues between the U.S. and these countries. We do not know how long these tariffs will remain in effect, if these trade issues will be resolved, or whether the terms of any such resolutions will be beneficial or detrimental to our business. In addition to the ongoing country-by-country negotiations in which the U.S. government is engaged, the Commerce Department has also implemented a system for petitioning the U.S. government to exempt specific products (for instance, a certain grade of steel) from the tariff and a process for challenging these exemption requests.

The Section 232 steel tariff currently only applies to certain steel products, including flat-rolled carbon, stainless and electrical steel products, but it does not apply to certain downstream goods that may contain these steels. As a result, some third parties or customers may attempt to substitute purchases of our flat-rolled steel with imports of downstream goods containing foreign steel product inputs that are not subject to the tariff or trade cases. These actions would circumvent the purpose and intent of the Section 232 steel tariffs. The effects of the limited scope of the steel tariff are particularly salient to our electrical steel business. Imports of downstream electrical goods not currently covered by the tariff include electrical transformer cores and core assemblies, electrical transformers, and even laminations, which are simply cut pieces of electrical steel. To avoid the Section 232 steel tariff, producers have increased their imports of foreign-made downstream electrical goods or moved some of their domestic production outside the United States, which adversely affects our electrical steel business. In the absence of a remedy against these actions to circumvent the Section 232

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steel tariff on electrical steel, these actions are likely to increase over time, pressuring our electrical steel business. We continue to proactively work to mitigate or eliminate this potential avenue for avoiding and circumventing the steel tariff, including by communicating our concerns to the U.S. government and requesting appropriate action to address this issue. We believe the United States' electrical infrastructure is critical to national security and that additional actions are necessary and should be undertaken by the U.S. government to preserve its short- and long-term integrity.

Members of the U.S. Congress have introduced legislation to restrict the President's power to implement tariffs on national security grounds. Some of the proposed legislation has included provisions that would require Congressional approval of the current Section 232 proclamations or they would terminate. If such legislation is passed by both the House of Representatives and Senate, President Trump would have the ability to veto it, which would then require a two-thirds majority vote in each of the branches of Congress to override the presidential veto.

United States-Mexico-Canada Trade Agreement

On October 1, 2018, the Trump administration announced that the U.S. had reached an agreement with Canada and Mexico on the USMCA, which is being proposed to replace the existing NAFTA among those countries. Among other things, the USMCA, as proposed, includes revised "rules of origin" that encourage automobiles and other products manufactured in North America to contain certain levels of North American-made content and that require a certain percentage of work on North American-made automobiles be performed by workers earning at least \$16 per hour in order to be exempt from tariffs. The proposed terms of the USMCA also include provisions that incentivize the use of North American steel. Because all of our manufacturing facilities are located in North America and our principal market is automotive, we believe that the USMCA has the potential to positively impact our business by incentivizing automakers and other manufacturers to increase manufacturing production in North America and to use North American steel. For the proposed USMCA to take effect, both houses of Congress must approve implementing legislation, and it is not currently possible to predict when, if ever, this may occur. At this time, the USMCA does not alter or affect the terms of Section 232 tariffs on imported steel or related retaliatory tariffs, which continue to remain in effect.

Research, Innovation and Operations

We continued to pursue our investments in research and innovation, particularly through increased collaboration between our downstream businesses and legacy steelmaking operations. Our intended plan to increase capacity utilization and operating efficiencies in our more cost-effective steelmaking facilities in 2019 will help generate the resources for us to continue our expanded investments in downstream businesses and research and innovation. As part of our underlying strategy to focus on higher-value materials and minimize exposure to commodity products, our investment in research and innovation during the past three years has been \$29.4, \$28.1 and \$28.3 in 2018, 2017 and 2016. In addition, we acquired the Research and Innovation Center capital lease for \$26.6 in October 2017.

Raw Materials

Iron ore is one of the principal raw materials required for our steel manufacturing operations. We purchased approximately 6.5 million tons of iron ore pellets in 2018 and expect to purchase approximately 6.4 million tons in 2019. We make most of our purchases of iron ore at negotiated prices under multi-year agreements. For 2019, we expect to purchase most of our iron ore from one supplier. The price we pay for iron ore is affected by a variety of factors under the terms of our contracts, including measures of general industrial inflation and steel prices and a variable-price mechanism that adjusts the annual average price we pay for iron ore based on reference to an iron ore index referred to as the IODEX. A change in one of more of the factors upon which our iron ore price is determined (whether that may be the IODEX, inflation, steel prices or other indices) typically affects to varying degrees the price we pay for iron ore. Accordingly, the actual impact on us from a change in these factors will vary depending on the

percentage of the total iron ore we purchase and how much each factor is weighted for pricing under related contracts. In addition, the total net cost we pay for iron ore is affected by our hedging activities, which are described below. Thus, for example, although the tragic dam breach in January 2019 at Vale's iron ore operation in Brumadinho, Brazil could directly or indirectly result in an increase in the IODEX in 2019, we do not anticipate a material impact on our iron ore costs in 2019 because (i) the IODEX is only one component of our price for iron ore, (ii) our iron ore contracts contain a fixed pellet premium, and (iii) we have hedged a substantial portion of our 2019 IODEX exposure.

In addition to integrated risk strategies, we use derivative financial instruments to manage iron ore price risk that we cannot mitigate through our customer contracts. We use derivative instruments to reduce our exposure if iron ore costs increase, but these instruments can also reduce potential benefits if iron ore costs decline. We employ a systematic approach in our hedging strategy to mitigate iron ore exposure. We hedge a higher proportion of our near-term iron ore exposure and a lower proportion for our longer-term exposure through a combination of swaps and options. As of December 31, 2018, we have hedged the IODEX component for a portion of our iron ore purchases for 2019 and 2020 through the use of iron ore derivatives with notional amounts of 1,385,000 tons and 740,000 tons, which represents a substantial portion of our 2019 IODEX exposure. Our hedging activities further reduce our exposure to changes in the IODEX on the total cost we pay for iron ore. Our iron ore derivatives do not meet the accounting criteria for hedge

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accounting treatment. As a result, the changes in fair value for those derivatives are immediately recognized in earnings, instead of when we recognize the underlying cost of iron ore, thus potentially increasing the volatility of our results of operations. This volatility does not affect the ultimate gains or losses on the derivative contracts we will recognize in the financial statements, but only the timing of recognition.

Precision Partners

On August 4, 2017, we acquired 100% of the equity of Precision Partners, which provides advanced-engineered solutions, tool design and build, hot- and cold-stamped steel components and complex assemblies for the automotive market. Founded in 1955, Precision Partners is headquartered in Ontario, Canada, and has more than 1,000 employees, including approximately 300 engineers and skilled tool makers, across eight plants in Ontario, Alabama and Kentucky. Precision Partners specializes in manufacturing lightweight, complex components and assemblies, and it offers a broad portfolio of highly-engineered solutions. Among other benefits, we believe this strategic acquisition:

- complements our core focus on product innovation, accelerating the development and introduction of existing and new AHSS and PHS to the high-growth automotive lightweighting space;
- provides a fully integrated downstream platform that further strengthens our close collaboration with our automotive customers and their Tier 1 suppliers; and
- leverages our expertise in metals forming with Precision Partners' expertise in tool design and advanced product design-engineering capabilities in hot and cold stamping.

With our acquisition of Precision Partners, we added a well-respected supplier to our core automotive portfolio. Importantly, we believe that our addition of Precision Partners has begun to accelerate our efforts to drive adoption of our innovative steel products by automotive manufacturers and their Tier 1 suppliers. Our steelmaking experts and Precision Partners' engineers have undertaken numerous collaboration projects aimed at achieving this goal. Precision Partners' expertise in tool design and stamping capabilities has allowed us to deliver to customers fully formed prototypes of automotive components utilizing our innovative steel products. As such, we are now able to provide solutions through prototype automotive components. This approach has and will continue to demonstrate to customers that they can significantly lightweight automotive parts on an accelerated timeline by using our high-strength, highly formable grades of steel in place of traditional lower-strength grades. In addition, these collaborative projects are enhancing Precision Partners' knowledge and experience in tool design and build, and stamping of new, advanced grades of steel, enabling it to provide expert solutions to automotive customers now and in the future.

Labor Agreements

At December 31, 2018, we employed approximately 9,500 people, of which approximately 5,700 are represented by labor unions under various contracts that expire between 2019 and 2021.

In March 2018, members of the International Association of Machinists and Aerospace Workers, Local 1943, ratified a labor agreement covering approximately 1,760 production employees at Middletown Works. The new agreement expires March 15, 2020.

With our January 28, 2019, announcement of plans to permanently close the Ashland Works facility by the end of 2019, over the coming months we expect to engage in negotiations with the United Steelworkers, Local 1865, regarding the plant closure in accordance with applicable law and the terms and conditions of the labor agreement. The labor agreement, with an original expiration date of September 1, 2018, is by mutual agreement being extended on a rolling 60-day basis, subject to further notification of termination by either party.

The following labor agreements expire within the next twelve months:

• United Steelworkers, Local 1190, which governs approximately 230 production employees at Mountain State Carbon LLC, is scheduled to expire on March 1, 2019.

• United Auto Workers, Local 3303, which governs approximately 1,170 production employees at Butler Works, was originally scheduled to expire on April 1, 2019. By mutual agreement, the labor agreement has been extended and is now scheduled to expire on April 16, 2019.

• United Auto Workers, Local 4104, which governs approximately 100 production employees at Zanesville Works, is scheduled to expire on May 31, 2019.

• United Auto Workers, Local 3462, which governs approximately 300 production employees at Coshocton Works, is scheduled to expire on September 30, 2019.

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Potential Impact of Climate Change Legislation

On an ongoing basis we assess the potential impacts and implications of climate change and associated legislation and regulation on our business, operations, customers, suppliers, markets and other relevant areas. In 2010, the EPA issued a final “tailoring rule” providing new regulations governing major stationary sources of greenhouse gas emissions under the Clean Air Act. Generally, the tailoring rule requires that new or modified sources of high volumes of greenhouse gases must follow heightened permit standards and lower emissions thresholds. The EPA continues to work on further greenhouse gas emissions rules that would apply more broadly and to lower levels of emission sources. In 2014, the U.S. Supreme Court partially upheld and partially invalidated the tailoring rule. The decision’s impact will often require us to conduct a best available control technology analysis for greenhouse gases for new major projects. The tailoring rule will not materially adversely affect us in the near term and we cannot reliably estimate the regulation’s long-term impact. However, there are a number of factors that may affect us, including the EPA’s tailoring rule and other similar regulations, such as the EPA’s Clean Power Plant Rule established on August 3, 2015, implications from the Paris Climate Agreement arising from the 2015 United Nations Climate Change Conference or similar accords relating to climate change. These and other factors could cause us to suffer negative financial impacts over time from increased energy, environmental and other costs needed to comply with the limitations that our suppliers would impose on us directly or indirectly.

In 2017, the EPA announced its intention to repeal the Clean Power Plant Rule and the U.S. State Department gave formal notice of its intent to withdraw from the Paris Climate Agreement. The earliest date for the United States to completely withdraw from the Paris Agreement is November 4, 2020. Given these recent developments, we expect the near-term negative impacts to our business directly arising from climate change legislation to be low. However, we do not expect the potential challenges to our business arising from climate change to decline in the long term, and we do not expect our key customers in our principal markets to substantially reduce their focus on climate change-related issues. This is particularly true for our automotive manufacturer customers, who remain subject to CAFE standards and other regulations aimed at reducing vehicle emissions. In addition, automotive manufacturers typically design light vehicle platforms for multiple international markets, so other countries’ climate change legislation and regulations that govern the automotive manufacturers likely will continue to affect their approach for the U.S. market.

In addition, the possibility exists that some form of federally-enacted legislation or additional regulations in the U.S. may further impose limitations on greenhouse gas emissions. In the past, bills have been introduced in the United States Congress that aim to limit carbon emissions over long periods from facilities that emit significant amounts of greenhouse gases. Such bills, if enacted, would apply to the steel industry, in general, and to us, in particular, because producing steel from elemental iron creates carbon dioxide, one of the targeted greenhouse gases. Although we and other steel producers in the United States are actively participating in research and development to develop technology, processes and approaches for reducing greenhouse gas emissions, these developments will take time and it is impossible to predict when or to what degree these efforts will be successful. To address this need for developing new technologies, approaches and processes, not just in the steel industry but elsewhere, proposed legislation has been introduced in the past that included a system of carbon emission credits. Such credits would be available to certain companies for a period, similar to the European Union’s existing “cap and trade” system. However, it is virtually impossible to forecast the provisions of any such final legislation and its effects on us.

If regulation or legislation to address climate change or regulate carbon emissions is enacted, it is reasonable to assume that the net financial impact on us will be negative, despite some potential benefits discussed below. On balance, such regulation or legislation likely would cause us to incur increased energy, environmental and other costs to comply with the limitations that would be imposed on greenhouse gas emissions. For example, additional costs could take the form of new or retrofitted equipment or the development of new technologies (e.g., sequestration) to try to control or reduce greenhouse gas emissions.

The future enactment of climate control or greenhouse gas emissions legislation or regulation could produce benefits for us that would offset somewhat the adverse effects noted above. For example, if climate control legislation or regulation continues to drive automotive manufacturers to meet higher fuel efficiency targets, we could benefit from increased sales of our broad portfolio of products: NOES for H/EVs, stainless steels needed for exhaust systems and other components for more efficient engines, and AHSS products to lightweight automobiles. Moreover, if climate change legislation provides further incentives for energy efficiency, up to certain levels, we could benefit from increased sales of our GOES products, which are among the most energy-efficient electrical steels in the world. We sell our electrical steels primarily to manufacturers of power transmission and distribution transformers and electrical motors and generators, the demand for which could grow if energy efficiency standards increase. In addition, climate control legislation may enhance sales of our products in different ways. For instance, if the legislation promotes the use of renewable energy technology, such as wind or solar technology, it could increase demand for our high-efficiency electrical steel products used in power transformers, which are needed to connect these new sources to the electricity grid.

The ultimate impacts on us from any additional climate change or emissions reduction legislation or regulation would depend on the final terms of any such legislation or regulation. Presently, we are unable to predict with any reasonable degree of accuracy when or even if climate control legislation or regulation will be enacted, or if it is, what its terms and applicability to us will be. As a result, we currently have no reasonable basis to reliably predict or estimate the specific effects any eventually enacted laws may have on us or

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how we may be able to reduce any negative impacts on our business and operations. In the meantime, the items described above provide some indication of the potential mixed impact on us from climate control legislation or regulation generally.

Critical Accounting Estimates

We prepare our financial statements in conformity with accounting principles generally accepted in the United States of America. These principles permit choices among alternatives and require numerous estimates of financial matters. Accounting estimates are based on historical experience and information that is available to us about current events and actions we may take in the future. We believe the accounting principles chosen are appropriate under the circumstances, and that the estimates, judgments and assumptions involved in financial reporting are reasonable. There can be no assurance that actual results will not differ from these estimates. We believe the accounting estimates discussed below represent those accounting estimates requiring the exercise of judgment where a different set of judgments could result in the greatest changes to reported results.

Inventory Costing

We value inventories at the lower of cost or net realizable value, and we measure the cost of inventories using the average cost method. We record any amount required to reduce the carrying value of inventory to net realizable value as a charge to cost of products sold. If selling prices were to decline in future quarters, write-downs of inventory could result, specifically raw material inventory such as iron ore, coke and certain alloys purchased during periods of peak market pricing.

On January 1, 2018, we changed our accounting method for valuing inventories to the average cost method for inventories previously valued using the LIFO method. The effects of the change in accounting principle have been retrospectively applied to all periods presented, including *Management's Discussion and Analysis*. See Note 2 to our consolidated financial statements for more information related to the change in accounting principle.

Asset Impairment

We have various assets that are subject to impairment testing, including property, plant and equipment, goodwill and equity method investments. If circumstances indicate that an asset has lost value below its carrying amount, we review the asset for impairment. We evaluate the effect of changes in operations and estimate future cash flows to measure fair value. We use assumptions, such as forecasted growth rates and cost of capital, as part of these analyses and our selections of the assumptions to use can result in different conclusions. We believe the data and assumptions used are appropriate in the circumstances and consistent with internal projections. The most recent annual goodwill impairment tests indicated that the fair values of the relevant reporting units were in excess of their carrying value. However, the estimated fair value of the Precision Partners reporting unit was close to its carrying amount. We believe that this result is reasonable as this reporting unit was acquired in August 2017. Changes in certain assumptions in the impairment tests could have resulted in various scenarios, including an increase in fair value or a decrease in fair value below the carrying amount of Precision Partners. We believe certain key assumptions, such as cost of capital and terminal growth rates, used in our assessment have an appropriate degree of conservatism. For the tubular reporting unit, its estimated fair value was substantially higher than its carrying amount. Our businesses operate in highly cyclical industries and the valuation of these businesses can fluctuate, which may lead to impairment charges in future periods. Fair value is determined using quoted market prices, estimates based on prices of similar assets, or anticipated cash flows discounted at a rate commensurate with risk.

We consider the need to evaluate long-lived assets for indicators of impairment at least quarterly to determine if events or changes in circumstances indicate the carrying amount of such assets may not be recoverable. We evaluate

long-lived assets associated with our steelmaking operations for impairment based on a collective asset grouping that includes the operations of all facilities. We manage these operations as part of an “integrated process” that allows us to route production to various facilities so that we can maximize financial results and cash flows. If the carrying value of a long-lived asset group exceeds its fair value, we determine that an impairment has occurred and we recognize a loss based on the amount that the carrying value exceeds the fair value, less cost to dispose, for assets we plan to sell or abandon.

As a result of the temporary idling of the Ashland Works blast furnace and steelmaking operation in 2015, we considered the need for an impairment of the long-lived assets and determined that no impairment was indicated based on the expected temporary nature of the idling. At the end of 2017, we recognized a non-cash asset impairment charge of \$75.6, primarily related to the long-lived assets associated with the Ashland Works Hot End. At that time, we believed it was unlikely that the Ashland Works Hot End would restart in the near term based on forecasted supply and demand characteristics of the markets that we serve.

Income Taxes

We recognize deferred tax assets and liabilities based on the estimated future tax effects of differences between the financial statement and tax bases of assets and liabilities given the enacted tax laws. We regularly evaluate the need for a valuation allowance against our

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deferred tax assets by assessing whether it is more likely than not that we will realize the deferred tax assets in the future. We assess the need for a valuation allowance each reporting period, with any additions or adjustments reflected in earnings in the period of assessment. We have maintained a full valuation allowance against our net U.S. deferred tax assets since 2012, with appropriate consideration for the future reversal of our taxable temporary differences. At December 31, 2018, our deferred tax asset valuation allowance was \$693.5.

In assessing the need for a valuation allowance, we have considered both positive and negative evidence related to the likelihood of realization of the deferred tax assets for each jurisdiction. At December 31, 2018, we considered the existence of recent cumulative income from U.S. operations as a source of positive evidence. We have generated losses from U.S. operations for several of our recent periods through 2016 and accordingly have generated significant cumulative losses in those periods, which is a significant source of objective negative evidence. Despite the recent income reported in 2017 and 2018 from U.S. operations, the following forms of negative evidence concerning our ability to realize our domestic deferred tax assets were considered:

we have historical evidence that the steel industry we operate within has business cycles of longer than a few years and therefore attribute significant weight to our cumulative losses over longer business cycles in evaluating our ability to generate future taxable income;

the global steel industry has been experiencing global overcapacity and periods of increased foreign steel imports into the U.S., which has created volatile economic conditions and uncertainty relative to predictions of future taxable income;

while we have changed our business model to de-emphasize sales of commodity business and believe that this model will generate improved financial results throughout an industry cycle, we have not experienced all parts of the cycle and therefore we do not know what results our business model will produce in those circumstances;

our U.S. operations have generated significant losses in prior years and the competitive landscape in the steel industry reflects shifting domestic and international political priorities, an uncertain global trade landscape, and continued intense competition from domestic and foreign steel competitors, all of which present significant uncertainty regarding our ability to routinely generate U.S. income in the near term;

- significant volatility in spot market selling prices for carbon steel;
- and

a substantial portion of our U.S. deferred tax assets are tax carryforwards with expiration dates that may prevent us from using them prior to expiration.

At December 31, 2018, we concluded that objective and subjective negative evidence outweighed positive evidence, and therefore it was not more likely than not that we would be able to realize our net deferred tax assets. As a result of the cyclical nature of our industry and to the extent that the improvement in our financial results is sustainable, there is the potential for different weighting of positive and negative factors in the future as facts and circumstances change. Accordingly, material changes in the valuation allowance may be recognized in future periods.

We evaluate uncertainty in our tax positions and only recognize benefits when the tax position is believed to be more likely than not to be sustained upon audit. We have tax filing requirements in many states and are subject to audit in these states, as well as at the federal level. Tax audits by their nature are often complex and can require several years to resolve. In the preparation of the consolidated financial statements, we exercise judgment in estimating the potential exposure of unresolved tax matters. While actual results could vary, we believe that we have adequately accrued the ultimate outcome of these unresolved tax matters.

Pension and OPEB Plans

Accounting for retiree pension and healthcare benefits requires the use of actuarial methods and assumptions, including assumptions about current employees' future retirement dates, anticipated mortality rates, the benchmark

interest rate used to discount benefits to their present value, anticipated future increases in healthcare costs and our obligations under collective bargaining agreements with respect to pension and healthcare benefits for retirees. Changing any of these assumptions could have a material effect on the calculation of our total obligation for future pension and healthcare benefits.

Actuarial net gains and losses occur when actual experience differs from any of the many assumptions used to value the benefit plans or when the assumptions change, as they may each year when a valuation or remeasurement is performed. The major factors contributing to our actuarial gains and losses are changes in the discount rate used to value plan liabilities as of the measurement date and changes in the expected lives of plan participants. We believe the mortality assumptions selected for determining the expected lives of plan participants are most closely associated with the expected lives of our plan participants. However, selecting other available assumptions would likely increase the plan obligations. In addition, a major factor contributing to actuarial gains and losses for our pension plan is the difference between expected and actual returns on plan assets. For OPEB plans, differences in estimated versus actual healthcare costs and changes in assumed healthcare cost trend rates are additional factors generally contributing to actuarial gains and losses. However, we do not expect changes in these OPEB assumptions to have a material effect on us since most of the plans have caps on the share of benefits we pay. In addition to their effect on the funded status of the plans and their potential for corridor adjustments, these factors affect future net periodic benefit expenses. Changes in key assumptions can have a material

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effect on the amount of benefit obligation and annual expense we record. For example, a 25 basis point decrease in the discount rate would decrease the interest cost component of pension income in 2019 by \$3.7. A 25 basis point decrease in the discount rate would have increased the pension obligation at December 31, 2018, by approximately \$41.0 and the OPEB obligation by approximately \$9.0. A 25 basis point decrease in the expected rate of return on pension plan assets would decrease the projected 2019 pension income by approximately \$4.0.

Under our method of accounting for pension and OPEB plans, we recognize into income any unrecognized actuarial net gains or losses that exceed 10% of the larger of projected benefit obligations or plan assets as of the measurement date, defined as the corridor. Amounts inside the corridor are amortized over the plan participants' life expectancy. Our method results in faster recognition of actuarial net gains and losses than the minimum amortization method permitted by prevailing accounting standards and used by the vast majority of companies in the United States. Faster recognition under this method also results in the potential for highly volatile and difficult to forecast corridor adjustments.

Environmental and Legal Contingencies

We are involved in a number of environmental and other legal proceedings. We record a liability when we determine that litigation has commenced or a claim or assessment has been asserted and, based on available information, it is probable that the outcome of the litigation, claim or assessment, whether by decision or settlement, will be unfavorable and the amount of the liability is reasonably estimable. We measure the liability using available information, including the extent of damage, similar historical situations, our allocable share of the liability and, in the case of environmental liabilities, the need to provide site investigation, remediation and future monitoring and maintenance. We record accruals for probable costs based on a combination of litigation and settlement strategies on a case-by-case basis and, where appropriate, supplement those with incurred-but-not-reported development reserves. However, amounts we record in the financial statements in accordance with accounting principles generally accepted in the United States exclude costs that are not probable or that may not be currently estimable. The ultimate costs of these environmental and legal proceedings may, therefore, be higher than those we have recorded on our financial statements. In addition, changes in assumptions or the effectiveness of our strategies can materially affect results of operations in future periods.

Contractual Obligations

In the ordinary course of business, we enter into agreements that obligate us to make legally enforceable future payments. These agreements include those for borrowing money, leasing equipment and purchasing goods and services. The following table summarizes by category expected future cash outflows associated with contractual obligations we have as of December 31, 2018.

Contractual Obligations	Payment due by period				Total
	Less than 1 year	1-3 years	3-5 years	More than 5 years	
Long-term debt	\$148.5	\$413.5	\$715.0	\$758.4	\$2,035.4
Interest on debt (a)	130.2	239.1	154.4	130.0	653.7
Lease obligations	23.3	41.4	36.0	83.6	184.3
Purchase obligations and commitments	2,239.2	2,796.0	1,601.9	2,592.2	9,229.3
Pension and OPEB obligations (b)	38.7	75.5	70.7	683.7	868.6
Other non-current liabilities	—	36.8	16.1	81.1	134.0
Total	\$2,579.9	\$3,602.3	\$2,594.1	\$4,329.0	\$13,105.3

(a) Amounts include contractual interest payments using the interest rates as of December 31, 2018 applicable to our variable-rate debt and stated fixed interest rates for fixed-rate debt.

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Future cash contributions to our qualified pension trust are not included in the table above. We have approximately \$45.0 of required contributions for 2019. Based on current actuarial assumptions, the estimates for our contributions are approximately \$50.0 for 2020 and \$50.0 for 2021. Estimates of cash contributions to the pension trust to be made after 2019 are uncertain since several variable factors impact defined benefit pension plan contributions and required contributions are significantly affected by asset returns. Because we expect the pension trust to make pension benefit payments beyond the next five years, the net pension liability is included in the More than 5 years column. We estimate benefit payments, after receipt of Medicare subsidy reimbursements, will be \$37.5 for 2019 and we expect them to trend down to \$8.8 over the next 30 years. For a more detailed description of these obligations, see Note 7 to the consolidated financial statements.

(b) In calculating the amounts for purchase obligations, we identified contracts where we have a legally enforceable obligation to purchase products or services from the vendor or make payments to the vendor for an identifiable period. For each identified contract, we determined our best estimate of payments to be made under the contract assuming (1) the continued operation of existing production facilities, (2) normal business levels, (3) both parties would adhere to the contract in good faith throughout its term, (4)

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prices in the contract and (5) the effect of the Ashland Works closure. Because of changes in the markets we serve, changes in business decisions regarding production levels or unforeseen events, the actual amounts paid under these contracts could differ significantly from the amounts presented above. For example, circumstances could arise which create exceptions to minimum purchase obligations in the contracts. We calculated the purchase obligations in the table above without considering such exceptions.

A number of our purchase contracts specify a minimum volume or price for the products or services covered by the contract. If we were to purchase only the minimums specified, the payments in the table would be reduced. Under “requirements contracts” the quantities of goods or services we are required to purchase may vary depending on our needs, which are dependent on production levels and market conditions at the time. If our business deteriorates or increases, the amount we are required to purchase under such a contract would likely change. Many of our agreements for the purchase of goods and services allow us to terminate the contract without penalty if we give 30 to 90 days’ notice. Any such termination could reduce the projected payments.

Our consolidated balance sheets contain liabilities for pension and OPEB and other long-term obligations. We calculate the benefit plan liabilities using actuarial assumptions that we believe are reasonable under the circumstances. However, because changes in circumstances can have a significant effect on the liabilities and expenses associated with these plans including, in the case of pensions, pending or future legislation, we cannot reasonably and accurately project payments into the future. While we do include information about these plans in the above table, we also discuss these benefits elsewhere in this *Management’s Discussion and Analysis of Financial Condition and Results of Operations* and in the notes to the consolidated financial statements.

The other long-term liabilities on our consolidated balance sheets include accruals for environmental and legal issues, employment-related benefits and insurance, liabilities established for uncertain tax positions, and other obligations. These amounts generally do not arise from contractual negotiations with the parties receiving payment in exchange for goods and services. The ultimate amount and timing of payments are uncertain and, in many cases, depend on future events occurring, such as the filing of a claim or completion of due diligence investigations, settlement negotiations, audit and examinations by taxing authorities, documentation or legal proceedings.

New Accounting Pronouncements

The information called for by this section is incorporated herein by reference to Note 1 of the consolidated financial statements.

Forward-Looking Statements

Certain statements we make or incorporate by reference in this Form 10-K, or make in other documents we furnish to or file with the Securities Exchange Commission, as well as in press releases or in presentations made by our employees, reflect our estimates and beliefs and are intended to be, and are hereby identified as “forward-looking statements” for purposes of the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Words such as “expects,” “anticipates,” “believes,” “intends,” “plans,” “estimates” and other similar references to future periods typically identify such forward-looking statements. We caution readers that forward-looking statements reflect our current beliefs and judgments, but are not guarantees of future performance or outcomes. They are based on a number of assumptions and estimates that are inherently subject to economic, competitive, regulatory, and operational risks, uncertainties and contingencies that are beyond our control, and upon assumptions about future business decisions and conditions that may change. In particular, these include, but are not limited to, statements in the *Liquidity and Capital Resources* section and Item 7A, *Quantitative and Qualitative Disclosures about Market Risk*.

We caution readers that such forward-looking statements involve risks and uncertainties that could cause actual results to differ materially from those currently expected. See Item 1A, *Risk Factors* for more information on certain of these risks and uncertainties.

Any forward-looking statement made in this document speaks only as of the date on which it is made. We undertake no obligation to publicly update any forward-looking statement, whether as a result of new information, future developments or otherwise, except as may be required by law.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk.

Our primary areas of market risk include changes in (a) interest rates, (b) commodity prices and (c) foreign currency exchange rates.

Interest Rate Risk

We manage interest rate risk in our capital structure by issuing variable- and fixed-rate debt. Our outstanding long-term indebtedness (excluding unamortized debt discount and issuance costs) was \$2,035.4 and \$2,165.5 at December 31, 2018 and 2017. The amount outstanding at December 31, 2018, consisted of \$1,674.4 of fixed-rate debt, \$26.0 of variable-rate IRBs and \$335.0 of variable-rate borrowings from our Credit Facility. An increase in prevailing interest rates would increase interest expense and interest paid for the

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variable-rate debt, including any outstanding borrowings from the Credit Facility. For example, a 100 basis point increase in interest rates would increase annual interest expense by approximately \$3.6 on our outstanding debt at December 31, 2018.

Commodity Price Risk

Commodity prices for certain carbon, stainless and electrical steels and raw material and energy inputs represent a source of market risk. Prices for certain raw materials and energy have been volatile over the last several years, with chrome, iron ore, natural gas, zinc, and scrap being especially volatile. We attempt to mitigate commodity price risk by aligning fixed and variable components in the following commitments:

- customer pricing contracts;
- supplier purchasing agreements; and
- derivative financial instruments.

Some customer contracts have fixed-pricing terms, which increase our exposure to fluctuations in raw material and energy costs. To reduce our exposure, we enter annual, fixed-price agreements for certain raw materials. Some of our existing multi-year raw material supply agreements have required minimum purchase quantities. Under adverse economic conditions, those minimums may exceed our needs. Absent exceptions for *force majeure* and other circumstances affecting the legal enforceability of the agreements, these minimum purchase requirements may compel us to purchase quantities of raw materials that could significantly exceed our anticipated needs or pay damages to the supplier for shortfalls. In these circumstances, we would attempt to negotiate agreements for new purchase quantities. There is a risk, however, that we would not be successful in reducing purchase quantities, either through negotiation or litigation. If that occurred, we would likely be required to purchase more of a particular raw material in a particular year than we need, negatively affecting our results of operations and cash flows.

In many cases, our customer contracts do not include variable-pricing mechanisms that adjust selling prices in response to changes in the costs of certain raw materials and energy, though some of our customer contracts include such mechanisms. We may enter multi-year purchase agreements for certain raw materials with similar variable-price mechanisms, allowing us to achieve natural hedges between the customer pricing contracts and supplier purchasing agreements. Therefore, in some cases price fluctuations for energy (particularly natural gas and electricity), raw materials (such as scrap, chrome, zinc and nickel) or other commodities may be, in part, passed on to customers rather than absorbed solely by us. There is a risk, however, that the variable-price mechanisms in the sales contracts may not necessarily change in tandem with the variable-price mechanisms in our purchase agreements, negatively affecting our results of operations and cash flows.

If we are unable to align fixed and variable components between customer pricing contracts and supplier purchasing agreements, we use cash-settled commodity price swaps and options to hedge the market risk associated with the purchase of certain of our raw materials and energy requirements. We routinely use these derivative instruments to hedge a portion of our natural gas, iron ore, zinc and electricity requirements. Our hedging strategy is designed to protect us from excessive pricing volatility. However, since we do not typically hedge 100% of our exposure, abnormal price increases in any of these commodity markets might still negatively affect operating costs.

For derivatives designated in cash flow hedging relationships, we record the gains and losses from the use of these instruments in accumulated other comprehensive income (loss) on the consolidated balance sheets and subsequently recognize the accumulated gains and losses into cost of goods sold in the same period when the associated underlying transactions occur. At December 31, 2018, accumulated other comprehensive income (loss) included \$2.4 in unrealized pre-tax losses for these derivative instruments. All other commodity price swaps and options are marked-to-market and recognized into cost of products sold with the offset recognized as an asset or accrued liability.

See Note 17 of the consolidated financial statements for further information on our outstanding derivatives.

The following table presents the negative effect on pre-tax income of a hypothetical change in the fair value of derivative instruments outstanding at December 31, 2018, due to an assumed 10% and 25% decrease in the market price of each of the indicated commodities:

Commodity Derivative	Negative Effect on Pre-tax Income	
	10% Decrease	25% Decrease
Natural gas	\$11.3	\$ 28.2
Zinc	4.6	11.1
Electricity	5.0	12.5
Iron ore	10.9	22.8

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Because we structure and use these instruments as hedges, the benefit of lower prices paid for the physical commodity used in the normal production cycle or higher prices received on the sale of product would offset these hypothetical losses. We do not enter into derivative contracts for trading purposes.

Foreign Currency Exchange Rate Risk

Exchange rate fluctuations affect our accounts receivable that are denominated in euros and our operating costs that are denominated in Canadian dollars, and we use forward currency contracts to reduce our exposure to certain of these currency price fluctuations. At December 31, 2018 and 2017, we had outstanding forward currency contracts with a total contract value of \$4.6 and \$31.2 for the sale of euros. Based on the contracts outstanding at December 31, 2018, a 10% change in the dollar-to-euro exchange rate would result in a pre-tax impact of \$0.5 on the fair value of these contracts, which would offset the effect of a change in the exchange rate on the underlying receivable. At December 31, 2018 and 2017, we had outstanding forward currency contracts with a total contract value of \$86.9 and \$117.8 for the purchase of Canadian dollars. Based on the contracts outstanding at December 31, 2018, a 10% change in the U.S. dollar-to-Canadian dollar exchange rate would result in a pre-tax impact of \$8.7 on the fair value of these contracts, which would offset the effect of a change in the exchange rate on the underlying operating costs. See Note 17 of the consolidated financial statements for further information on our outstanding forward contracts.

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Item 8. Financial Statements and Supplementary Data.

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MANAGEMENT'S RESPONSIBILITY FOR CONSOLIDATED FINANCIAL STATEMENTS

We prepare our consolidated financial statements in conformity with accounting principles generally accepted in the United States of America. These principles permit choices among alternatives and require numerous estimates of financial matters. We believe the accounting principles chosen are appropriate under the circumstances, and that the estimates, judgments and assumptions involved in our financial reporting are reasonable.

We are responsible for the integrity and objectivity of the financial information presented in our consolidated financial statements. We maintain a system of internal accounting controls designed to provide reasonable assurance that employees comply with stated policies and procedures, that assets are safeguarded and that financial reports are fairly presented. On a regular basis, financial management discusses internal accounting controls and financial reporting matters with our independent registered public accounting firm and our Audit Committee, composed solely of independent outside directors. The independent registered public accounting firm and the Audit Committee also meet privately to discuss and assess our accounting controls and financial reporting.

Dated: February 15, 2019 /s/ Roger K. Newport
Roger K. Newport
Chief Executive Officer and Director

Dated: February 15, 2019 /s/ Jaime Vasquez
Jaime Vasquez
Vice President, Finance and Chief Financial Officer

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and Board of Directors of AK Steel Holding Corporation

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of AK Steel Holding Corporation (the Company) as of December 31, 2018 and 2017, and the related consolidated statements of operations, comprehensive income, stockholders' equity (deficit), and cash flows for each of the three years in the period ended December 31, 2018, 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 at December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with U.S. 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, 2018, 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 15, 2019 expressed an unqualified opinion thereon.

Changes in Accounting Principles

As discussed in the paragraphs under the caption "Adoption of New Accounting Principles" described in Notes 1 and 2 to the consolidated financial statements, effective January 1, 2018, the Company (a) changed its method of accounting for the presentation and disclosure of periodic pension and other postretirement (income) expense due to the adoption of Accounting Standards Update No. 2017-07, *Compensation—Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Benefit Pension Costs and Net Periodic Postretirement Benefit Cost*, and (b) elected to change its method of accounting for inventories to the average cost method, while in prior years, these inventories were accounted for using the last-in, first-out ("LIFO") method.

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 U.S. 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 2013.

Cincinnati, Ohio
February 15, 2019

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AK STEEL HOLDING CORPORATION
CONSOLIDATED STATEMENTS OF OPERATIONS
Years Ended December 31, 2018, 2017 and 2016
(dollars in millions, except per share data)

	2018	2017	2016
Net sales	\$6,818.2	\$6,080.5	\$5,882.5
Cost of products sold (exclusive of items shown separately below)	5,911.0	5,253.1	5,099.7
Selling and administrative expenses	322.6	284.9	279.1
Depreciation	220.2	226.0	216.6
Charge (credit) for termination of pellet agreement and related transportation costs	—	(19.3)	69.5
Asset impairment charge	—	75.6	—
Total operating costs	6,453.8	5,820.3	5,664.9
Operating profit	364.4	260.2	217.6
Interest expense	151.6	152.3	163.9
Pension and OPEB (income) expense	(19.2)	(71.9)	16.5
Other (income) expense	(5.9)	17.1	4.9
Income before income taxes	237.9	162.7	32.3
Income tax expense (benefit)	(6.2)	(2.2)	(16.9)
Net income	244.1	164.9	49.2
Less: Net income attributable to noncontrolling interests	58.1	61.4	66.0
Net income (loss) attributable to AK Steel Holding Corporation	\$186.0	\$103.5	\$(16.8)
Net income (loss) per share attributable to AK Steel Holding Corporation common stockholders:			
Basic	\$0.59	\$0.33	\$(0.07)
Diluted	\$0.59	\$0.32	\$(0.07)

See notes to consolidated financial statements.

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AK STEEL HOLDING CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
Years Ended December 31, 2018, 2017 and 2016
(dollars in millions)

	2018	2017	2016
Net income	\$244.1	\$164.9	\$49.2
Other comprehensive income, before tax:			
Foreign currency translation gain (loss)	(1.7)	4.7	(1.5)
Cash flow hedges:			
Gains (losses) arising in period	(5.6)	(11.5)	56.1
Reclassification of losses (gains) to net income	(10.3)	(6.1)	39.1
Pension and OPEB plans:			
Prior service credit (cost) arising in period	11.1	4.7	(8.3)
Gains (losses) arising in period	(63.6)	94.2	11.6
Reclassification of prior service cost (credits) included in net income	(9.8)	(53.8)	(54.8)
Reclassification of losses (gains) included in net income	29.3	6.3	97.9
Other comprehensive income (loss), before tax	(50.6)	38.5	140.1
Income tax expense in other comprehensive income	—	—	15.5
Other comprehensive income (loss)	(50.6)	38.5	124.6
Comprehensive income	193.5	203.4	173.8
Less: Comprehensive income attributable to noncontrolling interests	58.1	61.4	66.0
Comprehensive income attributable to AK Steel Holding Corporation	\$135.4	\$142.0	\$107.8

See notes to consolidated financial statements.

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AK STEEL HOLDING CORPORATION
CONSOLIDATED BALANCE SHEETS
December 31, 2018 and 2017
(dollars in millions, except per share data)

	2018	2017
ASSETS		
Current assets:		
Cash and cash equivalents	\$48.6	\$38.0
Accounts receivable, net	635.8	517.8
Inventory	1,419.9	1,385.0
Other current assets	97.0	130.3
Total current assets	2,201.3	2,071.1
Property, plant and equipment	6,969.2	6,831.8
Accumulated depreciation	(5,057.6)	(4,845.6)
Property, plant and equipment, net	1,911.6	1,986.2
Other non-current assets:		
Goodwill and intangible assets	298.9	306.7
Other non-current assets	103.9	110.8
TOTAL ASSETS	\$4,515.7	\$4,474.8
LIABILITIES AND EQUITY		
Current liabilities:		
Accounts payable	\$801.0	\$690.4
Accrued liabilities	288.9	270.5
Current portion of pension and other postretirement benefit obligations	38.7	40.1
Total current liabilities	1,128.6	1,001.0
Non-current liabilities:		
Long-term debt	1,993.7	2,110.1
Pension and other postretirement benefit obligations	829.9	894.2
Other non-current liabilities	134.0	168.9
TOTAL LIABILITIES	4,086.2	4,174.2
Equity:		
Common stock, authorized 450,000,000 shares of \$.01 par value each; issued 316,595,613 and 315,782,764 shares in 2018 and 2017; outstanding 315,535,765 and 314,884,569 shares in 2018 and 2017	3.2	3.2
Additional paid-in capital	2,894.9	2,884.8
Treasury stock, common shares at cost, 1,059,848 and 898,195 shares in 2018 and 2017	(6.4)	(5.4)
Accumulated deficit	(2,691.8)	(2,877.0)
Accumulated other comprehensive loss	(100.0)	(50.2)
Total stockholders' equity (deficit)	99.9	(44.6)
Noncontrolling interests	329.6	345.2
TOTAL EQUITY	429.5	300.6
TOTAL LIABILITIES AND EQUITY	\$4,515.7	\$4,474.8

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The consolidated balance sheets as of December 31, 2018 and 2017, include the following amounts for consolidated variable interest entities, before intercompany eliminations. See Note 15 for more information concerning variable interest entities.

	2018	2017
<u>Middletown Coke Company, LLC (“SunCoke Middletown”)</u>		
Cash and cash equivalents	\$ 1.1	\$0.1
Inventory	21.1	18.4
Property, plant and equipment	427.8	425.9
Accumulated depreciation	(106.9)	(88.6)
Accounts payable	13.7	11.3
Other assets (liabilities), net	(1.2)	(1.0)
Noncontrolling interests	328.2	343.5
<u>Other variable interest entities</u>		
Cash and cash equivalents	\$ 0.5	\$0.7
Property, plant and equipment	11.7	11.7
Accumulated depreciation	(9.8)	(9.6)
Other assets (liabilities), net	0.5	0.8
Noncontrolling interests	1.4	1.7

See notes to consolidated financial statements.

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AK STEEL HOLDING CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
Years Ended December 31, 2018, 2017 and 2016
(dollars in millions)

	2018	2017	2016
Cash flows from operating activities:			
Net income	\$244.1	\$164.9	\$49.2
Adjustments to reconcile net income to cash flows from operating activities:			
Depreciation	201.6	209.8	201.7
Depreciation—SunCoke Middletown	18.6	16.2	14.9
Amortization	32.0	24.1	18.4
Asset impairment charge—Ashland Works Hot End	—	75.6	—
Charge (credit) for transportation costs affected by termination of pellet agreement	—	(19.3)	32.9
Deferred income taxes	(8.0)	(9.0)	(4.1)
Contributions to pension trust	(49.9)	(44.1)	—
Pension and OPEB (income) expense	(11.6)	(64.4)	24.3
(Gains) losses on retirement of debt	(2.0)	21.3	9.2
Mark-to-market (gains) losses on derivative contracts	(8.9)	(45.7)	1.2
Other operating items, net	2.4	20.1	3.0
Changes in assets and liabilities, net of effect of acquired business:			
Accounts receivable	(125.0)	(34.4)	0.1
Inventory	(34.8)	(116.7)	129.6
Accounts payable and other current liabilities	119.6	46.2	(143.2)
Other assets	52.9	(6.5)	40.9
Other pension payments	(1.0)	(1.1)	(33.0)
OPEB payments	(35.6)	(39.6)	(34.4)
Other liabilities	(29.7)	1.4	(6.1)
Net cash flows from operating activities	364.7	198.8	304.6
Cash flows from investing activities:			
Capital investments	(152.0)	(152.5)	(127.6)
Investment in acquired business, net of cash acquired	—	(360.4)	—
Other investing items, net	0.1	4.2	2.3
Net cash flows from investing activities	(151.9)	(508.7)	(125.3)
Cash flows from financing activities:			
Net borrowings (repayments) under credit facility	(115.0)	450.0	(550.0)
Proceeds from issuance of long-term debt	—	680.0	380.0
Redemption of long-term debt	(12.6)	(848.4)	(392.8)
Proceeds from issuance of common stock	—	—	600.4
Debt issuance costs	—	(25.3)	(20.4)
SunCoke Middletown distributions to noncontrolling interest owners	(73.7)	(79.1)	(85.1)
Other financing items, net	(0.9)	(2.5)	5.2
Net cash flows from financing activities	(202.2)	174.7	(62.7)
Net increase (decrease) in cash and cash equivalents	10.6	(135.2)	116.6
Cash and cash equivalents, beginning of year	38.0	173.2	56.6
Cash and cash equivalents, end of year	\$48.6	\$38.0	\$173.2

See notes to consolidated financial statements.

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AK STEEL HOLDING CORPORATION
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT)
Years Ended December 31, 2018, 2017 and 2016
(dollars in millions)

	2018	2017	2016
<u>Common stock</u>			
Balance at beginning of period	\$3.2	\$3.1	\$1.8
Issuance of common stock	—	—	1.3
Share-based compensation	—	0.1	—
Balance at end of period	3.2	3.2	3.1
<u>Additional paid-in capital</u>			
Balance at beginning of period	2,884.8	2,855.4	2,266.8
Issuance of common stock	—	—	599.1
Share-based compensation	9.2	7.6	5.4
Stock options exercised	0.9	0.5	5.4
Exchangeable notes exchange feature	—	21.3	(21.3)
Balance at end of period	2,894.9	2,884.8	2,855.4
<u>Treasury stock</u>			
Balance at beginning of period	(5.4)	(2.4)	(2.0)
Purchase of treasury stock	(1.0)	(3.0)	(0.4)
Balance at end of period	(6.4)	(5.4)	(2.4)
<u>Accumulated deficit</u>			
Balance at beginning of period	(2,877.0)	(2,980.5)	(2,963.7)
Cumulative effect of adopting new hedging standard	(0.8)	—	—
Net income attributable to AK Steel Holding Corporation	186.0	103.5	(16.8)
Balance at end of period	(2,691.8)	(2,877.0)	(2,980.5)
<u>Accumulated other comprehensive loss</u>			
Balance at beginning of period	(50.2)	(88.7)	(213.3)
Cumulative effect of adopting new hedging standard	0.8	—	—
Change in accumulated other comprehensive loss	(50.6)	38.5	124.6
Balance at end of period	(100.0)	(50.2)	(88.7)
<u>Noncontrolling interests</u>			
Balance at beginning of period	345.2	362.9	382.0
Net income attributable to noncontrolling interests	58.1	61.4	66.0
Net distributions to noncontrolling interests	(73.7)	(79.1)	(85.1)
Balance at end of period	329.6	345.2	362.9
Total equity	\$429.5	\$300.6	\$149.8

See notes to consolidated financial statements.

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AK STEEL HOLDING CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(dollars in millions, except per share amounts or as otherwise specifically noted)

NOTE 1 - Summary of Significant Accounting Policies

Basis of Presentation—These financial statements consolidate the operations and accounts of AK Steel Holding Corporation (“AK Holding”), its wholly owned subsidiary AK Steel Corporation (“AK Steel”), all subsidiaries in which AK Holding has a controlling interest, and two variable interest entities for which AK Steel is the primary beneficiary. Unless the context indicates otherwise, references to “we,” “us” and “our” refer to AK Holding and its subsidiaries. We also operate Mexican and European trading companies that buy and sell steel and steel products and other materials. We manage operations on a consolidated, integrated basis so that we can use the most appropriate equipment and facilities for the production of a product, regardless of product line. Therefore, we conclude that we operate in a single business segment. All intercompany transactions and balances have been eliminated.

Use of Estimates—The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires the use of estimates and assumptions that affect the amounts reported. We base these estimates on historical experience and information available to us about current events and actions we may take in the future. Estimates and assumptions affect significant items that include the carrying value of long-lived assets, including investments and goodwill; valuation allowances for receivables, inventories and deferred income tax assets; legal and environmental liabilities; workers compensation and asbestos liabilities; share-based compensation; and assets and obligations of employee benefit plans. There can be no assurance that actual results will not differ from these estimates.

Revenue Recognition—We generate our revenue through product sales, and shipping terms generally indicate when we have fulfilled our performance obligations and passed control of products to our customer. Our revenue transactions consist of a single performance obligation to transfer promised goods. We have contracts with a substantial portion of our customers. These contracts usually define the mechanism for determining the sales price, but the contracts do not impose a specific quantity on either party. Quantities to be delivered to the customer are determined at a point near the date of delivery through purchase orders or other written instructions we receive from the customer. Spot market sales are made through purchase orders or other written instructions. We recognize revenue when we have fulfilled a performance obligation, which is typically when we have shipped products at the customer’s instructions. For sales with shipping terms that transfer title and control at the destination point, we recognize revenue when the customer receives the goods and our performance obligation is complete. For sales with shipping terms that transfer title and control at the shipping point with us bearing responsibility for freight costs to the destination, we determine that we have fulfilled a single performance obligation and recognize revenue when we ship the goods. For our tooling solutions, we record progress payments that we receive from a customer as accrued liabilities until we recognize the revenue when the customer provides written acceptance that our performance obligation has been fulfilled.

Revenue is measured as the amount of consideration we expect to receive in exchange for transferring product. We reduce the amount of revenue recognized for estimated returns and other customer credits, such as discounts and volume rebates, based on the expected value to be realized. Payment terms are consistent with terms standard to the markets we serve. We maintain an allowance for doubtful accounts for the loss that would be incurred if a customer is unable to pay amounts due. We initially estimate the allowance required at the time of revenue recognition based on historical experience and make changes to the allowance based on various factors, including changes in the customer’s financial condition or payment patterns. Sales taxes collected from customers are excluded from revenues.

Cost of Products Sold—Cost of products sold consists primarily of raw materials, energy costs, supplies consumed in the manufacturing process, manufacturing labor, contract labor and direct overhead expense necessary to manufacture the finished steel product, as well as distribution and warehousing costs. Our share of the income (loss) of investments in associated companies accounted for under the equity method is included in costs of products sold since these operations are integrated with our overall steelmaking operations.

Share-Based Compensation—Compensation costs for stock awards granted under our Stock Incentive Plan are recognized over their vesting period using the straight-line method. We estimate stock award forfeitures expected to occur to determine the compensation cost we recognize each period.

Legal Fees—Legal fees associated with litigation and similar proceedings that are not expected to provide a benefit in future periods are expensed as incurred. Legal fees associated with activities that are expected to provide a benefit in future periods, such as costs associated with the issuance of debt, are capitalized as incurred.

Income Taxes—Interest and penalties from uncertain tax positions are included in income tax expense.

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Earnings per Share—Earnings per share is calculated using the “two-class” method. Under the “two-class” method, undistributed earnings are allocated to both common shares and participating securities. We divide the sum of distributed earnings to common stockholders and undistributed earnings allocated to common stockholders by the weighted-average number of common shares outstanding during the period. The restricted stock granted by AK Holding is entitled to non-forfeitable dividends before vesting and meets the criteria of a participating security.

Cash Equivalents—Cash equivalents include short-term, highly liquid investments that are readily convertible to known amounts of cash and have an original maturity of three months or less.

Inventory—Inventories are valued at the lower of cost or net realizable value. We measure the cost of inventories using the average cost method. See Note 2 for information on the change to the average cost method effective January 1, 2018.

Property, Plant and Equipment—Plant and equipment are depreciated under the straight-line method over their estimated lives. Estimated lives are as follows: land improvements over 20 years, leaseholds over the life of the related operating lease term, buildings over 40 years and machinery and equipment over two to 20 years. The estimated weighted-average life of our machinery and equipment is 13 years at the end of 2018. Amortization expense for assets recorded under capital leases is included in depreciation expense. Costs incurred to develop coal mines are capitalized when incurred. We use the units-of-production method utilizing only proven and probable reserves in the depletion base to compute the depletion of coal reserves and mine development costs. We expense costs for major maintenance activities at our operating facilities when the activities occur.

We review the carrying value of long-lived assets to be held and used and long-lived assets to be disposed of when events and circumstances warrant such a review. If the carrying value of a long-lived asset exceeds its fair value, an impairment has occurred and a loss is recognized based on the amount by which the carrying value exceeds the fair value, less cost to dispose, for assets to be sold or abandoned. We determine fair value by using quoted market prices, estimates based on prices of similar assets or anticipated cash flows discounted at a rate commensurate with risk.

Investments—Investments in associated companies are accounted for under the equity method. We review investments for impairment when circumstances indicate that a loss in value below its carrying amount is other than temporary.

Goodwill and Intangible Assets—Goodwill relates to our tubular and Precision Partners’ businesses. Intangible assets are recorded at cost, and those with finite lives are amortized over their estimated useful lives. We review goodwill for potential impairment at least annually on October 1 each year and whenever events or circumstances make it more likely than not that impairment may have occurred. Considering operating results and the estimated fair value of the businesses, the most recent annual goodwill impairment tests indicated that the fair value of each of our business reporting units was in excess of its carrying value. No goodwill impairment was recorded as a result of the annual impairment tests in the past three years.

Debt Issuance Costs—Debt issuance costs for the revolving credit facility are included in other non-current assets and all other debt issuance costs reduce the carrying amount of long-term debt.

Pension and Other Postretirement Benefits—We recognize, as of a measurement date, any unrecognized actuarial net gains or losses that exceed 10% of the larger of the projected benefit obligations or the plan assets, defined as the “corridor.” Amounts inside the corridor are amortized over the plan participants’ life expectancy. We determine the expected return on assets using the fair value of plan assets.

Concentrations of Credit Risk—We are primarily a producer of carbon, stainless and electrical steels and steel products, which are sold to a number of markets, including automotive, infrastructure and manufacturing, and distributors and

converters. We had two customers that accounted for 11% and 10% of net sales in 2018, one customer that accounted for 12% of net sales in 2017, and two customers that accounted for 12% and 11% of net sales in 2016. Approximately 52% and 55% of accounts receivable outstanding at December 31, 2018 and 2017, are due from businesses associated with the U.S. automotive industry, including 13% of receivables due from one automotive customer as of December 31, 2018, and 18% due from one automotive customer as of December 31, 2017.

Labor Agreements—At December 31, 2018, we employed approximately 9,500 people, of which approximately 5,700 are represented by labor unions under various agreements that expire between 2019 and 2021. In March 2018, members of the International Association of Machinists and Aerospace Workers, Local 1943, ratified a labor agreement covering approximately 1,760 production employees at Middletown Works. The new agreement expires March 15, 2020. With our January 28, 2019, announcement of plans to permanently close the Ashland Works facility by the end of 2019, over the coming months we expect to engage in negotiations with the United Steelworkers, Local 1865, regarding the plant closure in accordance with applicable law and the terms and conditions of the labor agreement. The labor agreement, with an original expiration date of September 1, 2018, is by mutual agreement being extended on a rolling 60-day basis, subject to further notification of termination by either party. Other agreements that expire within the next twelve months include an agreement with the United Steelworkers, Local 1190, which governs approximately 230 production

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employees at Mountain State Carbon LLC, is scheduled to expire on March 1, 2019. An agreement with the United Auto Workers, Local 3303, which governs approximately 1,170 production employees at Butler Works, was originally scheduled to expire on April 1, 2019. By mutual agreement, the labor agreement has been extended and is now scheduled to expire on April 16, 2019. An agreement with the United Auto Workers, Local 4104, which governs approximately 100 production employees at Zanesville Works, is scheduled to expire on May 31, 2019. An agreement with the United Auto Workers, Local 3462, which governs approximately 300 production employees at Coshocton Works, is scheduled to expire on September 30, 2019.

Financial Instruments—We are a party to derivative instruments that are designated and qualify as hedges for accounting purposes. We may also use derivative instruments to which we do not apply hedge accounting treatment. Our objective in using these instruments is to limit operating cash flow exposure to fluctuations in the fair value of selected commodities and currencies.

Fluctuations in the price of certain commodities we use in production processes may affect our income and cash flows. We have implemented raw material and energy surcharges for some contract customers. For certain commodities where such exposure exists, we may use cash-settled commodity price swaps, collars and purchase options, with a duration of up to two years, to hedge the price of a portion of our natural gas, iron ore, electricity, zinc and nickel requirements. We may designate some of these instruments as cash flow hedges and changes in their fair value and settlements are recorded in accumulated other comprehensive income. We subsequently reclassify gains and losses from accumulated other comprehensive income to cost of products sold in the same period we recognize the earnings associated with the underlying transaction. The change in fair value for other instruments is immediately recorded in cost of products sold with the offset recorded as assets or liabilities.

Exchange rate fluctuations affect a portion of revenues and operating costs that are denominated in foreign currencies, and we use currency forwards and options to reduce our exposure to these currency price fluctuations. These derivative contracts are entered into with durations up to three years. Contracts that sell euros have not been designated as hedges for accounting purposes and gains or losses are reported in earnings immediately in other income (expense). Contracts that purchase Canadian dollars are designated as hedges for accounting purposes, which requires us to record the gains and losses for the derivatives in accumulated other comprehensive income and reclassify them into cost of products sold in the same period we recognize costs for the associated underlying operations.

We formally document all relationships between hedging instruments and hedged items, as well as risk management objectives and strategies for undertaking various hedge transactions. In this documentation, we specifically identify the asset, liability, firm commitment or forecasted transaction that has been designated as a hedged item, and state how the hedging instrument is expected to hedge the risks from that item. We formally measure effectiveness of hedging relationships both at the hedge inception and on an ongoing basis. We discontinue hedge accounting prospectively when we determine that the derivative is no longer effective in offsetting changes in the fair value or cash flows of a hedged item; when the derivative expires or is sold, terminated or exercised; when it is probable that the forecasted transaction will not occur; when a hedged firm commitment no longer meets the definition of a firm commitment; or when we determine that designation of the derivative as a hedge instrument is no longer appropriate. Our derivative contracts may contain collateral funding requirements. We have master netting arrangements with counterparties, giving us the right to offset amounts owed under the derivative instruments and the collateral. We do not offset derivative assets and liabilities or collateral on our consolidated balance sheets. Cash flows associated with purchasing and settling derivative contracts are classified as operating cash flows.

Asbestos and Environmental Accruals—For a number of years, we have been remediating sites where hazardous materials may have been released, including sites no longer owned by us. In addition, a number of lawsuits alleging asbestos exposure have been filed and continue to be filed against us. We have established accruals for estimated probable costs from asbestos claim settlements and environmental investigation, monitoring and remediation. If the

accruals are not adequate to meet future claims, operating results and cash flows may be negatively affected. Our accruals do not consider the potential for insurance recoveries, for which we have partial insurance coverage for some future asbestos claims. In addition, some existing insurance policies covering asbestos and environmental contingencies may serve to partially reduce future covered expenditures.

Adoption of New Accounting Principles—On January 1, 2018, we adopted the following new accounting principles, both of which have been applied retrospectively to all periods presented.

On January 1, 2018, we adopted Accounting Standards Update No. 2017-07, *Compensation—Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*. Under this standard, the service cost component of periodic pension and other postretirement benefit expense is included in cost of products sold and selling and administrative expenses, consistent with our treatment of other employee compensation costs. The remainder of periodic pension and other postretirement benefit (income) expense of \$(19.2), \$(71.9) and \$16.5 for the years ended December 31, 2018, 2017 and 2016, is recorded separately in the consolidated statements of operations below operating profit. We have retrospectively applied the change in accounting principle to all periods presented. The adoption of this standard update had no other effect on our consolidated financial statements.

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On January 1, 2018, we changed our accounting method for valuing inventories to the average cost method for inventories previously valued using the last-in, first-out (LIFO) method. The effects of this change in accounting principle from LIFO to average cost have been retrospectively applied to all periods presented. See Note 2 for additional information.

Other New Accounting Pronouncements Adopted—We adopted Accounting Standards Update No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*, as of January 1, 2018, through the modified retrospective method applied to those contracts that were not completed as of January 1, 2018. Results for reporting periods beginning after January 1, 2018, are presented under Topic 606, while prior period amounts are not adjusted and continue to be reported in accordance with our historic accounting under ASC Topic 605. There was no adjustment required to adopt Topic 606 since our revenue recognition under Topic 606 is substantially the same as under Topic 605.

In August 2017, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update 2017-12, *Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities*, to better align an entity’s risk management activities and financial reporting for hedging relationships through changes to both the designation and measurement guidance for qualifying hedging relationships and the presentation of hedge results. Among other amendments, the update allows entities to designate the variability in cash flows attributable to changes in a contractually specified component stated in the contract as the hedged risk in a cash flow hedge of a forecasted purchase or sale of a nonfinancial asset. We adopted the standard update effective as of January 1, 2018, and have applied the new hedge guidance for certain hedges entered since adoption. The effect of adoption of the new guidance was not significant.

In February 2018, FASB issued Accounting Standards Update 2018-02, *Income Statement—Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income*, which allows a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act enacted in December 2017. We early adopted this standard update as of December 31, 2018. We elected to not reclassify the income tax effects of the Tax Cuts and Jobs Act from accumulated other comprehensive income to retained earnings.

Recent Accounting Pronouncements Not Yet Adopted—FASB issued Accounting Standards Update No. 2016-02, *Leases (Topic 842)*, during the first quarter of 2016. Topic 842 requires entities to recognize lease assets and lease liabilities for substantially all leases, with the exception of short-term leases, and disclose key information about leasing arrangements for certain leases. We intend to recognize and measure leases beginning at the adoption date using a modified retrospective approach. Under the modified retrospective approach, we will not adjust our comparative period financial information or make the new lease disclosures for periods before the effective date. Topic 842 is effective for us beginning January 1, 2019. The new guidance provides a number of optional practical expedients in transition and we have determined to use certain of these practical expedients. We have designed new processes and controls, cataloged and entered our leases into a recently implemented software solution and evaluated our population of leased assets to assess the effect of the new guidance on our consolidated financial statements. We currently expect that the adoption of the standard will result in a material increase to the assets and liabilities on our consolidated balance sheets, but will not have a material effect on our results of operations or cash flows. We expect adoption of the standard will result in the recognition of additional lease assets and lease liabilities between \$250.0 and \$350.0 as of January 1, 2019. The range reflects our current best estimates as we are still evaluating whether to separate lease and non-lease components for certain asset types, particularly for leases embedded within service contracts.

In June 2016, FASB issued Accounting Standards Update 2016-13, *Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*, to replace the incurred loss impairment methodology with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and

supportable information to inform credit loss estimates. In connection with recognizing credit losses on receivables and other financial instruments, we will be required to use a forward-looking expected loss model rather than the incurred loss model. The new standard will be effective for us beginning January 1, 2020, with early adoption permitted beginning January 1, 2019. Adoption of this standard is through a cumulative-effect adjustment to retained earnings as of the effective date. We are currently evaluating the effect of this standard on our consolidated financial position and results of operations.

Reclassifications—We reclassified certain prior-year amounts to conform to the current-year presentation.

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Net sales by market are presented below:

	2018	2017	2016
Automotive	\$4,284.7	\$3,951.5	\$3,906.8
Infrastructure and Manufacturing	1,049.1	948.0	936.7
Distributors and Converters	1,484.4	1,181.0	1,039.0
Total	\$6,818.2	\$6,080.5	\$5,882.5

Net sales by product line are presented below:

	2018	2017	2016
Carbon steel	\$4,409.1	\$4,034.5	\$4,014.5
Stainless and electrical steel	1,793.8	1,687.6	1,654.1
Tubular products, components and other	615.3	358.4	213.9
Total	\$6,818.2	\$6,080.5	\$5,882.5

We sell domestically to customers located primarily in the Midwestern and Eastern United States and to foreign customers, primarily in Canada, Mexico and Western Europe. Net sales to customers located outside the United States totaled \$634.8, \$627.1 and \$655.6 for 2018, 2017 and 2016.

Research and Development Costs

We conduct a broad range of research and development activities aimed at improving existing products and manufacturing processes and developing new products and processes. Research and development costs, which are recorded as cost of products sold when incurred, totaled \$29.4, \$28.1 and \$28.3 in 2018, 2017 and 2016.

Allowance for Doubtful Accounts

Changes in the allowance for doubtful accounts for the years ended December 31, 2018, 2017 and 2016, are presented below:

	2018	2017	2016
Balance at beginning of year	\$6.8	\$7.8	\$6.0
Increase (decrease) in allowance	0.3	(1.0)	2.4
Receivables written off	(0.5)	—	(0.6)
Balance at end of year	\$6.6	\$6.8	\$7.8

Inventory

Inventories as of December 31, 2018 and 2017, consist of:

	2018	2017
Finished and semi-finished	\$1,054.4	\$996.8
Raw materials	365.5	388.2
Inventory	\$1,419.9	\$1,385.0

Adoption of New Accounting Principle

In the first quarter of 2018, we changed our accounting method for valuing certain inventories from the LIFO method to the average cost method. This method values inventory using average costs for materials and most recent production costs for labor and overhead. We believe that using the average cost method is preferable since it improves comparability with our peers, more closely tracks the physical flow of our inventory, better matches revenue with expenses and aligns with how we internally manage our business.

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The effects of the change in accounting principle from LIFO to average cost have been retrospectively applied to all periods presented. As a result of the retrospective application of the change in accounting principle, certain financial statement line items in our consolidated balance sheet as of December 31, 2017 and our consolidated statements of operations, comprehensive income and cash flows for years ended December 31, 2017 and 2016 were adjusted as follows:

	As Originally Reported	Effect of Change	As Adjusted
Consolidated statement of operations for the year ended December 31, 2017:			
Cost of products sold (a)	\$ 5,365.2	\$(112.1)	\$ 5,253.1
Income tax expense (benefit)	(17.0)	14.8	(2.2)
Net income	67.6	97.3	164.9
Net income attributable to AK Steel Holding Corporation	6.2	97.3	103.5
Net income per share attributable to AK Steel Holding Corporation common stockholders:			
Basic	\$ 0.02	\$ 0.31	\$ 0.33
Diluted	0.02	0.30	0.32
Consolidated statement of comprehensive income for the year ended December 31, 2017:			
Cash flow hedges—Reclassification of losses (gains) to net income	\$(12.5)	\$ 6.4	\$(6.1)
Comprehensive income	91.1	112.3	203.4
Comprehensive income attributable to AK Steel Holding Corporation	29.7	112.3	142.0
Consolidated balance sheet as of December 31, 2017:			
Inventory	\$ 1,147.8	\$ 237.2	\$ 1,385.0
Other non-current assets	169.3	(58.5)	110.8
Other non-current liabilities	161.6	7.3	168.9
Accumulated deficit	(3,058.6)	181.6	(2,877.0)
Accumulated other comprehensive loss	(40.0)	(10.2)	(50.2)
Consolidated statement of cash flows for the year ended December 31, 2017:			
Net income	\$ 67.6	\$ 97.3	\$ 164.9
Deferred income taxes	(15.2)	6.2	(9.0)
Changes in working capital	1.8	(118.5)	(116.7)
Other operating items, net	5.1	15.0	20.1
Consolidated statement of operations for the year ended December 31, 2016:			
Cost of products sold (a)	\$ 5,070.6	\$ 29.1	\$ 5,099.7
Income tax expense (benefit)	3.2	(20.1)	(16.9)
Net income	58.2	(9.0)	49.2
Net income attributable to AK Steel Holding Corporation	(7.8)	(9.0)	(16.8)
Net income per share attributable to AK Steel Holding Corporation common stockholders:			
Basic	\$(0.03)	\$(0.04)	\$(0.07)
Diluted	(0.03)	(0.04)	(0.07)
Consolidated statement of comprehensive income for the year ended December 31, 2016:			

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Cash flow hedges—Reclassification of losses (gains) to net income	\$ 27.2	\$ 11.9	\$ 39.1
Comprehensive income	181.9	(8.1)	173.8

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	As Originally Reported	Effect of Change	As Adjusted
Comprehensive income attributable to AK Steel Holding Corporation	115.9	(8.1)	107.8

Consolidated statement of cash flows for the year ended December 31, 2016:

Net income	\$ 58.2	\$ (9.0)	\$ 49.2
Deferred income taxes	5.0	(9.1)	(4.1)
Changes in working capital	112.4	17.2	129.6
Other operating items, net	2.1	0.9	3.0

(a) Cost of products sold as originally reported reflects the change in presentation of pension and OPEB (income) expense further described in Note 1.

The following table shows the effects of the change in accounting principle from LIFO to average cost as of December 31, 2018 and for the year ended December 31, 2018:

	As Computed under LIFO	As Reported under Average Cost	Effect of Change
Consolidated statement of operations for the year ended December 31, 2018:			
Cost of products sold	\$ 5,966.7	\$ 5,911.0	\$(55.7)
Income tax expense (benefit)	(19.4)	(6.2)	13.2
Net income	201.6	244.1	42.5
Net income attributable to AK Steel Holding Corporation	143.5	186.0	42.5
Net income per share attributable to AK Steel Holding Corporation common stockholders:			
Basic	\$ 0.46	\$ 0.59	\$ 0.13
Diluted	0.45	0.59	0.14

Consolidated statement of comprehensive income for the year ended December 31, 2018:

Comprehensive income	\$ 151.0	\$ 193.5	\$ 42.5
Comprehensive income attributable to AK Steel Holding Corporation	92.9	135.4	42.5

Consolidated balance sheet as of December 31, 2018:

Inventory	\$ 1,128.7	\$ 1,419.9	\$ 291.2
Other non-current assets	180.9	103.9	(77.0)
Other non-current liabilities	132.0	134.0	2.0
Accumulated deficit	(2,915.9)	(2,691.8)	224.1

Consolidated statement of cash flows for the year ended December 31, 2018:

Net income	\$ 201.6	\$ 244.1	\$ 42.5
Deferred income taxes	(21.2)	(8.0)	13.2
Changes in working capital	66.7	12.7	(54.0)
Other operating items, net	4.1	2.4	(1.7)

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Property, plant and equipment as of December 31, 2018 and 2017, consist of:

	2018	2017
Land, land improvements and leaseholds	\$272.1	\$275.3
Buildings	509.7	509.0
Machinery and equipment	6,061.6	5,958.2
Construction in progress	125.8	89.3
Total	6,969.2	6,831.8
Less accumulated depreciation	(5,057.6)	(4,845.6)
Property, plant and equipment, net	\$1,911.6	\$1,986.2

Interest on capital projects capitalized in 2018, 2017 and 2016 was \$1.6, \$1.9 and \$3.1. Asset retirement obligations were \$8.5 and \$7.8 at December 31, 2018 and 2017.

Goodwill and Intangible Assets

Changes in goodwill for the years ended December 31, 2018, 2017 and 2016 are presented below:

	2018	2017	2016
Balance at beginning of year	\$253.8	\$32.8	\$32.8
Acquisition	1.2	221.0	—
Balance at end of year	\$255.0	\$253.8	\$32.8

Intangible assets at December 31, 2018 and 2017, consist of:

	Gross	Accumulated	Net
	Amount	Amortization	Amount
As of December 31, 2018			
Customer relationships	\$ 36.6	\$ (7.4)	\$ 29.2
Technology	19.3	(4.6)	14.7
Other	1.0	(1.0)	—
Intangible assets	\$ 56.9	\$ (13.0)	\$ 43.9

As of December 31, 2017

Customer relationships	\$ 36.6	\$ (2.2)	\$ 34.4
Technology	19.3	(1.4)	17.9
Other	1.0	(0.4)	0.6
Intangible assets	\$ 56.9	\$ (4.0)	\$ 52.9

Amortization expense related to intangible assets was \$9.0 and \$4.0 in 2018 and 2017. Amortization expense is included in costs of products sold. The remaining average life of our intangible assets is 5.6 years for customer relationships and 4.6 years for technology. Estimated annual amortization expense for intangible assets over the next five years is \$8.4 each year from 2019 through 2022 and \$7.1 in 2023.

Other Non-current Assets

Other non-current assets as of December 31, 2018 and 2017, consist of:

	2018	2017
Investments in affiliates	\$80.5	\$77.5
Other	23.4	33.3
Other non-current assets	\$103.9	\$110.8

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Accrued liabilities as of December 31, 2018 and 2017, consist of:

	2018	2017
Salaries, wages and benefits	\$127.8	\$101.3
Interest	34.8	35.0
Other	126.3	134.2
Accrued liabilities	\$288.9	\$270.5

Ashland Works Closure

In January 2019, our Board of Directors approved and we announced that we intend to close our Ashland Works, including the previously idled blast furnace and steelmaking operations (“Ashland Works Hot End”) and a single hot dip galvanizing coating line that had remained operational, subject to negotiations with the labor union at that facility. Factors that influenced our decision to close Ashland Works included an uncertain global trade landscape influenced by shifting domestic and international political priorities, Ashland Works’ high cost of production, and continued intense competition from domestic and foreign steel competitors. These conditions directly impact our pricing, which in turn directly impacts our assessment of the demand forecasts for the markets we serve. Despite several successful trade actions, we continue to see a high level of carbon steel imports driven by global overcapacity, particularly in China. We also have seen significant capacity restarted or new capacity additions announced in the United States. In addition, we have recently concluded that we have sufficient coating capacity to meet our customers’ needs without using our coating operations at Ashland Works. We will continue to operate the Ashland Works coating line until the end of 2019 to allow us time to complete the transition of products to our other coating lines in the U.S.

We expect to record a charge of approximately \$80.0 during the first quarter of 2019, which includes approximately \$20.0 for termination of certain take-or-pay supply agreements, approximately \$30.0 for supplemental unemployment and other employee benefit costs, an estimated multiemployer plan withdrawal liability of \$25.0, and approximately \$5.0 for other costs. The supplemental unemployment and other employee benefit costs are expected to be paid primarily in 2020 and 2021. With respect to the \$80.0 charge, we expect to make cash payments of approximately \$15.0 in 2019, \$30.0 in 2020 and the remaining amount over several years thereafter. The actual multiemployer plan withdrawal liability will not be known until 2020 and is expected to be paid over a number of years. In addition to the \$80.0 charge recorded in the first quarter of 2019, we expect to record expenses of approximately \$14.0 over the full-year 2019, consisting of cash costs of approximately \$10.0 related to closing the facility and \$4.0 of accelerated depreciation related to the coating line fixed assets. These cash costs related to closing the facility will decline in future years and the accelerated depreciation expense will not be incurred beyond 2019. On-going costs for maintenance of the equipment, utilities and supplier obligations related to the idled Ashland Works Hot End were \$20.0, \$21.2, and \$22.1 for the years ended December 31, 2018, 2017, and 2016.

In the fourth quarter of 2015, we temporarily idled the Ashland Works Hot End. We incurred charges of \$28.1 in the fourth quarter of 2015, which included \$22.2 for supplemental unemployment and other employee benefit costs and \$5.9 for equipment idling, asset preservation and other costs. The supplemental unemployment and other employee benefit costs were recorded as accrued liabilities, and the activity for the years ended December 31, 2018, 2017, and 2016 was as follows:

	2018	2017	2016
Balance at beginning of year	\$1.5	\$6.2	\$22.2
Payments	(1.5)	(5.3)	(20.1)
Additions to the reserve	—	0.6	4.1
Balance at end of year	\$—	\$1.5	\$6.2

During 2017, we recognized a non-cash asset impairment charge of \$75.6, primarily related to the long-lived assets associated with the Ashland Works Hot End.

NOTE 3 - Acquisition of Precision Partners

On August 4, 2017, we acquired PPHC Holdings, LLC (“Precision Partners”), which provides advanced-engineered solutions, tool design and build, hot- and cold-stamped steel components and complex assemblies for the automotive market. Precision Partners is headquartered in Ontario, Canada and operates eight plants in Ontario, Alabama and Kentucky. We acquired Precision Partners to advance our core focus on the high-growth automotive lightweighting market and our prominent position in advanced high strength

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steels, further strengthen our close collaboration with automotive market customers, and leverage both companies' research and innovation in metals forming. The consolidated financial statements reflect the effects of the acquisition and Precision Partner's financial results beginning August 4, 2017. We finalized the purchase price allocation as of March 31, 2018, with an insignificant adjustment to goodwill. For the year ended December 31, 2017, we incurred acquisition costs of \$6.2, primarily for transaction fees and direct costs, including legal, finance, consulting and other professional fees. These costs are included in selling and administrative expenses in the consolidated statements of operations.

NOTE 4 - Investments in Affiliates

We have investments in several businesses accounted for using the equity method of accounting. Investees and equity ownership percentages are presented below:

	Equity Ownership %
Combined Metals of Chicago, LLC	40.0%
Delaco Processing, LLC	49.0%
Rockport Roll Shop LLC	50.0%
Spartan Steel Coating, LLC	48.0%

Cost of products sold includes \$6.6, \$7.0 and \$12.3 in 2018, 2017 and 2016 for our share of income of equity investees. As of December 31, 2018, our carrying cost of our investment in Spartan Steel exceeded our share of the underlying equity in net assets by \$9.2. This difference is being amortized and the amortization expense is included in cost of products sold.

Summarized financial statement data for all investees is presented below:

	2018	2017	2016
Revenue	\$329.8	\$292.7	\$286.4
Gross profit	91.0	88.9	96.3
Net income (loss)	19.4	20.7	31.8
	2018	2017	
Current assets	\$123.6	\$115.2	
Noncurrent assets	74.4	73.5	
Current liabilities	16.9	16.2	
Noncurrent liabilities	54.2	58.9	

We regularly transact business with these equity investees. Transactions with all equity investees for the years indicated are presented below:

	2018	2017	2016
Sales to equity investees	\$104.4	\$80.6	\$69.2
Purchases from equity investees	31.2	33.0	213.5

Outstanding receivables and payables with all equity investees as of the end of the year indicated are presented below:

	2018	2017
Accounts receivable from equity investees	\$1.9	\$0.7
Accounts payable to equity investees	6.4	4.1

Magnetation

In 2016, we made a cash payment (“Termination Payment”) of \$36.6 to the Chapter 11 estate of Magnetation LLC (“Magnetation”), our former joint venture, in order to terminate our iron ore pellet offtake agreement with Magnetation and cease purchasing iron ore pellets from Magnetation. In connection with the payment of the Termination Payment to the bankruptcy estate, we recognized a charge in 2016 for the Termination Payment and a charge of \$32.9 for the present value of remaining obligations under contracts with other third parties to transport pellets to our facilities. In the fourth quarter of 2017, we reached an agreement for transportation

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services that provides a timeframe to begin using the rail cars that were idled after the termination of the pellet supply agreement. As a result, we recorded a credit of \$19.3 during the fourth quarter of 2017 to reduce the unpaid liability.

NOTE 5 - Income Taxes

We and our subsidiaries file a consolidated federal income tax return that includes all domestic companies owned 80% or more by us and the proportionate share of our interest in equity method investments. State tax returns are filed on a consolidated, combined or separate basis depending on the applicable laws relating to us and our domestic subsidiaries.

Components of income (loss) before income taxes for the years ended December 31, 2018, 2017 and 2016, are presented below:

	2018	2017	2016
United States	\$ 168.3	\$ 91.6	\$ (40.4)
Foreign	11.5	9.7	6.7
Noncontrolling interests	58.1	61.4	66.0
Income before income taxes	\$ 237.9	\$ 162.7	\$ 32.3

Significant components of deferred tax assets and liabilities at December 31, 2018 and 2017 are presented below:

	2018	2017
Deferred tax assets:		
Net operating and capital loss and tax credit carryforwards	\$ 516.7	\$ 619.5
Postretirement benefits	81.8	92.5
Pension benefits	114.1	117.5
Inventories	38.5	47.9
Other assets	65.1	71.6
Valuation allowance	(693.5)	(735.7)
Total deferred tax assets	122.7	213.3
Deferred tax liabilities:		
Depreciable assets	(108.3)	(121.9)
Other liabilities	(33.4)	(118.3)
Total deferred tax liabilities	(141.7)	(240.2)
Net deferred tax liabilities	\$(19.0)	\$(26.9)

We regularly evaluate the need for a valuation allowance for deferred tax assets by assessing whether it is more likely than not that we will realize future deferred tax assets. We assess the valuation allowance each reporting period and reflect any additions or adjustments in earnings in the same period. At December 31, 2018, we considered the existence of recent cumulative income from U.S. operations as a source of positive evidence. We have generated losses from U.S. operations for several of our recent periods through 2016 and accordingly have generated significant cumulative losses in those periods, which is a significant source of objective negative evidence. Despite the recent income reported in 2017 and 2018 from U.S. operations, the following forms of negative evidence concerning our ability to realize our domestic deferred tax assets were considered:

we have historical evidence that the steel industry we operate within has business cycles of longer than a few years and therefore attribute significant weight to our cumulative losses over longer business cycles in evaluating our ability to generate future taxable income;

the global steel industry has been experiencing global overcapacity and periods of increased foreign steel imports into the U.S., which have created volatile economic conditions and uncertainty relative to predictions of future income; while we have changed our business model to de-emphasize sales of commodity products and believe that this model will generate improved financial results throughout an industry cycle, we have not experienced all parts of the cycle since we made these changes and therefore we do not know what results our business model will produce in all circumstances;

our U.S. operations have generated significant losses in prior years and the competitive landscape in the steel industry reflects shifting domestic and international political priorities, an uncertain global trade landscape, and continued intense competition from domestic and foreign steel competitors, all of which present significant uncertainty regarding our ability to routinely generate U.S. income in the near term;

there has been significant recent volatility in spot market selling prices for carbon steel; and

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a substantial portion of our U.S. deferred tax assets consists of tax carryforwards with expiration dates that may prevent us from using them prior to expiration.

As of December 31, 2018 and 2017, we concluded that the negative evidence outweighed the positive evidence and we maintained a valuation allowance for our net deferred tax assets in the U.S. To determine the appropriate valuation allowance, we considered the timing of future reversal of our taxable temporary differences that supports realizing a portion of our federal and state deferred tax assets. This accounting treatment has no effect on our ability to use the loss carryforwards and tax credits to reduce future cash tax payments.

Changes in the valuation allowance for the years ended December 31, 2018, 2017 and 2016, are presented below:

	2018	2017	2016
Balance at beginning of year	\$735.7	\$1,189.7	\$1,232.3
Change in valuation allowance:			
Included in income tax expense (benefit)	(52.8)	(62.3)	11.0
Change in deferred assets in other comprehensive income	10.6	8.5	(53.6)
Effect of tax rate changes	—	(400.2)	—
Balance at end of year	\$693.5	\$735.7	\$1,189.7

At December 31, 2018, we had \$2,174.0 in federal regular net operating loss carryforwards, which will expire between 2030 and 2037. Our net operating loss carryovers generated through 2017 retain the original 20-year carryover periods and can be used to offset future taxable income without limitation. At December 31, 2018, we had research and development (“R&D”) credit carryforwards of \$1.2 that we may use to offset future income tax liabilities. The R&D credits expire between 2027 and 2028. At December 31, 2018, we had \$89.2 in deferred tax assets for state net operating loss carryforwards and tax credit carryforwards, before considering valuation allowances, which will expire between 2018 and 2038.

Significant components of income tax expense (benefit) are presented below:

	2018	2017	2016
Current:			
Federal	\$(0.5)	\$(4.5)	\$(3.7)
State	(0.3)	0.3	0.2
Foreign	2.1	2.4	1.7
Deferred:			
Federal	(5.3)	0.7	15.1
State	—	0.1	1.4
Foreign	(2.2)	(0.4)	—
Benefits of operating loss carryforwards	—	—	(16.1)
Amount allocated to other comprehensive income	—	—	(15.5)
Change in valuation allowance on beginning-of-the-year deferred tax assets	—	(0.8)	—
Income tax expense (benefit)	\$(6.2)	\$(2.2)	\$(16.9)

The Tax Cuts and Jobs Act of 2017 (the “Tax Act”), signed into law on December 22, 2017, reduced the corporate income tax rate to 21% beginning in 2018, among other provisions. We recognized the effects of changes in tax rates and laws on deferred tax balances in 2017, the period in which the legislation was enacted. At December 31, 2017, we remeasured our deferred tax assets and liabilities based on the rate at which they are expected to reverse in the future, which is generally 21% at the U.S. federal level. As a result, our income tax expense for the fourth quarter of 2017 included a non-cash credit of \$4.3 for the decrease in the value of our net deferred tax liabilities.

The Tax Act also introduced a one-time transition tax on the cumulative undistributed earnings of our foreign subsidiaries as of December 31, 2017. As a result, our taxable income for 2017 included \$24.3 as our gross transition tax obligation. We did not incur a cash tax liability for the transition tax due to the availability of existing net operating loss carryforwards. At December 31, 2018 we had \$7.3 of accumulated undistributed earnings of our foreign subsidiaries that has not been subject to U.S. income tax as they are considered indefinitely reinvested. Substantially all of the earnings as of December 31, 2017 were subject to U.S. taxation as a result of the transition tax inclusion provided for by the Tax Act. The Tax Act also establishes a broad exemption from U.S. taxation for dividends paid from our foreign affiliates after 2017. Consequently, there will generally be no incremental U.S. taxable income generated if we repatriate these foreign earnings in the future. However, foreign withholding taxes on dividend distributions could

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apply, unless they are eliminated by a treaty between the United States and the country where our foreign affiliate is located. Since we consider these earnings to be permanently invested in our foreign subsidiaries, we did not record any withholding taxes that would be assessed if the earnings were repatriated by payment of a dividend. If we repatriated the earnings, we estimate that the withholding tax liability would not be material at December 31, 2018.

Staff Accounting Bulletin No. 118 established a one-year period from the date of enactment in which to account for the impact of the Tax Act. During the quarter ended March 31, 2018, we reduced our valuation allowance and recorded an income tax benefit of \$5.3 as a result of changes to the tax net operating carryover rules included in the Tax Act that allow us to use certain indefinite-lived deferred tax liabilities as a source of future income to realize deferred tax assets. As of December 31, 2018, we have accounted for the material aspects of the Tax Act.

The reconciliation of income tax on income before income taxes computed at the U.S. federal statutory tax rates to actual income tax expense is presented below:

	2018	2017	2016
Income tax expense at U.S. federal statutory rate	\$50.0	\$57.2	\$11.3
Income tax expense calculated on noncontrolling interests	(12.2)	(21.5)	(23.1)
State and foreign tax expense, net of federal tax	(2.3)	6.3	0.2
Increase (decrease) in deferred tax asset valuation allowance	(52.8)	(51.8)	11.0
Amount allocated to other comprehensive income	—	—	(15.5)
Remeasurement of deferred taxes for U.S. tax legislation	—	(4.3)	—
Transition tax on foreign earnings	—	7.9	—
Non-deductible compensation	8.1	—	—
Other differences	3.0	4.0	(0.8)
Income tax expense (benefit)	\$(6.2)	\$(2.2)	\$(16.9)

Our federal, state and local tax returns are subject to examination by various taxing authorities. Federal returns for periods beginning in 2015 are open for examination, while certain state and local returns are open for examination for periods beginning in 2007. However, taxing authorities have the ability to adjust net operating loss carryforwards generated in years before these periods. We have not recognized certain tax benefits because of the uncertainty of realizing the entire value of the tax position taken on income tax returns until taxing authorities review them. We have established appropriate income tax accruals, and believe that the outcomes of future federal examinations, as well as ongoing and future state and local examinations, will not have a material adverse impact on our financial position, results of operations or cash flows. When statutes of limitations expire or taxing authorities resolve uncertain tax positions, we will adjust income tax expense for the unrecognized tax benefits. We have no tax positions for which it is reasonably possible that the total amounts of unrecognized tax benefits will significantly change within twelve months of December 31, 2018.

A reconciliation of the change in unrecognized tax benefits for 2018, 2017 and 2016 is presented below:

	2018	2017	2016
Balance at beginning of year	\$89.4	\$124.2	\$130.3
Decreases for prior year tax positions	(2.2)	(0.5)	(4.5)
Increases (decreases) for current year tax positions	—	0.3	(1.6)
Increases (decreases) related to tax rate changes (a)	—	(34.6)	—
Balance at end of year	\$87.2	\$89.4	\$124.2

(a) As a result of the Tax Act, the value of unrecognized tax benefits associated with NOL carryforwards and other temporary differences was reduced to reflect the lower tax rates that will apply if the uncertainties related to these deferred tax assets materialize in the future.

Included in the balance of unrecognized tax benefits at December 31, 2018 and 2017, are \$72.8 and \$75.0 of tax benefits that, if recognized, would affect the effective tax rate. Also included in the balance of unrecognized tax benefits at December 31, 2018 and 2017, are \$14.5 and \$14.4 of tax benefits that, if recognized, would result in adjustments to other tax accounts, primarily deferred taxes.

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Table of Contents**NOTE 6 - Long-term Debt and Other Financing**

Debt balances at December 31, 2018 and 2017, are presented below:

	2018	2017
Credit Facility	\$335.0	\$450.0
7.50% Senior Secured Notes due July 2023 (effective rate of 8.3%)	380.0	380.0
5.00% Exchangeable Senior Notes due November 2019 (effective rate of 10.8%)	148.5	150.0
7.625% Senior Notes due October 2021	406.2	406.2
6.375% Senior Notes due October 2025 (effective rate of 7.1%)	274.8	280.0
7.00% Senior Notes due March 2027	391.6	400.0
Industrial Revenue Bonds due 2020 through 2028	99.3	99.3
Unamortized debt discount and issuance costs	(41.7)	(55.4)
Total long-term debt	\$1,993.7	\$2,110.1

During 2018, we were in compliance with all the terms and conditions of our debt agreements.

Maturities of long-term debt for the next five years, at December 31, 2018, are presented below:

Year	Debt Maturities
2019 (a)	\$ 148.5
2020	7.3
2021	406.2
2022	335.0
2023	380.0

(a) Amounts maturing in 2019 are classified as long-term based on our ability and intent to refinance on a long-term basis.

Credit Facility

We have a \$1,350.0 revolving credit facility (the “Credit Facility”) that expires in September 2022 and is guaranteed by AK Steel’s parent company, AK Holding, and by AK Tube LLC (“AK Tube”), AK Steel Properties, Inc. (“AK Properties”) and Mountain State Carbon LLC (“Mountain State Carbon”), three 100%-owned subsidiaries of AK Steel (referred to together as the “Subsidiary Guarantors”). The Credit Facility contains customary restrictions, including limitations on, among other things, distributions and dividends, acquisitions and investments, dispositions, indebtedness, liens and affiliate transactions. The Credit Facility requires that we maintain a minimum fixed charge coverage ratio of one to one if availability under the Credit Facility is less than \$135.0. The Credit Facility’s current availability significantly exceeds \$135.0. Availability is calculated as the lesser of the Credit Facility commitments or eligible collateral after advance rates, less outstanding revolver borrowings and letters of credit. We secure our Credit Facility obligations with our inventory and accounts receivable, and the Credit Facility’s availability fluctuates monthly based on the varying levels of eligible collateral. We do not expect any of these restrictions to affect or limit our ability to conduct business in the ordinary course. The Credit Facility includes a “first-in, last-out” or “FILO” tranche, which allows us to use a portion of our eligible collateral at higher advance rates.

At December 31, 2018, our aggregate borrowing base, after application of applicable advance rates, was \$1,350.0. As of December 31, 2018, we had \$335.0 in outstanding borrowings. Availability as of December 31, 2018 was further reduced by \$73.2 for outstanding letters of credit, resulting in remaining availability of \$941.8. The weighted-average interest rate on the outstanding borrowings at December 31, 2018 was 4.10%.

Senior Secured Notes

AK Steel has outstanding 7.50% Senior Secured Notes due July 2023 (the “Secured Notes”). The Secured Notes are fully and unconditionally guaranteed by AK Holding and the Subsidiary Guarantors. The Secured Notes are secured by first priority liens on the plant, property and equipment (other than certain excluded property, and subject to permitted liens) of AK Steel and the Subsidiary Guarantors and any proceeds from them. The book value of the collateral as of December 31, 2018 was approximately \$1.4 billion. The indenture governing the Secured Notes includes covenants with customary restrictions on (a) the incurrence of additional debt by certain subsidiaries, (b) the incurrence of certain liens, (c) the incurrence of sale/leaseback transactions, (d) the use of proceeds from the sale of collateral, and (e) our ability to merge or consolidate with other entities or to sell, lease or transfer all or substantially all of

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our assets to another entity. The Secured Notes also contain customary events of default. Before July 15, 2019, we may redeem the Secured Notes at a price equal to 100.000% of par plus a make-whole premium and all accrued and unpaid interest to the date of redemption. After July 15, 2019, we may redeem them at 103.750% until July 15, 2020, 101.875% until July 15, 2021, and 100.000% thereafter, together with all accrued and unpaid interest to the date of redemption. After we issued the Secured Notes in 2016, we repurchased then outstanding senior secured notes and recognized other expense of \$12.4 for expenses related to the debt retirement in 2016.

Exchangeable Notes

AK Steel has outstanding 5.0% Exchangeable Senior Notes due November 2019 (the “Exchangeable Notes”). We may not redeem the Exchangeable Notes before their maturity date. The indenture governing the Exchangeable Notes (the “Exchangeable Notes Indenture”) provides holders with an exchange right at their option before August 15, 2019, if the closing price of our common stock is greater than or equal to \$7.02 per share (130% of the exchange price of the Exchangeable Notes) for at least 20 trading days during the last 30 consecutive trading days of a calendar quarter. The triggering condition was not met as of January 1, 2019 nor January 1, 2018. The triggering condition is reassessed at the beginning of each quarter while any Exchangeable Notes remain outstanding. We would be required to pay cash to holders for the principal amount of the Exchangeable Notes and to pay cash or issue common stock (at our option) for the premium if the holders elect to exchange their Exchangeable Notes. If holders of Exchangeable Notes elect to exchange, we expect to fund any cash settlement from cash or borrowings under our Credit Facility or both.

On or after August 15, 2019, holders may exchange their Exchangeable Notes at any time, and we would be obligated to (i) pay an amount in cash equal to the aggregate principal amount of the Exchangeable Notes to be exchanged and (ii) at our election, pay cash, deliver shares of AK Holding common stock or a combination for any remaining exchange obligation in excess of the aggregate principal amount of the Exchangeable Notes being exchanged. Holders may exchange their Exchangeable Notes into shares of AK Holding common stock at their option at an initial exchange rate of 185.1852 shares of AK Holding common stock per \$1,000 principal amount of Exchangeable Notes. The initial exchange rate is equivalent to a conversion price of approximately \$5.40 per share of common stock, which equates to 27.5 million shares to be used to determine the aggregate equity consideration to be delivered upon exchange, which could be adjusted for certain dilutive effects from potential future events. The Exchangeable Notes Indenture does not contain any financial or operating covenants or restrict us or our subsidiaries from paying dividends, incurring debt or issuing or repurchasing securities. If we undergo a fundamental change, as defined in Exchangeable Notes Indenture (which, for example, would include various transactions in which we would undergo a change of control), holders may require us to repurchase the Exchangeable Notes in whole or in part for cash at a price equal to par plus any accrued and unpaid interest. In addition, if we undergo a “make-whole fundamental change,” as defined in the Exchangeable Notes Indenture, before the maturity date, in addition to requiring us to repurchase the Exchangeable Notes in whole or in part for cash at a price equal to par plus any accrued and unpaid interest, the exchange rate will be increased in certain circumstances for holders who elect to exchange their notes in connection with the event.

Based on the initial exchange rate, the Exchangeable Notes are exchangeable into a maximum of 37.1 million shares of AK Holding common stock. However, we would only deliver the maximum amount of shares if, following a “make-whole fundamental change” described above, we elect to deliver the shares to satisfy the higher exchange rate. Although the Exchangeable Notes were issued at par, for accounting purposes the proceeds received from the issuance of the notes are allocated between debt and equity to reflect the fair value of the exchange option embedded in the notes and the fair value of similar debt without the exchange option. Therefore, we recorded \$38.7 of the gross proceeds of the Exchangeable Notes as an increase in additional paid-in capital with the offsetting amount recorded as a debt discount. We are amortizing the debt discount and issuance costs over the term of the Exchangeable Notes using the effective interest method. As of December 31, 2018 and 2017, the net carrying amount of the Exchangeable Notes was \$141.4 and \$135.3. During 2018, we repurchased an aggregate principal amount of \$1.5 of the

Exchangeable Notes in private, open market transactions.

Senior Unsecured Notes

AK Steel has outstanding 7.625% Senior Notes due October 2021 (the “2021 Notes”). We may redeem the 2021 Notes at 101.906% until October 1, 2019 and 100.0% thereafter, together with all accrued and unpaid interest to the date of redemption.

AK Steel has outstanding 6.375% Senior Unsecured Notes due October 2025 (the “2025 Notes”). Before October 15, 2020, we may redeem the 2025 Notes at a price equal to par plus a make-whole premium and all accrued and unpaid interest to the date of redemption. After that date, we may redeem them at 103.188% until October 15, 2021, 101.594% thereafter until October 15, 2022, and 100.000% thereafter, together with all accrued and unpaid interest to the date of redemption. In 2017, we recognized other expense of \$8.4 related to the issuance of the 2025 Notes. During 2018, we repurchased an aggregate principal amount of \$5.2 of the 2025 Notes in private, open market transactions. We recognized a net gain on the repurchases totaling \$0.7 for the year ended December 31, 2018, which is included in other (income) expense.

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AK Steel has outstanding 7.00% Senior Unsecured Notes due March 2027 (the “2027 Notes”). Before March 15, 2022, we may redeem the 2027 Notes at a price equal to par plus a make-whole premium and all accrued and unpaid interest to the date of redemption. After that date, we may redeem them at 103.500% until March 15, 2023, 102.333% thereafter until March 15, 2024, 101.167% thereafter until March 15, 2025, and 100.000% thereafter, together with all accrued and unpaid interest to the date of redemption. In 2017, we recognized other expense of \$13.1 related to the issuance of the 2027 Notes. During 2018, we repurchased an aggregate principal amount of \$8.4 of the 2027 Notes in private, open market transactions. We recognized a net gain on the repurchases totaling \$1.3 for the year ended December 31, 2018, which is included in other (income) expense.

The Exchangeable Notes, the 2021 Notes, the 2025 Notes, the 2027 Notes and the unsecured industrial revenue bonds (“IRBs”) discussed below (collectively, the “Senior Unsecured Notes”) are equal in right of payment. AK Holding and the Subsidiary Guarantors each, fully and unconditionally, jointly and severally, guarantees the payment of interest, principal and premium, if any, on the Senior Unsecured Notes other than the Exchangeable Notes, which are guaranteed only by AK Holding. The indentures governing the 2021 Notes, the 2025 Notes, the 2027 Notes and the unsecured IRBs include covenants with customary restrictions on (a) the incurrence of additional debt by certain subsidiaries, (b) the incurrence of certain liens, (c) the amount of sale/leaseback transactions, and (d) our ability to merge or consolidate with other entities or to sell, lease or transfer all or substantially all of our assets to another entity. The indentures governing the Senior Unsecured Notes also contain customary events of default. The Senior Unsecured Notes rank junior in priority to the Secured Notes to the extent of the value of the assets securing the Secured Notes.

Industrial Revenue Bonds

AK Steel has outstanding \$73.3 aggregate principal amount of fixed-rate, tax-exempt IRBs (the “unsecured IRBs”) at December 31, 2018. The weighted-average fixed interest rate of the unsecured IRBs is 6.8%. The unsecured IRBs are unsecured senior debt obligations of AK Steel that are equal in ranking with the other Senior Unsecured Notes. In addition, AK Steel has outstanding \$26.0 aggregate principal amount of variable-rate taxable IRBs at December 31, 2018, that are backed by letters of credit.

NOTE 7 - Pension and Other Postretirement Benefits*Summary*

We provide noncontributory pension and various healthcare and life insurance benefits to a significant portion of our employees and retirees. Benefits are provided through defined benefit and defined contribution plans that we sponsor, as well as multiemployer plans for certain union members. Our defined benefit pension plans are not fully funded. We will be required to make pension contributions of approximately \$45.0 for 2019. Based on current actuarial assumptions, we expect to make required pension contributions of approximately \$50.0 for 2020 and \$50.0 for 2021. Factors that affect future funding projections include differences between expected and actual returns on plan assets, actuarial data and assumptions relating to plan participants, the discount rate used to measure the pension obligations and changes to regulatory funding requirements. We expect to make other postretirement benefit (“OPEB”) payments, after receipt of Medicare subsidy reimbursements, of approximately \$37.5 in 2019.

Table of ContentsDefined Benefit PlansPlan Obligations

Amounts presented below are calculated based on benefit obligation and asset valuation measurement dates of December 31, 2018 and 2017:

	Pension Benefits		Other Benefits	
	2018	2017	2018	2017
Change in benefit obligations:				
Benefit obligations at beginning of year	\$2,808.0	\$2,874.8	\$448.5	\$443.7
Service cost	3.2	2.8	4.5	4.7
Interest cost	94.5	108.2	15.6	17.3
Plan participants' contributions	—	—	24.7	23.3
Actuarial loss (gain)	(148.8)	91.0	(23.7)	27.1
Amendments	—	—	(11.1)	(4.7)
Benefits paid	(268.1)	(269.0)	(62.6)	(65.5)
Annuity settlement	(278.8)	—	—	—
Medicare subsidy reimbursement received	—	—	2.3	2.6
Foreign currency exchange rate changes	—	0.2	—	—
Benefit obligations at end of year	\$2,210.0	\$2,808.0	\$398.2	\$448.5
Change in plan assets:				
Fair value of plan assets at beginning of year	\$2,322.2	\$2,183.5	\$—	\$—
Actual gain (loss) on plan assets	(87.0)	362.4	—	—
Employer contributions	51.3	45.3	35.6	39.6
Plan participants' contributions	—	—	24.7	23.3
Benefits paid	(268.1)	(269.0)	(62.6)	(65.5)
Annuity settlement	(278.8)	—	—	—
Medicare subsidy reimbursement received	—	—	2.3	2.6
Fair value of plan assets at end of year	\$1,739.6	\$2,322.2	\$—	\$—
Funded status	\$(470.4)	\$(485.8)	\$(398.2)	\$(448.5)
Amounts recognized in the consolidated balance sheets:				
Current liabilities	\$(1.2)	\$(1.3)	\$(37.5)	\$(38.8)
Noncurrent liabilities	(469.2)	(484.5)	(360.7)	(409.7)
Total	\$(470.4)	\$(485.8)	\$(398.2)	\$(448.5)
Amounts recognized in accumulated other comprehensive loss, before taxes:				
Actuarial loss (gain)	\$134.1	\$77.6	\$(35.4)	\$(13.0)
Prior service cost (credit)	19.4	23.2	(82.4)	(84.9)
Total	\$153.5	\$100.8	\$(117.8)	\$(97.9)

The accumulated benefit obligation for all defined benefit pension plans was \$2,188.6 and \$2,767.1 at December 31, 2018 and 2017. All our defined benefit pension plans have an accumulated benefit obligation in excess of plan assets. The amounts included in current liabilities represent only the amounts of our unfunded pension and OPEB benefit plans that we expect to pay in the next year.

During the fourth quarter of 2018, we transferred to a highly rated insurance company \$278.8 of pension obligations for approximately 5,400 retirees or their beneficiaries. As part of this transaction, we transferred a similar amount of pension trust assets to purchase a non-participating annuity contract that requires the insurance company to pay the transferred pension obligations to the

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pension participants. As a result of the transfer of pension assets in October 2018, we recorded a settlement loss of \$14.5 in the fourth quarter of 2018 to recognize a portion of the unrealized actuarial loss associated with the transferred obligations.

The 2018 change in the actuarial loss (gain) for the pension plans in the table above primarily consisted of a loss of \$235.8 for actual pension asset return less than expected, partially offset by a gain of \$154.6 for the increase in discount rate used to value the benefit obligations. The 2018 change in the actuarial loss (gain) for the OPEB plan in the table above primarily consisted of a gain of \$27.7 for the increase in discount rate used to value the benefit obligations.

Assumptions used to value benefit obligations and determine pension and OPEB (income) expense are presented below:

	Pension Benefits			Other Benefits		
	2018	2017	2016	2018	2017	2016
Assumptions used to determine benefit obligations at December 31:						
Discount rate	4.22%	3.54%	3.93%	4.27%	3.59%	4.04%
Rate of compensation increase	4.00%	4.00%	4.00%			
Interest crediting rate	3.80%	3.80%	3.80%			
Subsequent year healthcare cost trend rate				6.50%	6.65%	7.00%
Ultimate healthcare cost trend rate				4.50%	4.50%	4.50%
Year ultimate healthcare cost trend rate begins				2025	2025	2025

Assumptions used to determine pension and OPEB (income) expense for the year ended December 31:

Discount rate	3.69%	3.93%	3.95%	3.59%	4.04%	4.22%
Expected return on plan assets	7.00%	7.25%	7.25%			
Rate of compensation increase	4.00%	4.00%	4.00%			
Interest crediting rate	3.80%	3.80%	4.30%			

We determine the discount rate at each remeasurement by finding a hypothetical portfolio of individual high-quality corporate bonds available at the measurement date with coupon and principal payments that could satisfy the plans' expected future benefit payments that we use to calculate the projected benefit obligation. The discount rate is the single rate that is equivalent to the average yield on that hypothetical portfolio of bonds. We changed our assumption for future expected returns on pension plan assets to 6.75% from 7.00%, effective January 1, 2019.

Estimated future benefit payments to beneficiaries are presented below:

	Pension Plans	Other Benefits
2019	\$ 216.5	\$ 37.5
2020	211.2	35.6
2021	198.9	33.8
2022	196.0	32.2
2023	180.6	30.6
2024 through 2028	835.3	133.4

Plan Assets

Our investments in the master pension trust primarily include indexed and actively-managed funds. A fiduciary committee sets the target asset mix and monitors asset performance. We determine the master pension trust's projected long-term rate of return based on the asset allocation, the trust's investment policy statement and our long-term capital market return assumptions for the master trust.

We have developed an investment policy that considers liquidity requirements, expected investment return, funded status and expected asset risk, as well as standard industry practices. The target asset allocation for the master pension trust at December 31, 2018 was 40% equity and 60% fixed income. Equity investments consist of individual securities, equity mutual funds and common/collective

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trusts with equity investment strategies, which are diversified across multiple industry sectors, company market capitalizations and geographical investment strategies. The equity mutual funds and common/collective trusts have no unfunded commitments or significant redemption restrictions. Fixed-income investments consist of individual securities and common/collective trusts, which invest primarily in investment-grade and high-yield corporate bonds and U.S. Treasury securities. The fixed-income investments are diversified by ratings, maturities, industries and other factors. Plan assets contain no significant concentrations of risk from individual securities or industry sectors. The master pension trust has no direct investments in our common stock or fixed-income securities.

Master pension trust investments measured at fair value on a recurring basis at December 31, 2018 and 2017 are presented below, with certain assets presented by level within the fair value hierarchy. As a practical expedient, we estimate the value of common/collective trusts and equity mutual funds by using the net asset value (“NAV”) per share multiplied by the number of shares of the trust investment held as of the measurement date. If we have the ability to redeem our investment in the respective alternative investment at the NAV with no significant restrictions on the redemption at the consolidated balance sheet date, excluding equity mutual funds, we categorized the alternative investment as a reconciliation of pension investments reported in the fair value hierarchy to the master pension trust’s balance. See Note 16 for more information on the determination of fair value.

	Quoted Prices in Active Markets for Identical Assets (Level 1)		Significant Other Observable Inputs (Level 2)		Total	
	2018	2017	2018	2017	2018	2017
<u>Investments in fair value hierarchy</u>						
Equity investments:						
U.S. securities	\$35.4	\$46.6	\$—	\$—	\$35.4	\$46.6
Global securities	—	—	131.4	327.9	131.4	327.9
Fixed-income investments:						
High-yield U.S. securities	—	—	84.5	111.8	84.5	111.8
Other U.S. securities	—	—	700.8	524.6	700.8	524.6
Global securities	—	—	82.8	—	82.8	—
Other investments	—	—	78.0	30.6	78.0	30.6
Total pension investments in fair value hierarchy	\$35.4	\$46.6	\$1,077.5	\$994.9	\$1,112.9	\$1,041.5

Investments with fair values measured at net asset value

Common/collective trusts:		
U.S. equity securities (a)		355.8 194.6
Global equity securities (a)		178.2 707.0
U.S. corporate fixed-income securities (b)		— 379.1
Global fixed-income securities (b)		92.7 —
Total pension assets at fair value		\$1,739.6 \$2,322.2

(a) Investments may include common stocks, options and futures.

(b) Investments may include investment-grade and high-yield corporate bonds, interest rate swaps, options and futures.

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Components of pension and OPEB (income) expense for the years 2018, 2017 and 2016 are presented below:

	Pension Benefits			Other Benefits		
	2018	2017	2016	2018	2017	2016
Components of pension and OPEB (income) expense:						
Service cost	\$3.2	\$2.8	\$3.0	\$4.5	\$4.7	\$4.9
Interest cost	94.5	108.2	120.4	15.6	17.3	19.9
Expected return on plan assets	(148.8)	(149.9)	(167.1)	—	—	—
Amortization of prior service cost (credit)	3.8	4.7	5.6	(13.6)	(58.5)	(60.4)
Recognized net actuarial loss (gain):						
Annual amortization	16.1	10.5	29.2	(1.3)	(4.2)	(4.3)
Corridor charge (credit)	—	—	78.4	—	—	(35.3)
Settlement loss	14.5	—	29.9	—	—	—
Pension and OPEB (income) expense	\$(16.7)	\$(23.7)	\$99.4	\$5.2	\$(40.7)	\$(75.2)

In 2016, we recognized settlement losses of \$25.0 as a result of two transactions to purchase non-participating annuities from an insurance company. Also during 2016, we recognized a settlement loss as a result of lump sum benefit payments made to retired participants under an unfunded supplemental retirement plan.

Defined Contribution Plans

All employees are eligible to participate in various defined contribution plans. Certain of these plans have features with matching contributions or other company contributions based on our financial results. Total expense from these plans was \$31.1, \$24.9 and \$23.1 in 2018, 2017 and 2016.

Multiemployer Pension Plans

We contribute to multiemployer pension plans according to collective bargaining agreements that cover certain union-represented employees. The following risks of participating in these multiemployer plans differ from single employer pension plans:

• Employer contributions to a multiemployer plan may be used to provide benefits to employees of other participating employers.

• If a participating employer stops contributing to a multiemployer plan, the remaining participating employers may need to assume the unfunded obligations of the plan.

• If the multiemployer plan becomes significantly underfunded or is unable to pay its benefits, we may be required to contribute additional amounts in excess of the rate required by the collective bargaining agreements.

• If we choose to stop participating in a multiemployer plan, we may be required to pay that plan an amount based on the underfunded status of the plan, referred to as a withdrawal liability.

We are a party to a collective bargaining agreement at Ashland Works that requires contributions to the Steelworkers Pension Trust multiemployer pension plan. We expect to incur an estimated withdrawal liability of \$25.0 in the first quarter of 2019 as a result of the closure of that facility. The actual withdrawal liability will not be known until 2020. See Note 2 for further information.

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Our participation in these multiemployer plans for the years ended December 31, 2018, 2017 and 2016, is presented below. We do not provide more than five percent of the total contributions to any multiemployer plan. Forms 5500 are not yet available for plan years ending in 2018.

Pension Fund	EIN/Pension Plan Number	Pension Protection Act Zone Status (a)		FIP/RP Status Pending/Implemented (b)	Contributions			Surcharge Imposed (c)	Expiration Date of Collective Bargaining Agreement
		2018	2017		2018	2017	2016		
Steelworkers Pension Trust	23-6648508/499	Green	Green	No	\$4.2	\$6.3	\$6.8	No	3/1/2019 to 3/31/2021 (d)
IAM National Pension Fund's National Pension Plan	51-6031295/002	Green	Green	No	17.7	18.4	18.0	No	4/1/2019 to 3/15/2020 (e)
					\$21.9	\$24.7	\$24.8		

The most recent Pension Protection Act zone status available in 2018 and 2017 is for each plan's year-end at December 31, 2017 and 2016.

(a) The plan's actuary certifies the zone status. Generally, plans in the red zone are less than 65% funded, plans in the yellow zone are between 65% and 80% funded, and plans in the green zone are at least 80% funded. The Steelworkers Pension Trust and IAM National Pension Fund's National Pension Plan elected funding relief under section 431(b)(8) of the Internal Revenue Code and section 304(b)(8) of the Employment Retirement Income Security Act of 1974 (ERISA). This election allows those plans' investment losses for the plan year ended December 31, 2008, to be amortized over 29 years for funding purposes.

(b) The "FIP/RP Status Pending/Implemented" column indicates plans for which a financial improvement plan (FIP) or a rehabilitation plan (RP) is either pending or has been implemented, as defined by ERISA.

(c) The surcharge represents an additional required contribution due as a result of the critical funding status of the plan.

(d) We are a party to three collective bargaining agreements at our Ashland Works, Mansfield Works and at the AK Tube Walbridge plant that require contributions to the Steelworkers Pension Trust. The labor contract for approximately 230 hourly employees at the Ashland Works is currently under a rolling 60-day extension. The labor contract for approximately 110 hourly employees at the AK Tube Walbridge plant expires January 22, 2021. The labor contract for approximately 300 hourly employees at Mansfield Works expires on March 31, 2021.

(e) We are a party to three collective bargaining agreements at our Butler Works, Middletown Works and Zanesville Works that require contributions to the IAM National Pension Fund's National Pension Plan. The labor contract for approximately 1,170 hourly employees at Butler Works expires on April 16, 2019. The labor contract for approximately 100 hourly employees at Zanesville Works expires on May 31, 2019. The labor contract for approximately 1,760 hourly employees at Middletown Works expires on March 15, 2020.

NOTE 8 - Operating Leases

Rental expense was \$48.1, \$43.1 and \$46.7 for 2018, 2017 and 2016. Obligations to make future minimum lease payments at December 31, 2018, are presented below:

2019	\$23.3
2020	20.8
2021	20.6
2022	18.7
2023	17.3
2024 and thereafter	83.6
Total minimum lease payments	\$184.3

NOTE 9 - Commitments

We purchase substantial portions of the principal raw materials required for our steel manufacturing operations under annual and multi-year agreements, some of which have minimum quantity requirements. We also use large volumes of natural gas, electricity and industrial gases in our steel manufacturing operations. We negotiate most of our purchases of chrome, coke, industrial gases, iron ore and a portion of our electricity under multi-year agreements. The iron ore agreements typically have a variable-price mechanism that adjusts the price of iron ore periodically, based on reference to an iron ore index and other market-based factors. We typically purchase coal under annual fixed-price agreements. We also purchase certain transportation services under multi-year contracts with minimum quantity requirements.

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Commitments for future capital investments at December 31, 2018, totaled approximately \$51.6, all of which we expect to incur in 2019.

NOTE 10 - Environmental and Legal Contingencies*Environmental Contingencies*

Domestic steel producers, including us, must follow stringent federal, state and local laws and regulations designed to protect human health and the environment. We have spent the following amounts over the past three years for environmental-related capital investments and environmental compliance:

	2018	2017	2016
Environmental-related capital investments	\$ 7.1	\$ 6.8	\$ 4.9
Environmental compliance costs	126.3	129.5	123.9

We and our predecessors have been involved in steel manufacturing and related operations since 1900. Although we believe our operating practices have been consistent with prevailing industry standards, hazardous materials may have been released at operating sites or third-party sites in the past, including operating sites that we no longer own. If we reasonably can, we have estimated potential remediation expenditures for those sites where future remediation efforts are probable based on identified conditions, regulatory requirements or contractual obligations arising from the sale of a business or facility. For sites involving government-required investigations, we typically make an estimate of potential remediation expenditures only after the investigation is complete and when we better understand the nature and scope of the remediation. In general, the material factors in these estimates include the costs associated with investigations, delineations, risk assessments, remedial work, governmental response and oversight, site monitoring, and preparation of reports to the appropriate environmental agencies. We have recorded the following liabilities for environmental matters on our consolidated balance sheets:

	2018	2017
Accrued liabilities	\$ 8.0	\$ 8.5
Other non-current liabilities	31.2	35.4

We cannot predict the ultimate costs for each site with certainty because of the evolving nature of the investigation and remediation process. Rather, to estimate the probable costs, we must make certain assumptions. The most significant of these assumptions is for the nature and scope of the work that will be necessary to investigate and remediate a particular site and the cost of that work. Other significant assumptions include the cleanup technology that will be used, whether and to what extent any other parties will participate in paying the investigation and remediation costs, reimbursement of past response and future oversight costs by governmental agencies, and the reaction of the governing environmental agencies to the proposed work plans. Costs for future investigation and remediation are not discounted to their present value. To the extent that we have been able to reasonably estimate future liabilities, we do not believe that there is a reasonable possibility that we will incur a loss or losses that exceed the amounts we accrued for the environmental matters discussed below that would, either individually or in the aggregate, have a material adverse effect on our consolidated financial condition, results of operations or cash flows. However, since we recognize amounts in the consolidated financial statements in accordance with accounting principles generally accepted in the United States that exclude potential losses that are not probable or that may not be currently estimable, the ultimate costs of these environmental proceedings may be higher than the liabilities we currently have recorded in our consolidated financial statements.

Except as we expressly note below, we do not currently anticipate any material effect on our consolidated financial position, results of operations or cash flows as a result of compliance with current environmental regulations. Moreover, because all domestic steel producers operate under the same federal environmental regulations, we do not believe that we are more disadvantaged than our domestic competitors by our need to comply with these regulations. Some foreign competitors may benefit from less stringent environmental requirements in the countries where they produce, resulting in lower compliance costs for them and providing those foreign competitors with a cost advantage on their products.

According to the Resource Conservation and Recovery Act (“RCRA”), which governs the treatment, handling and disposal of hazardous waste, the EPA and authorized state environmental agencies may conduct inspections of RCRA-regulated facilities to identify areas where there have been releases of hazardous waste or hazardous constituents into the environment and may order the facilities to take corrective action to remediate such releases. Environmental regulators may inspect our major steelmaking facilities. While we cannot predict the future actions of these regulators, it is possible that they may identify conditions in future inspections of these facilities which they believe require corrective action.

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Under authority from the Comprehensive Environmental Response, Compensation and Liability Act (“CERCLA”), the EPA and state environmental authorities have conducted site investigations at certain of our facilities and other third-party facilities, portions of which previously may have been used for disposal of materials that are currently regulated. The results of these investigations are still pending, and we could be directed to spend funds for remedial activities at the former disposal areas. Because of the uncertain status of these investigations, however, we cannot reliably predict whether or when such spending might be required or their magnitude.

As previously noted, on April 29, 2002, we entered a mutually agreed-upon administrative order on consent with the EPA pursuant to Section 122 of CERCLA to perform a Remedial Investigation/Feasibility Study (“RI/FS”) of the Hamilton Plant site located in New Miami, Ohio. The plant ceased operations in 1990 and all of its former structures have been demolished. We submitted the investigation portion of the RI/FS, and we completed a supplemental study in 2014. We currently have accrued \$0.7 for the remaining cost of the RI/FS. Until the RI/FS is complete, we cannot reliably estimate the additional costs, if any, we may incur for potentially required remediation of the site or when we may incur them.

As previously reported, on September 30, 1998, our predecessor, Armco Inc., received an order from the EPA under Section 3013 of RCRA requiring it to develop a plan for investigation of eight areas of our Mansfield Works that allegedly could be sources of contamination. A site investigation began in November 2000 and is continuing. We cannot reliably estimate how long it will take to complete this site investigation. We currently have accrued \$1.1 for the projected cost of the study. Until the site investigation is complete, we cannot reliably estimate the additional costs, if any, we may incur for potentially required remediation of the site or when we may incur them.

As previously noted, on September 26, 2012, the EPA issued an order under Section 3013 of RCRA requiring us to develop a plan for investigation of four areas at our Ashland Works coke plant. The Ashland Works coke plant ceased operations in 2011 and all of its former structures have been demolished and removed. In 1981, we acquired the plant from Honeywell International Corporation (as successor to Allied Corporation), who had managed the coking operations there for approximately 60 years. In connection with the sale of the coke plant, Honeywell agreed to indemnify us from certain claims and obligations that could arise from the investigation and we intend to pursue such indemnification from Honeywell, if necessary. We cannot reliably estimate how long it will take to complete the site investigation. On March 10, 2016, the EPA invited us to participate in settlement discussions regarding an enforcement action. Settlement discussions between the parties are ongoing, though whether the parties will reach agreement and any such agreement’s terms are uncertain. We currently have accrued \$1.4 for the projected cost of the investigation and known remediation. Until the site investigation is complete, we cannot reliably estimate the costs, if any, we may incur for potential additional required remediation of the site or when we may incur them.

As previously reported, on July 15, 2009, we and the Pennsylvania Department of Environmental Protection (“PADEP”) entered a Consent Order and Agreement (the “Consent Order”) to resolve an alleged unpermitted discharge of wastewater from the closed Hillside Landfill at our former Ambridge Works. Under the terms of the Consent Order, we paid a penalty and also agreed to implement various corrective actions, including an investigation of the area where landfill activities occurred, submission of a plan to collect and treat surface waters and seep discharges, and upon approval from PADEP, implementation of that plan. We have accrued \$5.6 for the remedial work required under the approved plan and Consent Order. We submitted a National Pollution Discharge Elimination System (“NPDES”) permit application to move to the next work phase. We currently estimate that the remaining work will be completed in 2020, though it may be delayed.

As previously reported, on June 29, 2000, the United States filed a complaint on behalf of the EPA against us in the U.S. District Court for the Southern District of Ohio, Case No. C-1-00530, alleging violations of the Clean Air Act, the Clean Water Act and RCRA at our Middletown Works. Subsequently, the State of Ohio, the Sierra Club and the

National Resources Defense Council intervened. On May 15, 2006, the court entered a Consent Decree in Partial Resolution of Pending Claims (the "Consent Decree"). Under the Consent Decree, we agreed to undertake a comprehensive RCRA facility investigation at Middletown Works and, as appropriate, complete a corrective measures study. The Consent Decree also required us to implement certain RCRA corrective action interim measures. We have completed the remedial activity at Dicks Creek, but continue to work on the RCRA facility investigation and certain interim measures. We have accrued \$13.1 for the cost of known work required under the Consent Decree for the RCRA facility investigation and remaining interim measures.

As previously reported, on May 12, 2014, the Michigan Department of Environmental Quality ("MDEQ") issued to our Dearborn Works an Air Permit to Install No. 182-05C (the "PTI") to increase the emission limits for the blast furnace and other emission sources. The PTI was issued as a correction to a prior permit to install that did not include certain information during the prior permitting process. On July 10, 2014, the South Dearborn Environmental Improvement Association ("SDEIA"), Detroiters Working for Environmental Justice, Original United Citizens of Southwest Detroit and the Sierra Club filed a Claim of Appeal of the PTI in the State of Michigan, Wayne County Circuit, Case No. 14-008887-AA. Appellants and the MDEQ required the intervention of Severstal Dearborn, LLC ("Dearborn") (now owned by us) in this action as an additional appellee. The appellants allege multiple deficiencies

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with the PTI and the permitting process. Until the appeal is resolved, we cannot determine what the ultimate permit limits will be. Until the permit limits are determined and final, we cannot reliably estimate the costs we incur, if any, or when we may incur them.

As previously reported, on August 21, 2014, the SDEIA filed a Complaint under the Michigan Environmental Protection Act (“MEPA”) in the State of Michigan, Wayne County Circuit Case No. 14-010875-CE. The plaintiffs allege that the air emissions from our Dearborn Works are impacting the air, water and other natural resources, as well as the public trust in such resources. The plaintiffs are requesting, among other requested relief, that the court assess and determine the sufficiency of the PTI’s limitations. On October 15, 2014, the court ordered a stay of the proceedings until a final order is issued in Wayne County Circuit Court Case No. 14-008887-AA (discussed above). When the proceedings resume, we will vigorously contest these claims. Until the claims in this Complaint are resolved, we cannot reliably estimate the costs we may incur, if any, or when we may incur them.

As previously reported, on April 27, 2000, MDEQ issued a RCRA Corrective Action Order No. 111-04-00-07E to Rouge Steel Company and Ford Motor Company for the property that includes our Dearborn Works. The Corrective Action Order has been amended five times. We are a party to the Corrective Action Order as the successor-in-interest to Dearborn, which was the successor-in-interest to Rouge Steel Company. The Corrective Action Order requires the site-wide investigation, and where appropriate, remediation of the facility. The site investigation and remediation are ongoing. We cannot reliably estimate how long it will take to complete this site investigation and remediation. To date, Ford Motor Company has incurred most of the costs of the investigation and remediation due to its prior ownership of the steelmaking operations at Dearborn Works. Until the site investigation is complete, we cannot reliably estimate the additional costs we may incur, if any, for any potentially required remediation of the site or when we may incur them.

As previously reported, we received an order in October 2002 from the EPA under Section 3013 of RCRA requiring us to investigate several areas of Zanesville Works that allegedly could be sources of contamination. A site investigation began in 2003 and was approved by EPA in November 2012. On October 28, 2016, the EPA requested that we conduct a corrective measures study and implement these measures as necessary. We subsequently agreed to proceed with a voluntary corrective measures study and have accrued \$0.1 for the study. Until the study is complete, we cannot reliably estimate the costs, if any, we may incur for potential required remediation of the site or when we may incur them.

In addition to the foregoing matters, we are or may be involved in proceedings with various regulatory authorities that may require us to pay fines, comply with more rigorous standards or other requirements or incur capital and operating expenses for environmental compliance. We believe that the ultimate disposition of the proceedings will not have, individually or in the aggregate, a material adverse effect on our consolidated financial condition, results of operations or cash flows.

Legal Contingencies

As previously reported, since 1990 we have been named as a defendant in numerous lawsuits alleging personal injury as a result of exposure to asbestos. The great majority of these lawsuits have been filed on behalf of people who claim to have been exposed to asbestos while visiting the premises of one of our current or former facilities. The majority of asbestos cases pending in which we are a defendant do not include a specific dollar claim for damages. In the cases that do include specific dollar claims for damages, the complaint typically includes a monetary claim for compensatory damages and a separate monetary claim in an equal amount for punitive damages, and does not attempt to allocate the total monetary claim among the various defendants.

The number of asbestos cases pending at December 31, 2018, is presented below:

**Asbestos Cases Pending at
December 31, 2018**

Cases
with
specific
dollar
claims
for
damages:
Claims

up
to
\$0.2
Claims
above
\$0.2
to
\$5.0
Claims
above
\$5.0
to
\$20.0

Total
claims
with
specific
dollar
claims
for
damages

(a)
Cases
without
a
specific
dollar
claim

for
damages
Total
asbestos
cases
pending

(a) Involve a total of 2,242 plaintiffs and 19,356 defendants

In each case, the amount described is per plaintiff against all of the defendants, collectively. Thus, it usually is not possible at the outset of a case to determine the specific dollar amount of a claim against us. In fact, it usually is not even possible at the outset to determine which of the plaintiffs actually will pursue a claim against us. Typically, that can only be determined through written

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interrogatories or other discovery after a case has been filed. Therefore, in a case involving multiple plaintiffs and multiple defendants, we initially only account for the lawsuit as one claim. After we have determined through discovery whether a particular plaintiff will pursue a claim, we make an appropriate adjustment to statistically account for that specific claim. It has been our experience that only a small percentage of asbestos plaintiffs ultimately identify us as a target defendant from whom they actually seek damages and most of these claims ultimately are either dismissed or settled for a small fraction of the damages initially claimed. Asbestos-related claims information in 2018, 2017 and 2016, is presented below:

	2018	2017	2016
New Claims Filed	68	58	40
Pending Claims Disposed Of	61	61	84
Total Amount Paid in Settlements	\$ 1.4	\$ 1.2	\$ 0.9

Since the onset of asbestos claims against us in 1990, five asbestos claims against us have proceeded to trial in four separate cases. All five concluded with a verdict in our favor. We continue to vigorously defend the asbestos claims. Based upon present knowledge, and the factors above, we believe it is unlikely that the resolution in the aggregate of the asbestos claims against us will have a materially adverse effect on our consolidated results of operations, cash flows or financial condition. However, predictions about the outcome of pending litigation, particularly claims alleging asbestos exposure, are subject to substantial uncertainties. These uncertainties include (1) the significantly variable rate at which new claims may be filed, (2) the effect of bankruptcies of other companies currently or historically defending asbestos claims, (3) the litigation process from jurisdiction to jurisdiction and from case to case, (4) the type and severity of the disease each claimant alleged to suffer, and (5) the potential for enactment of legislation affecting asbestos litigation.

As previously reported, in September and October 2008 and again in July 2010, several companies filed purported class actions in the United States District Court for the Northern District of Illinois against nine steel manufacturers, including us. The case numbers for these actions are 08CV5214, 08CV5371, 08CV5468, 08CV5633, 08CV5700, 08CV5942, 08CV6197 and 10CV04236. On December 28, 2010, another action, case number 32,321, was filed in state court in the Circuit Court for Cocke County, Tennessee. The defendants removed the Tennessee case to federal court and in March 2012 it was transferred to the Northern District of Illinois. The plaintiffs in the various pending actions are companies that purport to have purchased steel products, directly or indirectly, from one or more of the defendants and they claim to file the actions on behalf of all persons and entities who purchased steel products for delivery or pickup in the United States from any of the named defendants at any time from at least as early as January 2005. The complaints allege that the defendant steel producers have conspired in violation of antitrust laws to restrict output and to fix, raise, stabilize and maintain artificially high prices for steel products in the United States. In March 2014, we reached an agreement with the direct purchaser plaintiffs to tentatively settle the claims asserted against us, subject to certain court approvals below. According to that settlement, we agreed to pay \$5.8 to the plaintiff class of direct purchasers in exchange for the members of that class to completely release all claims. We continue to believe that the claims made against us lack any merit, but we elected to enter the settlement to avoid the ongoing expense of defending ourselves in this protracted and expensive antitrust litigation. We provided notice of the proposed settlement to members of the settlement class. After several class members received the notice, they elected to opt out of the class settlement. Following a fairness hearing, on October 21, 2014 the Court entered an order and judgment approving the settlement and dismissing all of the direct plaintiffs' claims against us with prejudice as to the settlement class. On March 3, 2017, the Court granted the defendants' motion to dismiss the indirect plaintiffs' amended complaint on the grounds that the plaintiffs lacked antitrust standing. On April 4, 2017, the indirect plaintiffs filed a motion for reconsideration and the defendants filed an opposition to that motion. On July 13, 2017, the Court denied the indirect plaintiffs' motion for reconsideration. On September 15, 2017 the indirect plaintiffs filed a notice of appeal with the Seventh Circuit Court of Appeals. On September 6, 2018, the Seventh Circuit affirmed the judgment of the District Court. The time period for the indirect plaintiffs to petition for a writ of certiorari with the United States Supreme

Court has expired and the matter is now closed.

As previously reported, on January 20, 2010, ArcelorMittal France and ArcelorMittal Atlantique et Lorraine (collectively "ArcelorMittal") filed an action in the United States District Court for the District of Delaware, Case No. 10-050-SLR against us, Dearborn, and Wheeling-Nisshin Inc., whom Dearborn indemnified in this action. By virtue of our responsibility as a successor-in-interest to Dearborn and an indemnitor of Wheeling-Nisshin Inc., we now have complete responsibility for the defense of this action. The three named defendants are collectively referred to hereafter as "we" or "us", though the precise claims against each separate defendant may vary. The complaint alleges that we are infringing the claims of U.S. Patent No. 6,296,805 (the "Patent") in making pre-coated cold-rolled boron steel sheet and seeks injunctive relief and unspecified compensatory damages. We filed an answer denying ArcelorMittal's claims and raised various affirmative defenses. We also filed counterclaims against ArcelorMittal for a declaratory judgment that we are not infringing the Patent and that the Patent is invalid. Subsequently, the trial court separated the issues of liability and damages. The case proceeded with a trial to a jury on the issue of liability during the week of January 15, 2011. The jury returned a verdict that we did not infringe the Patent and that the Patent was invalid. Judgment then was entered in our favor. ArcelorMittal filed an appeal with the United States Court of Appeals for the Federal Circuit. On November 30, 2012, the court of appeals issued a decision reversing certain findings related to claim construction and the validity of the Patent and remanded the case to the trial court for further proceedings. On January 30, 2013, ArcelorMittal filed a motion for rehearing with the court of appeals. On

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March 20, 2013, the court of appeals denied ArcelorMittal's motion for rehearing. The case then was remanded to the trial court for further proceedings. On April 16, 2013, according to a petition previously filed by ArcelorMittal and ArcelorMittal USA LLC, the U.S. Patent and Trademark Office ("PTO") reissued the Patent as U.S. Reissue Patent RE44,153 (the "Reissued Patent"). Also on April 16, 2013, ArcelorMittal filed a second action against us in the United States District Court for the District of Delaware, Case Nos. 1:13-cv-00685 and 1:13-cv-00686 (collectively the "Second Action"). The complaint filed in the Second Action alleges that we are infringing the claims of the Reissued Patent and seeks injunctive relief and unspecified compensatory damages. On April 23, 2013, we filed a motion to dismiss key elements of the complaint filed in the Second Action. In addition, the parties briefed related non-infringement and claims construction issues in the original action. On October 25, 2013, the district court granted summary judgment in our favor, confirming that our product does not infringe the original Patent or the Reissued Patent. The court further ruled that ArcelorMittal's Reissued Patent was invalid due to ArcelorMittal's deliberate violation of a statutory prohibition on broadening a patent through reissue more than two years after the original Patent was granted and that the original Patent had been surrendered when the Reissued Patent was issued and thus is no longer in effect. Final Judgment was entered on October 31, 2013. On November 6, 2013, ArcelorMittal filed a motion to clarify or, in the alternative, to alter or amend the October 31, 2013 judgment. We opposed the motion. On December 5, 2013, the court issued a memorandum and order denying the motion and entered final judgment in our favor, and against ArcelorMittal, specifically ruling that all claims of ArcelorMittal's Reissued Patent are invalid as violative of 35 U.S.C. §251(d). On December 30, 2013, ArcelorMittal filed notices of appeal to the Federal Circuit Court of Appeals. On May 12, 2015, the Federal Circuit issued its decision affirming in part and reversing in part the trial court's decision and remanding the case for further proceedings. The Federal Circuit ruled that 23 of the 25 claims of the Reissued Patent were improperly broadened and therefore invalid. However, the Federal Court found that the district court erred in invalidating the remaining two claims and remanded the case for further proceedings before the district court. Following the remand, ArcelorMittal filed a motion in the trial court for leave to amend the Second Action to assert additional patent infringement claims based on another, related patent that the PTO issued on June 10, 2014, No. RE44,940 (Second Reissue Patent). It also filed a motion to dismiss the original action on the grounds that it is now moot in light of the Court of Appeals' last ruling. We opposed both of those motions. In addition, we filed separate motions for summary judgment in the original action on the grounds of non-infringement and invalidity. A hearing on all motions was held on October 27, 2015. On December 4, 2015, the district court issued an order granting our motion for summary judgment that neither of the remaining claims of the Reissued Patent are infringed and both are invalid as obvious. The court therefore entered final judgment in favor of the defendants in the original case. In the court's order, the judge also granted ArcelorMittal's motion to file a first amended complaint and ArcelorMittal did file an amended complaint in Case No. 1:13-cv-00685 ("685 Action") alleging we are infringing the claims of the Second Reissue Patent, which we deny. On December 21, 2015, ArcelorMittal filed a notice of appeal from the district court's December 4, 2015 final judgment. On May 16, 2017, the Federal Circuit Court of Appeals affirmed the district court's judgment of invalidity and non-infringement of the reissued Patent. On June 14, 2017, ArcelorMittal filed a petition to the Federal Circuit for rehearing en banc of the May 16, 2017 decision. On August 14, 2017, the Federal Court of Appeals denied ArcelorMittal's petition for rehearing en banc. On January 20, 2016, we filed a motion to dismiss the amended complaint in the 685 Action, or in the alternative, a motion to stay pending a resolution of the appeal in the original case. On April 19, 2016, the district court issued an order denying our motion and ordering limited discovery. Following discovery, on August 17, 2016, we filed a motion for summary judgment on the basis that the claims in the 685 Action are precluded by the judgment in the original case. On January 19, 2017, the district court issued an opinion granting summary judgment in our favor in the 685 Action on the grounds of non-infringement and also entered a final judgment on that basis. On February 14, 2017, ArcelorMittal filed a notice of appeal of the district court's order in the Federal Circuit Court of Appeals. On November 5, 2018, the Federal Court of Appeals issued a decision vacating the judgment of non-infringement entered by the district court. The decision remands the case back to the district court for further proceedings. We intend to continue to contest this matter vigorously. We have not made a determination that a loss is probable and we do not have adequate information to reliably or accurately estimate a potential loss if ArcelorMittal prevails on remand. Because we have been unable to determine that the potential loss in this case is probable or estimable, we have not recorded an accrual for this matter. If our assumptions used to evaluate

whether a loss in this matter is either probable or estimable prove to be incorrect or change, we may be required to record a liability for an adverse outcome.

Other Contingencies

In addition to the matters discussed above, there are various pending and potential claims against us and our subsidiaries involving product liability, commercial, employee benefits and other matters arising in the ordinary course of business. Because of the considerable uncertainties which exist for any claim, it is difficult to reliably or accurately estimate what would be the amount of a loss if a claimant prevails. If material assumptions or factual understandings we rely on to evaluate exposure for these contingencies prove to be inaccurate or otherwise change, we may be required to record a liability for an adverse outcome. If, however, we have reasonably evaluated potential future liabilities for all of these contingencies, including those described more specifically above, it is our opinion, unless we otherwise noted, that the ultimate liability from these contingencies, individually and in the aggregate, should not have a material effect on our consolidated financial position, results of operations or cash flows.

Table of Contents**NOTE 11 - Stockholders' Equity***Common Stock*

Our common stockholders may receive dividends when and as declared by the Board of Directors out of funds legally available for distribution. The holders have one vote per share in respect of all matters and are not entitled to preemptive rights.

In May 2016, AK Holding issued 59.8 million shares of common stock at \$4.40 per share for net proceeds of \$249.5 after underwriting discounts and other fees. In November 2016, AK Holding issued an additional 74.8 million shares of common stock at \$4.90 per share for net proceeds of \$351.0 after underwriting discounts and other fees. We used the net proceeds from the sales of common stock to reduce our debt by repaying outstanding borrowings under our Credit Facility and for general corporate purposes.

Preferred Stock

There are 25,000,000 shares of preferred stock authorized; no shares are issued or outstanding.

Dividends

The instruments governing our outstanding senior debt allow dividend payments. However, our Credit Facility restricts dividend payments under certain conditions. Dividends are permitted if no default or event of default exists under the terms of the Credit Facility and (i) availability under the Credit Facility exceeds 20% of the lesser of the Credit Facility commitment or eligible collateral after advance rates or (ii) availability exceeds 15% of the lesser of the Credit Facility commitment or eligible collateral after advance rates and we meet a fixed charge coverage ratio of one to one as of the most recently ended fiscal quarter. At December 31, 2018, availability under the Credit Facility significantly exceeds these amounts. If we cannot meet either of these thresholds, annual dividends would be limited to the greater of \$18.0 or 0.5% of consolidated total assets, with additional dividends permitted equal to the greater of \$25.0 or 0.7% of consolidated total assets in aggregate over the life of the Credit Facility.

Share Repurchase Program

In October 2008, the Board of Directors authorized us to repurchase, from time to time, up to \$150.0 of our outstanding common stock. We have not made any common stock repurchases under this program in the last three years. As of December 31, 2018, we had remaining \$125.6 for repurchase under the Board of Directors' authorization.

NOTE 12 - Share-based Compensation

AK Holding's Stock Incentive Plan (the "SIP") permits us to grant nonqualified stock option, restricted stock, performance share and restricted stock unit ("RSUs") awards to our Directors, officers and other employees. Stockholders have approved an aggregate maximum of 28 million shares issuable under the SIP through December 31, 2019, of which approximately 6 million shares were available for future grant as of December 31, 2018.

Share-based compensation expense for the years ended December 31, 2018, 2017 and 2016, is presented below:

<u>Share-based Compensation Expense</u>	2018	2017	2016
Stock options	\$ 2.5	\$ 2.1	\$ 1.0
Restricted stock	3.1	2.9	1.6

Restricted stock units issued to Directors	1.2	1.2	1.3
Performance shares	2.0	1.5	1.5
Equity-based long-term performance plan	0.4	—	—
Pre-tax share-based compensation expense	\$9.2	\$7.7	\$5.4

Stock Options

Stock options have a maximum term of ten years and holders may not exercise them earlier than six months after the grant date or another term the award agreement may specify. Stock options granted to officers and other employees vest and become exercisable in three equal installments on the first, second and third anniversaries of the grant date. The exercise price of each option must equal or

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exceed the market price of our common stock on the grant date. We have not and, pursuant to the terms of our Stock Incentive Plan may not, reprice stock options to lower the exercise price.

We use the Black-Scholes option valuation model to value the nonqualified stock options. We use historical data of stock option exercise behaviors to estimate the expected life that granted options will be outstanding. The risk-free interest rate is based on the Daily Treasury Yield Curve published by the U.S. Treasury on the grant date. The expected volatility is determined by using a blend of historical and implied volatility. We do not expect to pay dividends over the term of the options based on our current dividend policy. We also estimate that option holders will forfeit 5% of the options.

The following weighted-average assumptions are used in the Black-Scholes option pricing model to estimate the fair value of granted options as of the grant date:

	2018	2017	2016
Expected volatility	58.8% – 61.6%	61.5% – 64.0%	90.3% – 91.5%
Weighted-average volatility	59.5%	62.5%	90.7%
Expected term (in years)	3.4 – 6.6	3.3 – 6.5	3.3 – 6.7
Risk-free interest rate	2.3% – 2.6%	1.6% – 2.2%	1.2% – 1.8%
Weighted-average grant-date fair value per share of granted options	\$3.51	\$5.33	\$1.29

Option activity for the year ended December 31, 2018, is presented below:

<u>Stock Shares Options</u>	<u>Weighted- Average Exercise Price</u>	<u>Weighted- Average Remaining Contractual Life (in years)</u>	<u>Aggregate Intrinsic Value</u>
Outstanding at December 31, 2017	2,004,206 \$ 7.69		
Granted	42,000 6.56		
Expired	(201,700) 3.82		
Forfeited	(130,644) 18.56		
Outstanding at December 31, 2018	1,403,862 6.90	6.1	\$ 0.3
Exercisable at December 31, 2018	1,046,546 7.07	4.7	0.2
Unexercisable at	357,316 6.66	8.5	0.1

December
31,
2018

Unvested
at
December
31,
2018
expected
to
vest

1,289,450	6.66	8.5	0.1
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The total intrinsic value of stock option awards that holders exercised during the years ended December 31, 2018, 2017, and 2016 was \$0.3, \$0.2 and \$1.4. exercised option's intrinsic value is the quoted average of the reported high and low sales price on the exercise date. As of December 31, 2018, total unrecognized compensation costs for non-vested stock options were \$1.5, which we expect to recognize over a weighted-average period of 1.7 years.

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Table of Contents*Restricted Stock*

Restricted stock awards granted to officers and other employees ordinarily vest ratably on the first, second and third anniversaries of the grant. Non-vested restricted stock awards activity for the year ended December 31, 2018, is presented below:

<u>Restricted Stock Awards</u>	Restricted Shares	Weighted-Average Grant Date Fair Value
Outstanding at December 31, 2017	518,184	\$ 5.38
Granted	521,100	6.56
Vested/restrictions lapsed	(513,848)	5.48
Canceled	(18,733)	6.16
Outstanding at December 31, 2018	506,703	6.45

The weighted-average grant date fair value of restricted stock awards granted during the years ended December 31, 2018, 2017 and 2016, was \$6.56, \$9.78 and \$1.80 per share. The total intrinsic value of restricted stock awards that vested (i.e., restrictions lapsed) during the years ended December 31, 2018, 2017 and 2016, was \$3.2, \$4.1 and \$1.4. As of December 31, 2018, total unrecognized compensation costs for non-vested restricted stock awards granted under the SIP were \$1.6, which we expect to recognize over a weighted-average period of 1.4 years.

Restricted Stock Units

Restricted stock units (“RSUs”) represent equity-based compensation granted to Directors. RSU grants vest immediately, but we do not settle them (i.e., issue the underlying shares of stock) until one year after the grant date, unless a Director elects to defer the settlement to six months after his or her Board service is terminated. They may elect to take settlement in a single distribution or in annual installments up to fifteen years.

Performance Shares

Performance shares are granted to executive officers and other employees. They earn the awards by meeting performance measures over a three-year period. Though a target number of performance shares are awarded on the grant date, for 2018 grants the total number of performance shares that will actually be issued to the participant, if any, at the expiration of the performance period will be based on our total share return compared to the VanEck Vectors Steel ETF. For 2017 and 2016 grants, the total number of performance shares that will be issued to the participant, if any, at the expiration of the performance periods for each of those grants will be based on two equally-rated metrics: (i) our share performance compared to a prescribed compounded annual growth rate and (ii) our total share return compared to the VanEck Vectors Steel ETF for the 2017 grants and the Standard & Poor’s MidCap 400 index for 2016 grants.

The following weighted-average assumptions are used in a Monte Carlo simulation model to estimate the fair value of performance shares granted:

	2018	2017	2016
Company expected volatility	67.3 %	68.0 %	60.8 %
VanEck Vectors Steel ETF expected volatility	52.2 %	48.9 %	NA
S&P’s MidCap 400 index expected volatility	NA	NA	27.6 %
Risk-free interest rate	2.2 %	1.5 %	1.1 %

Weighted-average grant-date fair value per performance share granted \$8.05 \$10.78 \$1.74

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Non-vested performance share awards activity for the year ended December 31, 2018, is presented below:

<u>Performance Share Awards</u>	Performance Shares	Weighted- Average Grant Date Fair Value
Outstanding at December 31, 2017	718,668	\$ 5.04
Granted	366,500	8.05
Earned	(277,971)	1.74
Expired or forfeited	(192,397)	5.55
Outstanding at December 31, 2018	614,800	9.19

The total intrinsic value of performance share awards that were earned during the year ended December 31, 2018, was \$0.7. As of December 31, 2018, total unrecognized compensation costs for non-vested performance share awards granted under the SIP were \$2.6, which we expect to recognize over a weighted-average period of 1.7 years.

Equity-based Long-term Performance Plan

During 2018, in order to further align our management with stockholder interest in maximizing long-term value, the Board of Directors changed the structure of long-term incentive compensation for executive officers, such that awards will be 30% denominated in stock with the balance paid in cash. As a result, starting with the three-year performance period beginning in 2018, the equity-based portion of the long-term performance plan is treated as share-based compensation with a performance condition.

Table of Contents**NOTE 13 - Comprehensive Income (Loss)**

Other comprehensive income (loss), net of tax, information is presented below:

	2018	2017	2016
<u>Foreign currency translation</u>			
Balance at beginning of period	\$1.1	\$(3.6)	\$(2.1)
Other comprehensive income (loss)—foreign currency translation gain (loss)	(1.7)	4.7	(1.5)
Balance at end of period	\$(0.6)	\$1.1	\$(3.6)
<u>Cash flow hedges</u>			
Balance at beginning of period	\$22.3	\$39.9	\$(44.8)
Cumulative effect of adopting new hedging standard	0.8	—	—
Other comprehensive income (loss):			
Gains (losses) arising in period	(5.6)	(11.5)	56.1
Income tax expense (benefit)	—	—	6.2
Gains (losses) arising in period, net of tax	(5.6)	(11.5)	49.9
Reclassification of losses (gains) to net income (loss):			
Recorded in cost of products sold	(10.3)	(6.1)	39.1
Income tax (expense) benefit (b)	—	—	4.3
Net amount of reclassification of losses (gains) to net income (loss), net of tax	(10.3)	(6.1)	34.8
Total other comprehensive income (loss), net of tax	(15.9)	(17.6)	84.7
Balance at end of period	\$7.2	\$22.3	\$39.9
<u>Pension and OPEB plans</u>			
Balance at beginning of period	\$(73.6)	\$(125.0)	\$(166.4)
Other comprehensive income (loss):			
Prior service credit (cost) arising in period	11.1	4.7	(8.3)
Gains (losses) arising in period	(63.6)	94.2	11.6
Subtotal	(52.5)	98.9	3.3
Income tax expense (benefit)	—	—	0.4
Gains (losses) arising in period, net of tax	(52.5)	98.9	2.9
Reclassification to net income (loss):			
Prior service costs (credits) (a)	(9.8)	(53.8)	(54.8)
Actuarial (gains) losses (a)	29.3	6.3	97.9
Subtotal	19.5	(47.5)	43.1
Income tax (expense) benefit (b)	—	—	4.6
Amount of reclassification to net income (loss), net of tax	19.5	(47.5)	38.5
Total other comprehensive income (loss), net of tax	(33.0)	51.4	41.4
Balance at end of period	\$(106.6)	\$(73.6)	\$(125.0)

(a) Included in pension and OPEB (income) expense

(b) Included in income tax expense (benefit)

Table of Contents**NOTE 14 - Earnings per Share**

Reconciliation of the numerators and denominators for basic and diluted EPS computations is presented below:

	2018	2017	2016
Net income (loss) attributable to AK Steel Holding Corporation	\$186.0	\$103.5	\$(16.8)
Less: distributed earnings to common stockholders and holders of certain stock compensation awards	—	—	—
Undistributed earnings (loss)	\$186.0	\$103.5	\$(16.8)
Common stockholders earnings—basic and diluted:			
Distributed earnings to common stockholders	\$—	\$—	\$—
Undistributed earnings (loss) to common stockholders	185.7	103.5	(16.7)
Common stockholders earnings (loss)—basic and diluted	\$185.7	\$103.5	\$(16.7)
Common shares outstanding (weighted-average shares in millions):			
Common shares outstanding for basic earnings per share	314.8	314.3	230.0
Effect of Exchangeable Notes	—	4.5	—
Effect of dilutive stock-based compensation	0.8	0.9	—
Common shares outstanding for diluted earnings per share	315.6	319.7	230.0
Basic earnings per share:			
Distributed earnings	\$—	\$—	\$—
Undistributed earnings (loss)	0.59	0.33	(0.07)
Basic earnings (loss) per share	\$0.59	\$0.33	\$(0.07)
Diluted earnings per share:			
Distributed earnings	\$—	\$—	\$—
Undistributed earnings (loss)	0.59	0.32	(0.07)
Diluted earnings (loss) per share	\$0.59	\$0.32	\$(0.07)
Potentially issuable common shares (in millions) excluded from earnings per share calculation due to anti-dilutive effect	2.4	1.4	3.0

NOTE 15 - Variable Interest Entities*SunCoke Middletown*

We purchase all the coke and electrical power generated from SunCoke Middletown's plant under long-term supply agreements. SunCoke Middletown is a variable interest entity because we have committed to purchase all the expected production from the facility through at least 2031 and we are the primary beneficiary. Therefore, we consolidate SunCoke Middletown's financial results with our financial results, even though we have no ownership interest in SunCoke Middletown. SunCoke Middletown had income before income taxes of \$58.4, \$61.7 and \$66.0 for the years ended December 31, 2018, 2017 and 2016 that was included in our consolidated income before income taxes.

Vicksmetal/Armco Associates

We own a 50% interest in Vicksmetal/Armco Associates (“VAA”), a joint venture with Vicksmetal Company. VAA slits electrical steel primarily for AK Steel, though also for third parties. VAA is a variable interest entity and we are the primary beneficiary. Therefore, we consolidate VAA’s financial results with our financial results.

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NOTE 16 - Fair Value Measurements

We measure certain assets and liabilities at fair value. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability (i.e., the “exit price”) in an orderly transaction between market participants at the measurement date. In determining fair value, we use various valuation approaches. The hierarchy of those valuation approaches is in three levels based on the reliability of inputs. Assets and liabilities are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. Below is a summary of the hierarchy levels:

Level 1 inputs are quoted prices in active markets for identical assets or liabilities that we have the ability to access at the measurement date.

Level 2 inputs are inputs, other than quoted prices, that are directly or indirectly observable for the asset or liability. Level 2 inputs include model-generated values that rely on inputs either directly observed or readily-derived from available market data sources, such as Bloomberg or other news and data vendors. They include quoted prices for similar assets or liabilities in active markets, inputs other than quoted prices that are observable for the asset or liability (e.g., interest rates and yield curves observable at commonly quoted intervals or current market) and contractual prices for the underlying financial instrument, as well as other relevant economic factors. As a practical expedient, we estimate the value of money market mutual funds by using a \$1.00 per share multiplied by the number of shares in the fund as of the measurement date. We generate fair values for our commodity derivative contracts and foreign currency forward contracts from observable futures prices for the respective commodity or currency, from sources such as the New York Mercantile Exchange (NYMEX) or the London Metal Exchange (LME). In cases where the derivative is an option contract (including caps, floors and collars), we adjust our valuations to reflect the counterparty’s valuation assumptions. After validating that the counterparty’s assumptions for implied volatilities reflect independent source’s assumptions, we discount these model-generated future values with discount factors that reflect the counterparty’s credit quality. We apply different discount rates to different contracts since the maturities and counterparties differ. As of December 31, 2018, a spread over benchmark rates of less than 1.5% was used for derivatives valued as assets and less than 2.4% for derivatives valued as liabilities. We have estimated the fair value of long-term debt based upon quoted market prices for the same or similar issues or on the current interest rates available to us for debt on similar terms and with similar maturities.

Level 3 inputs are unobservable inputs for the asset or liability. Unobservable inputs are used to measure fair value to the extent that observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the asset or liability at the measurement date. This level of categorization is not applicable to our valuations on a normal recurring basis.

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Assets and liabilities measured at fair value on a recurring basis are presented below:

	2018			2017		
	Level 1	Level 2	Total	Level 1	Level 2	Total
<u>Assets measured at fair value</u>						
Cash and cash equivalents	\$48.6	\$—	\$48.6	\$38.0	\$—	\$38.0
Other current assets:						
Foreign exchange contracts	—	0.1	0.1	—	0.2	0.2
Commodity hedge contracts	—	13.0	13.0	—	35.2	35.2
Other non-current assets:						
Foreign exchange contracts	—	0.4	0.4	—	1.7	1.7
Commodity hedge contracts	—	2.9	2.9	—	10.6	10.6
Assets measured at fair value	\$48.6	\$16.4	\$65.0	\$38.0	\$47.7	\$85.7

Liabilities measured at fair value

Accrued liabilities:

Foreign exchange contracts	\$—	\$(1.2)	\$(1.2)	\$—	\$(0.3)	\$(0.3)
Commodity hedge contracts	—	(5.9)	(5.9)	—	(4.9)	(4.9)
Other non-current liabilities:						
Foreign exchange contracts	—	(1.5)	(1.5)	—	—	—
Commodity hedge contracts	—	(1.6)	(1.6)	—	(0.5)	(0.5)
Liabilities measured at fair value	\$—	\$(10.2)	\$(10.2)	\$—	\$(5.7)	\$(5.7)

Liabilities measured at other than fair value

Long-term debt, including current portions:

Fair value	\$—	\$(1,852.4)	\$(1,852.4)	\$—	\$(2,273.4)	\$(2,273.4)
Carrying amount	—	(1,993.7)	(1,993.7)	—	(2,110.1)	(2,110.1)

See Note 7 for information on the fair value of pension plan assets. The carrying amounts of our other financial instruments do not differ materially from their estimated fair values at December 31, 2018 and 2017.

NOTE 17 - Derivative Instruments and Hedging Activities

Exchange rate fluctuations affect a portion of revenues and operating costs that are denominated in foreign currencies, and we use forward currency and currency option contracts to reduce our exposure to certain of these currency price fluctuations. Contracts to sell euros have not been designated as cash flow hedges for accounting purposes, and gains or losses are reported in earnings immediately in other (income) expense. Contracts to purchase Canadian dollars are designated as cash flow hedges for accounting purposes, and we record the gains and losses for the derivatives and premiums paid for option contracts in accumulated other comprehensive income (loss) until we reclassify them into cost of products sold when we recognize the associated underlying operating costs.

We are exposed to fluctuations in market prices of raw materials and energy sources. We may use cash-settled commodity price swaps and options to hedge the market risk associated with the purchase of certain of our raw materials and energy requirements. For input commodities, these derivatives are typically used for a portion of our electricity, iron ore, natural gas, nickel and zinc requirements. Our hedging strategy is to reduce the effect on earnings from the price volatility of these various commodity exposures, including timing differences between when we incur raw material commodity costs and when we receive sales surcharges from our customers based on those raw

materials. Independent of any hedging activities, price changes in any of these commodity markets could negatively affect operating costs.

All commodity derivatives are recognized as an asset or liability at fair value. We record the gains and losses and premiums paid for option contracts for commodity derivatives designated as cash flow hedges of forecasted purchases of raw materials and energy sources in accumulated other comprehensive income (loss) and reclassify them into cost of products sold when we recognize earnings for the associated underlying transaction. We record all gains or losses from commodity derivatives for which hedge accounting treatment has not been elected to earnings immediately in cost of products sold. We routinely use iron ore derivatives to reduce the volatility of the cost of our iron ore purchases. These derivatives do not qualify for hedge accounting treatment. We have no collateral deposited with counterparties under collateral funding arrangements as of December 31, 2018.

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Outstanding derivative contracts and the period over which we are hedging our exposure to the volatility in future cash flows are presented below:

<u>Hedge Contracts</u>	<u>Settlement Dates</u>	2018	2017
Commodity contracts:			
Nickel (in lbs)		—	500,000
Natural gas (in MMBTUs)	January 2019 to December 2020	39,868,000	41,338,000
Zinc (in lbs)	January 2019 to December 2020	52,150,000	50,350,000
Iron ore (in metric tons)	January 2019 to December 2020	2,125,000	2,340,000
Electricity (in MWHs)	January 2019 to September 2020	1,461,000	1,553,000
Foreign exchange contracts:			
Euros	January 2019 to June 2019	€ 4,000,000	€ 26,000,000
Canadian dollars	January 2019 to December 2021	C\$ 118,560,000	C\$ 148,080,000

The fair value of derivative instruments as of December 31, 2018 and 2017, is presented below:

<u>Asset (liability)</u>	2018	2017
Derivatives designated as hedging instruments:		
Other current assets:		
Commodity contracts	\$3.4	\$9.0
Foreign exchange contracts	—	0.2
Other non-current assets:		
Commodity contracts	1.0	2.3
Foreign exchange contracts	0.4	1.7
Accrued liabilities:		
Commodity contracts	(4.7)	(4.6)
Foreign exchange contracts	(1.2)	(0.2)
Other non-current liabilities:		
Commodity contracts	(1.2)	(0.5)
Foreign exchange contracts	(1.5)	—
Derivatives not designated as hedging instruments:		
Other current assets:		
Commodity contracts	9.6	26.2
Foreign exchange contracts	0.1	—
Other non-current assets—commodity contracts	1.9	8.3
Accrued liabilities:		
Commodity contracts	(1.2)	(0.3)
Foreign exchange contracts	—	(0.1)
Other non-current liabilities—commodity contracts	(0.4)	—

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Gains (losses) on derivative instruments for the years ended December 31, 2018, 2017 and 2016, are presented below:

Gain (loss)	2018	2017	2016
Derivatives designated as cash flow hedges—			
Commodity contracts:			
Recognized in accumulated other comprehensive income that were included in the assessment of effectiveness	\$(0.2)	\$(11.5)	\$56.1
Reclassified from accumulated other comprehensive income into cost of products sold	11.2	6.1	(39.1)
Foreign exchange contract:			
Recognized in accumulated other comprehensive income that were included in the assessment of effectiveness	(5.4)	—	—
Reclassified from accumulated other comprehensive income into cost of products sold	(0.9)	—	—
Derivatives not designated as hedging instruments:			
Commodity contracts—recognized in cost of products sold	(2.4)	31.6	38.6
Foreign exchange contracts—recognized in other (income) expense	0.1	(1.6)	(0.9)

Gains (losses) before tax expected to be reclassified into cost of products sold within the next twelve months for our existing commodity contracts that qualify for hedge accounting are presented below:

Hedge	Gains (losses)
Natural gas	\$ 5.1
Electricity	2.7
Zinc	(4.8)
Canadian dollars	(1.5)

NOTE 18 - Supplementary Cash Flow Information

Net cash paid (received) during the period for interest, net of capitalized interest, and income taxes are presented below:

	2018	2017	2016
Net cash paid (received) during the period for:			
Interest, net of capitalized interest	\$136.3	\$130.5	\$137.1
Income taxes	(5.5)	0.1	(2.6)

Included in net cash flows from operations was cash provided by SunCoke Middletown of \$76.6, \$77.1 and \$83.3 for the years ended December 31, 2018, 2017 and 2016. Consolidated cash and cash equivalents at December 31, 2018, and 2017, include SunCoke Middletown's cash and cash equivalents of \$1.1 and \$0.1. SunCoke Middletown's cash and cash equivalents have no compensating balance arrangements or legal restrictions, but are not available for our use.

We had capital investments during the years ended December 31, 2018, 2017 and 2016, that had not been paid as of the end of the respective period. These amounts are included in accounts payable and accrued liabilities and have been excluded from the consolidated statements of cash flows until paid. We included our leased Research and Innovation Center in property, plant and equipment and as a capital lease obligation in the consolidated balance sheets during its construction, which was completed in early 2017 and represented a non-cash transaction for us. In October 2017, we acquired the Research and Innovation Center capital lease with cash, effectively settling the obligation. We also granted restricted stock to certain employees and restricted stock units to directors under the SIP. Non-cash investing

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and financing activities for the years ended December 31, 2018, 2017 and 2016, are presented below:

	2018	2017	2016
Capital investments	\$33.4	\$37.3	\$33.2
Research and Innovation Center capital lease	—	1.1	25.2
Issuance of restricted stock and restricted stock units	4.5	4.6	2.3

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Table of Contents**NOTE 19 - Quarterly Information (Unaudited)**

Earnings per share for each quarter and the year are calculated individually and may not sum to the total for the year.

	2018				
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Year
Net sales	\$1,658.9	\$1,746.6	\$1,735.6	\$1,677.1	\$6,818.2
Operating profit (loss)	63.6	99.5	114.8	86.5	364.4
Net income (loss) attributable to AK Holding	28.7	56.6	67.2	33.5	186.0
Basic and diluted earnings (loss) per share	\$0.09	\$0.18	\$0.21	\$0.11	\$0.59
	2017				
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Year
Net sales	\$1,533.4	\$1,557.2	\$1,494.3	\$1,495.6	\$6,080.5
Operating profit (loss)	129.7	116.5	66.3	(52.3)	260.2
Net income (loss) attributable to AK Holding	84.4	77.2	22.3	(80.4)	103.5
Basic earnings (loss) per share	\$0.27	\$0.25	\$0.07	\$(0.26)	\$0.33
Diluted earnings (loss) per share	0.26	0.24	0.07	(0.26)	0.32

Included in net income attributable to AK Holding in the fourth quarter and full year of 2018 was a pension settlement charge of \$14.5. Included in net income attributable to AK Holding in the fourth quarter and full year of 2017 were a credit of \$19.3 to reduce a transportation liability and a non-cash charge of \$75.6 to impair Ashland Works Hot End property, plant and equipment.

NOTE 20 - Supplementary Guarantor Information

AK Steel's Secured Notes, 2021 Notes, 2025 Notes and 2027 Notes (collectively, the "Senior Notes") and the Exchangeable Notes are governed by indentures entered into by AK Holding and its 100%-owned subsidiary, AK Steel. Under the terms of the indentures, AK Holding and the Subsidiary Guarantors each fully and unconditionally, jointly and severally, guarantee the payment of interest, principal and premium, if any, on each of the notes included in the Senior Notes. Under the terms of the indenture for the Exchangeable Notes, AK Holding fully and unconditionally, jointly and severally, guarantees the payment of interest, principal and premium, if any, on the notes. AK Holding is the sole guarantor of the Exchangeable Notes.

We present all investments in subsidiaries in the supplementary guarantor information using the equity method of accounting. Therefore, the net income (loss) of the subsidiaries accounted for using the equity method is in their parents' investment accounts. The principal elimination entries eliminate investments in subsidiaries and inter-company balances and transactions. The following supplementary condensed consolidating financial statements present information about AK Holding, AK Steel, the Subsidiary Guarantors and the other non-guarantor subsidiaries.

Table of Contents**Condensed Statements of Comprehensive Income (Loss)
Year Ended December 31, 2018**

	AK Holding	AK Steel	Guarantor Subsidiaries of the Senior Notes	Other Non-Guarantor Subsidiaries	Eliminations	Consolidated Company
Net sales	\$—	\$6,244.7	\$ 320.8	\$ 752.8	\$(500.1)	\$6,818.2
Cost of products sold (exclusive of items shown separately below)	—	5,519.8	221.4	620.9	(451.1)	5,911.0
Selling and administrative expenses	3.5	320.0	14.5	34.2	(49.6)	322.6
Depreciation	—	171.5	8.0	40.7	—	220.2
Total operating costs	3.5	6,011.3	243.9	695.8	(500.7)	6,453.8
Operating profit (loss)	(3.5)	233.4	76.9	57.0	0.6	364.4
Interest expense	—	145.9	—	5.7	—	151.6
Pension and OPEB (income) expense	—	(19.2)	—	—	—	(19.2)
Other (income) expense	—	8.7	(16.4)	(2.9)	4.7	(5.9)
Income (loss) before income taxes	(3.5)	98.0	93.3	54.2	(4.1)	237.9
Income tax expense (benefit)	—	(26.5)	23.3	(2.0)	(1.0)	(6.2)
Equity in net income (loss) of subsidiaries	189.5	65.0	—	0.7	(255.2)	—
Net income (loss)	186.0	189.5	70.0	56.9	(258.3)	244.1
Less: Net income attributable to noncontrolling interests	—	—	—	58.1	—	58.1
Net income (loss) attributable to AK Steel Holding Corporation	186.0	189.5	70.0	(1.2)	(258.3)	186.0
Other comprehensive income (loss)	(50.6)	(50.6)	—	(1.7)	52.3	(50.6)
Comprehensive income (loss) attributable to AK Steel Holding Corporation	\$135.4	\$138.9	\$ 70.0	\$ (2.9)	\$(206.0)	\$135.4

Table of Contents**Condensed Statements of Comprehensive Income (Loss)
Year Ended December 31, 2017**

	AK Holding	AK Steel	Guarantor Subsidiaries of the Senior Notes	Other Non-Guarantor Subsidiaries	Eliminations	Consolidated Company
Net sales	\$—	\$5,755.1	\$ 285.9	\$ 496.3	\$(456.8)	\$6,080.5
Cost of products sold (exclusive of items shown separately below)	—	5,082.0	197.7	387.2	(413.8)	5,253.1
Selling and administrative expenses	3.7	285.5	13.5	26.9	(44.7)	284.9
Depreciation	—	189.3	7.5	29.2	—	226.0
Charge (credit) for termination of pellet agreement and related transportation costs	—	(19.3)	—	—	—	(19.3)
Asset impairment charge	—	75.6	—	—	—	75.6
Total operating costs	3.7	5,613.1	218.7	443.3	(458.5)	5,820.3
Operating profit (loss)	(3.7)	142.0	67.2	53.0	1.7	260.2
Interest expense	—	150.3	—	2.0	—	152.3
Pension and OPEB (income) expense	—	(71.9)	—	—	—	(71.9)
Other (income) expense	—	30.1	(11.4)	(5.4)	3.8	17.1
Income (loss) before income taxes	(3.7)	33.5	78.6	56.4	(2.1)	162.7
Income tax expense (benefit)	—	(29.4)	29.9	(1.8)	(0.9)	(2.2)
Equity in net income (loss) of subsidiaries	107.2	44.3	—	—	(151.5)	—
Net income (loss)	103.5	107.2	48.7	58.2	(152.7)	164.9
Less: Net income attributable to noncontrolling interests	—	—	—	61.4	—	61.4
Net income (loss) attributable to AK Steel Holding Corporation	103.5	107.2	48.7	(3.2)	(152.7)	103.5
Other comprehensive income (loss)	38.5	38.5	—	4.7	(43.2)	38.5
Comprehensive income (loss) attributable to AK Steel Holding Corporation	\$142.0	\$145.7	\$ 48.7	\$ 1.5	\$(195.9)	\$142.0

Table of Contents**Condensed Statements of Comprehensive Income (Loss)
Year Ended December 31, 2016**

	AK Holding	AK Steel	Guarantor Subsidiaries of the Senior Notes	Other Non-Guarantor Subsidiaries	Eliminations	Consolidated Company
Net sales	\$—	\$5,681.0	\$ 250.9	\$ 411.5	\$(460.9)	\$5,882.5
Cost of products sold (exclusive of items shown separately below)	—	5,044.8	171.7	299.4	(416.2)	5,099.7
Selling and administrative expenses	4.4	282.7	12.7	22.6	(43.3)	279.1
Depreciation	—	187.8	7.0	21.8	—	216.6
Charge (credit) for termination of pellet agreement and related transportation costs	—	69.5	—	—	—	69.5
Total operating costs	4.4	5,584.8	191.4	343.8	(459.5)	5,664.9
Operating profit (loss)	(4.4)	96.2	59.5	67.7	(1.4)	217.6
Interest expense	—	162.3	—	1.6	—	163.9
Pension and OPEB (income) expense	—	16.5	—	—	—	16.5
Other (income) expense	—	16.4	(8.1)	(8.6)	5.2	4.9
Income (loss) before income taxes	(4.4)	(99.0)	67.6	74.7	(6.6)	32.3
Income tax expense (benefit)	—	(43.7)	25.7	3.6	(2.5)	(16.9)
Equity in net income (loss) of subsidiaries	(12.4)	42.9	—	(0.7)	(29.8)	—
Net income (loss)	(16.8)	(12.4)	41.9	70.4	(33.9)	49.2
Less: Net income attributable to noncontrolling interests	—	—	—	66.0	—	66.0
Net income (loss) attributable to AK Steel Holding Corporation	(16.8)	(12.4)	41.9	4.4	(33.9)	(16.8)
Other comprehensive income (loss)	124.6	124.6	—	(1.5)	(123.1)	124.6
Comprehensive income (loss) attributable to AK Steel Holding Corporation	\$107.8	\$112.2	\$ 41.9	\$ 2.9	\$(157.0)	\$107.8

Table of Contents**Condensed Balance Sheets
December 31, 2018**

	AK Holding	AK Steel	Guarantor Subsidiaries of the Senior Notes	Other Non-Guarantor Subsidiaries	Eliminations	Consolidated Company
ASSETS						
Current assets:						
Cash and cash equivalents	\$ —	\$ 22.1	\$ 8.2	\$ 18.3	\$ —	\$ 48.6
Accounts receivable, net	—	515.4	34.0	95.3	(8.9)	635.8
Inventory	—	1,299.6	53.9	75.6	(9.2)	1,419.9
Other current assets	—	85.5	0.1	11.4	—	97.0
Total current assets	—	1,922.6	96.2	200.6	(18.1)	2,201.3
Property, plant and equipment	—	6,111.1	189.7	668.4	—	6,969.2
Accumulated depreciation	—	(4,785.5)	(102.8)	(169.3)	—	(5,057.6)
Property, plant and equipment, net	—	1,325.6	86.9	499.1	—	1,911.6
Other non-current assets:						
Investment in subsidiaries	(3,017.4)	1,931.1	—	68.2	1,018.1	—
Inter-company accounts	3,117.3	—	1,630.7	—	(4,748.0)	—
Goodwill and intangible assets	—	—	32.9	266.0	—	298.9
Other non-current assets	—	54.3	—	49.6	—	103.9
TOTAL ASSETS	\$ 99.9	\$ 5,233.6	\$ 1,846.7	\$ 1,083.5	\$(3,748.0)	\$ 4,515.7
LIABILITIES AND EQUITY (DEFICIT)						
Current liabilities:						
Accounts payable	\$ —	\$ 722.5	\$ 26.2	\$ 55.5	\$(3.2)	\$ 801.0
Accrued liabilities	—	251.5	8.7	28.7	—	288.9
Current portion of pension and other postretirement benefit obligations	—	38.4	—	0.3	—	38.7
Total current liabilities	—	1,012.4	34.9	84.5	(3.2)	1,128.6
Non-current liabilities:						
Long-term debt	—	1,993.7	—	—	—	1,993.7
Pension and other postretirement benefit obligations	—	827.0	—	2.9	—	829.9
Inter-company accounts	—	4,312.3	—	511.2	(4,823.5)	—
Other non-current liabilities	—	105.6	0.2	28.2	—	134.0
TOTAL LIABILITIES	—	8,251.0	35.1	626.8	(4,826.7)	4,086.2
Equity (deficit):						
Total stockholders' equity (deficit)	99.9	(3,017.4)	1,811.6	127.1	1,078.7	99.9
Noncontrolling interests	—	—	—	329.6	—	329.6
TOTAL EQUITY (DEFICIT)	99.9	(3,017.4)	1,811.6	456.7	1,078.7	429.5
TOTAL LIABILITIES AND EQUITY (DEFICIT)	\$ 99.9	\$ 5,233.6	\$ 1,846.7	\$ 1,083.5	\$(3,748.0)	\$ 4,515.7

Table of Contents**Condensed Balance Sheets
December 31, 2017**

	AK Holding	AK Steel	Guarantor Subsidiaries of the Senior Notes	Other Non-Guarantor Subsidiaries	Eliminations	Consolidated Company
ASSETS						
Current assets:						
Cash and cash equivalents	\$—	\$14.5	\$7.2	\$16.3	\$—	\$38.0
Accounts receivable, net	—	432.4	33.2	65.4	(13.2)	517.8
Inventory	—	1,231.5	55.1	108.3	(9.9)	1,385.0
Other current assets	—	124.7	0.2	5.4	—	130.3
Total current assets	—	1,803.1	95.7	195.4	(23.1)	2,071.1
Property, plant and equipment	—	6,004.0	181.5	646.3	—	6,831.8
Accumulated depreciation	—	(4,620.8)	(94.8)	(130.0)	—	(4,845.6)
Property, plant and equipment, net	—	1,383.2	86.7	516.3	—	1,986.2
Other non-current assets:						
Investment in subsidiaries	(3,127.4)	1,844.9	—	67.5	1,215.0	—
Inter-company accounts	3,082.8	—	1,523.1	—	(4,605.9)	—
Goodwill and intangible assets	—	—	32.8	273.9	—	306.7
Other non-current assets	—	66.3	0.2	44.3	—	110.8
TOTAL ASSETS	\$(44.6)	\$5,097.5	\$1,738.5	\$1,097.4	\$(3,414.0)	\$4,474.8
LIABILITIES AND EQUITY (DEFICIT)						
Current liabilities:						
Accounts payable	\$—	\$623.3	\$17.9	\$50.9	\$(1.7)	\$690.4
Accrued liabilities	—	228.2	7.8	34.5	—	270.5
Current portion of pension and other postretirement benefit obligations	—	39.7	—	0.4	—	40.1
Total current liabilities	—	891.2	25.7	85.8	(1.7)	1,001.0
Non-current liabilities:						
Long-term debt	—	2,110.1	—	—	—	2,110.1
Pension and other postretirement benefit obligations	—	890.8	—	3.4	—	894.2
Inter-company accounts	—	4,199.6	—	489.1	(4,688.7)	—
Other non-current liabilities	—	133.2	1.0	34.7	—	168.9
TOTAL LIABILITIES	—	8,224.9	26.7	613.0	(4,690.4)	4,174.2
Equity (deficit):						
Total stockholders' equity (deficit)	(44.6)	(3,127.4)	1,711.8	139.2	1,276.4	(44.6)
Noncontrolling interests	—	—	—	345.2	—	345.2
TOTAL EQUITY (DEFICIT)	(44.6)	(3,127.4)	1,711.8	484.4	1,276.4	300.6
TOTAL LIABILITIES AND EQUITY (DEFICIT)	\$(44.6)	\$5,097.5	\$1,738.5	\$1,097.4	\$(3,414.0)	\$4,474.8

Table of Contents**Condensed Statements of Cash Flows
Year Ended December 31, 2018**

	AK Holding	AK Steel	Guarantor Subsidiaries of the Senior Notes	Other Non-Guarantor Subsidiaries	Eliminations	Consolidated Company
Net cash flows from operating activities	\$ (2.3)	\$ 209.7	\$ 83.1	\$ 83.8	\$ (9.6)	\$ 364.7
Cash flows from investing activities:						
Capital investments	—	(122.9)	(8.1)	(21.0)	—	(152.0)
Other investing items, net	—	0.8	—	(0.7)	—	0.1
Net cash flows from investing activities	—	(122.1)	(8.1)	(21.7)	—	(151.9)
Cash flows from financing activities:						
Net borrowings (repayments) under credit facility	—	(115.0)	—	—	—	(115.0)
Redemption of long-term debt	—	(12.6)	—	—	—	(12.6)
Inter-company activity	2.5	48.3	(74.0)	13.6	9.6	—
SunCoke Middletown distributions to noncontrolling interest owners	—	—	—	(73.7)	—	(73.7)
Other financing items, net	(0.2)	(0.7)	—	—	—	(0.9)
Net cash flows from financing activities	2.3	(80.0)	(74.0)	(60.1)	9.6	(202.2)
Net increase (decrease) in cash and cash equivalents	—	7.6	1.0	2.0	—	10.6
Cash and equivalents, beginning of year	—	14.5	7.2	16.3	—	38.0
Cash and equivalents, end of year	\$ —	\$ 22.1	\$ 8.2	\$ 18.3	\$ —	\$ 48.6

**Condensed Statements of Cash Flows
Year Ended December 31, 2017**

	AK Holding	AK Steel	Guarantor Subsidiaries of the Senior Notes	Other Non-Guarantor Subsidiaries	Eliminations	Consolidated Company
Net cash flows from operating activities	\$ (2.5)	\$ 67.3	\$ 73.3	\$ 61.7	\$ (1.0)	\$ 198.8
Cash flows from investing activities:						
Capital investments	—	(131.8)	(5.6)	(15.1)	—	(152.5)
Investment in acquired business, net of cash acquired	—	(360.4)	—	—	—	(360.4)
Other investing items, net	—	4.0	—	0.2	—	4.2
Net cash flows from investing activities	—	(488.2)	(5.6)	(14.9)	—	(508.7)
Cash flows from financing activities:						
Net borrowings (repayments) under credit facility	—	450.0	—	—	—	450.0
Proceeds from issuance of long-term debt	—	680.0	—	—	—	680.0
Redemption of long-term debt	—	(848.4)	—	—	—	(848.4)
Debt issuance costs	—	(25.3)	—	—	—	(25.3)
Inter-company activity	5.0	31.2	(64.9)	27.7	1.0	—
SunCoke Middletown distributions to noncontrolling interest owners	—	—	—	(79.1)	—	(79.1)
Other financing items, net	(2.5)	—	—	—	—	(2.5)
Net cash flows from financing activities	2.5	287.5	(64.9)	(51.4)	1.0	174.7
Net increase (decrease) in cash and cash equivalents	—	(133.4)	2.8	(4.6)	—	(135.2)
Cash and equivalents, beginning of year	—	147.9	4.4	20.9	—	173.2
Cash and equivalents, end of year	\$ —	\$ 14.5	\$ 7.2	\$ 16.3	\$ —	\$ 38.0

Table of Contents**Condensed Statements of Cash Flows
Year Ended December 31, 2016**

	AK Holding	AK Steel	Guarantor Subsidiaries of the Senior Notes	Other Non-Guarantor Subsidiaries	Eliminations	Consolidated Company
Net cash flows from operating activities	\$ (3.1)	\$ 186.5	\$ 44.3	\$ 92.2	\$ (15.3)	\$ 304.6
Cash flows from investing activities:						
Capital investments	—	(116.0)	(8.8)	(2.8)	—	(127.6)
Other investing items, net	—	3.0	—	(0.7)	—	2.3
Net cash flows from investing activities	—	(113.0)	(8.8)	(3.5)	—	(125.3)
Cash flows from financing activities:						
Net borrowings (repayments) under credit facility	—	(550.0)	—	—	—	(550.0)
Proceeds from issuance of long-term debt	—	380.0	—	—	—	380.0
Redemption of long-term debt	—	(392.8)	—	—	—	(392.8)
Proceeds from issuance of common stock	600.4	—	—	—	—	600.4
Debt issuance costs	—	(20.4)	—	—	—	(20.4)
Inter-company activity	(602.4)	630.5	(36.8)	(6.6)	15.3	—
SunCoke Middletown distributions to noncontrolling interest owners	—	—	—	(85.1)	—	(85.1)
Other financing items, net	5.1	0.1	—	—	—	5.2
Net cash flows from financing activities	3.1	47.4	(36.8)	(91.7)	15.3	(62.7)
Net increase (decrease) in cash and cash equivalents	—	120.9	(1.3)	(3.0)	—	116.6
Cash and equivalents, beginning of year	—	27.0	5.7	23.9	—	56.6
Cash and equivalents, end of year	\$ —	\$ 147.9	\$ 4.4	\$ 20.9	\$ —	\$ 173.2

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

None.

Item 9A. Controls and Procedures.

We maintain a system of disclosure controls and procedures that is designed to provide reasonable assurance that information is disclosed and accumulated and communicated to management in a timely fashion. An evaluation of the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rule 13a-15(e) of the Securities Exchange Act of 1934, as amended (the "Exchange Act")) was performed as of the end of the period covered by this report. This evaluation was performed under the supervision and with the participation of management, including the Chief Executive Officer and Chief Financial Officer. Based upon that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures are effective to provide reasonable assurance that information we are required to disclose in the reports that we file or submit under the Exchange Act is accumulated and communicated to management, including the Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure and are effective to provide reasonable assurance that such information is recorded, processed, summarized and reported within the time periods specified by the Securities and Exchange Commission's rules and forms.

There has been no change in our internal control over financial reporting during the fourth quarter ended December 31, 2018, that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control over Financial Reporting and the Report of Independent Registered Public Accounting Firm are presented on the following pages.

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MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rule 13a-15(f) or 15d-15(f) promulgated under the Securities Exchange Act of 1934. Those rules define internal control over financial reporting as 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 and include those policies and procedures that:

- a) pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of assets;
- b) 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 are being made only in accordance with authorizations of management and directors; and
- c) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of 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.

We assessed the effectiveness of our internal control over financial reporting as of December 31, 2018. In making this assessment, we used the criteria established in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 Framework).

Based on our assessment and those criteria, we have determined that, as of December 31, 2018, our internal control over financial reporting was effective.

Our independent registered public accounting firm has issued an attestation report on the effectiveness of our internal control over financial reporting, which appears on the following page.

Dated: February 15, 2019 /s/ Roger K. Newport
Roger K. Newport
Chief Executive Officer and Director

Dated: February 15, 2019 /s/ Jaime Vasquez
Jaime Vasquez
Vice President, Finance and Chief Financial Officer

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and Board of Directors of AK Steel Holding Corporation

Opinion on Internal Control over Financial Reporting

We have audited AK Steel Holding Corporation's internal control over financial reporting as of December 31, 2018, 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, AK Steel Holding Corporation (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on the COSO criteria.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the 2018 consolidated financial statements of the Company and our report dated February 15, 2019 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 the 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

Cincinnati, Ohio
February 15, 2019

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Item 9B. Other Information.

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

Information with respect to our Executive Officers is set forth in Part I of this Annual Report pursuant to General Instruction G of Form 10-K. The information required to be furnished pursuant to this item with respect to our Directors will be set forth under the caption “Election of Directors” in our proxy statement (the “2019 Proxy Statement”) to be furnished to stockholders in connection with the solicitation of proxies by our Board of Directors for use at the 2019 Annual Meeting of Stockholders, and such information under that caption is incorporated herein by reference.

The information required to be furnished pursuant to this item with respect to compliance with Section 16(a) of the Exchange Act will be set forth under the caption “Section 16(a) Beneficial Ownership Reporting Compliance” in the 2019 Proxy Statement and is incorporated herein by reference.

The information required to be furnished pursuant to this item with respect to the Audit Committee and the Audit Committee financial expert will be set forth under the caption “Committees of the Board of Directors” in the 2019 Proxy Statement and is incorporated herein by reference.

Information required to be furnished pursuant to this item with respect to and any material changes to the process by which security holders may recommend nominees to the Board of Directors will be set forth under the caption “Stockholder Proposals for the 2020 Annual Meeting and Nominations of Directors” in the 2019 Proxy Statement and is incorporated herein by reference.

We have adopted a Code of Ethics for Principal Officers covering our Chief Executive Officer, Chief Financial Officer, Chief Accounting Officer and other persons performing a similar function; a Code of Conduct for Directors, Officers and employees; and Corporate Governance Guidelines. These documents, along with charters of our Audit, Management Development and Compensation, Nominating and Governance, Finance, and Corporate Sustainability Committees, are posted on our website at www.aksteel.com. Any required disclosure of amendments to or waivers of the provisions of the Code of Ethics for Principal Officers or Code of Conduct also will be posted on our website.

Item 11. Executive Compensation.

The information required to be furnished pursuant to this item will be set forth under the caption “Executive Compensation” and in the Director Compensation Table and its accompanying narrative in the 2019 Proxy Statement, and is incorporated herein by reference.

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

The information required to be furnished pursuant to this item with respect to compensation plans under which our equity securities are authorized for issuance will be set forth under the caption “Equity Compensation Plan Information” in the 2019 Proxy Statement and is incorporated herein by reference.

Other information required to be furnished pursuant to this item will be set forth under the caption “Stock Ownership” in the 2019 Proxy Statement and is incorporated herein by reference.

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

The information required to be furnished pursuant to this item will be set forth under the captions “Related Person Transactions” and “Board Independence” in the 2019 Proxy Statement and is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services.

The information required to be furnished pursuant to this item will be set forth under the caption “Principal Accounting Firm Fees” in the 2019 Proxy Statement and is incorporated herein by reference.

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PART IV

Item 15. Exhibits, Financial Statement Schedules.

(a)(1) Financial Statements

The consolidated financial statements of AK Steel Holding Corporation filed as part of this Annual Report are included in Item 8.

(a)(2) Financial Statement Schedules

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

(a)(3) Exhibits

The list of exhibits begins on the next page.

Item 16. Form 10-K Summary.

None.

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INDEX TO EXHIBITS

Exhibit

Number Description

- 3.1 Restated Certificate of Incorporation of AK Steel Holding Corporation (incorporated herein by reference to Exhibit 3.1 to AK Steel Holding Corporation’s Quarterly Report on Form 10-Q for the quarter ended September 30, 2016, as filed with the Commission on October 25, 2016).
- 3.2 By-laws of AK Steel Holding Corporation, as amended and restated as of January 19, 2017 (incorporated herein by reference to Exhibit 3.1 to AK Steel Holding Corporation’s Current Report on Form 8-K, as filed with the Commission on January 20, 2017).
- 4.1 Indenture, dated as of May 11, 2010, among AK Steel Corporation, as issuer, AK Steel Holding Corporation, as guarantor, and U.S. Bank National Association, as trustee (incorporated herein by reference to Exhibit 4.1 to AK Steel Holding Corporation’s Current Report on Form 8-K, as filed with the Commission on May 11, 2010).
- 4.1(a) Third Supplemental Indenture, dated as of November 20, 2012, among AK Steel Corporation, as issuer, AK Steel Holding Corporation, as guarantor, and U.S. Bank, National Association, as trustee (incorporated herein by reference to Exhibit 4.1 to AK Steel Holding Corporation’s Current Report on Form 8-K, as filed with the Commission on November 20, 2012).
- 4.1(b) Fourth Supplemental Indenture, dated as of April 29, 2014, among AK Steel Corporation, as issuer, AK Steel Holding Corporation, as parent guarantor, AK Tube LLC and AK Steel Properties, Inc., as subsidiary guarantors, and U.S. Bank National Association, as trustee (incorporated herein by reference to Exhibit 4.2 to AK Steel Holding Corporation’s Quarterly Report on Form 10-Q, as filed with the Commission on May 2, 2014).
- 4.1(c) Fifth Supplemental Indenture, dated as of September 16, 2014, among AK Steel Corporation, as issuer, AK Steel Holding Corporation, as parent guarantor, AK Steel Properties, Inc. and AK Tube LLC, as subsidiary guarantors, and U.S. Bank National Association, as trustee (incorporated herein by reference to Exhibit 4.1 to AK Steel Holding Corporation’s Current Report on Form 8-K, as filed with the Commission on September 16, 2014).
- 4.1(d) Sixth Supplemental Indenture, dated as of July 27, 2016, among AK Steel Corporation, as issuer, AK Steel Holding Corporation, as parent guarantor, Mountain State Carbon, LLC, as subsidiary guarantor, and U.S. Bank National Association, as trustee (incorporated herein by reference to Exhibit 4.3 to AK Steel Holding Corporation’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2016, as filed with the Commission on July 29, 2016).
- 4.1(e) Seventh Supplemental Indenture, dated as of March 23, 2017, among AK Steel Corporation, as issuer, the guarantors named therein and U.S. Bank National Association, as trustee (incorporated herein by reference to Exhibit 4.1 to AK Steel Holding Corporation’s Current Report on Form 8-K, as filed with the Commission on March 23, 2017)
- 4.1(f) Eighth Supplemental Indenture, dated as of August 9, 2017, among AK Steel Corporation, as issuer, the guarantors named therein and U.S. Bank National Association, as trustee. (incorporated herein by reference to Exhibit 4.1 to AK Steel Holding Corporation’s Current Report on Form 8-K, as filed with the Commission on August 9, 2017)

4.2

Indenture, dated as of June 20, 2016, among AK Steel Corporation, as issuer, the guarantors named therein and U.S. Bank National Association, as trustee and collateral agent (incorporated herein by reference to Exhibit 4.1 to AK Steel Holding Corporation's Current Report on Form 8-K, as filed with the Commission on June 20, 2016).

4.2(a)

First Supplemental Indenture dated as of July 27, 2016, among AK Steel Corporation, as issuer, Mountain State Carbon, LLC, as subsidiary guarantor and U.S. Bank National Association, as trustee and collateral agent (incorporated herein by reference to Exhibit 4.2 to AK Steel Holding Corporation's Quarterly Report on Form 10-Q for the quarter ended June 30, 2016, as filed with the Commission on July 29, 2016).

10.1+

Executive Deferred Compensation Plan, as amended and restated as of October 18, 2007 (incorporated herein by reference to Exhibit 10.2 to AK Steel Holding Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2007, as filed with the Commission on November 6, 2007).

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Exhibit

Number Description

<u>10.2+</u>	Directors' Deferred Compensation Plan, as amended and restated as of October 18, 2007 (incorporated herein by reference to Exhibit 10.3 to AK Steel Holding Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2007, as filed with the Commission on November 6, 2007).
<u>10.3</u>	Policy Concerning Severance Agreements with Senior Executives (incorporated herein by reference to Exhibit 99.3 to AK Steel Holding Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2003, as filed with the Commission on November 14, 2003).
<u>10.4+</u>	Omnibus Management Incentive Plan, as of May 25, 2017 (incorporated herein by reference to Exhibit 10.1 to AK Steel Holding Corporation's Current Report on Form 8-K, as filed with the Commission on May 26, 2017)
<u>10.5+</u>	Supplemental Thrift Plan, as amended and restated as of January 1, 2018 (incorporated by reference to Exhibit 10.5 to AK Steel Holding Corporation's Annual Report on Form 10-K for the year ended December 31, 2017, as filed with the Commission on February 15, 2018).
<u>10.6+</u>	Executive Minimum and Supplemental Retirement Plan, as amended and restated as of October 18, 2007 (incorporated herein by reference to Exhibit 10.1 to AK Steel Holding Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2007, as filed with the Commission on November 6, 2007).
<u>10.6(a)+</u>	First Amendment to the Executive Minimum and Supplemental Retirement Plan, as amended and restated as of October 18, 2007 (incorporated herein by reference to Exhibit 10.1 to AK Steel Holding Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2008, as filed with the Commission on November 4, 2008).
<u>10.6(b)+</u>	Second Amendment to the Executive Minimum and Supplemental Retirement Plan, as amended and restated as of October 18, 2007 (incorporated herein by reference to Exhibit 10.4 to AK Steel Holding Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2009, as filed with the Commission on November 3, 2009).
<u>10.7+</u>	Executive Retirement Income Plan adopted March 20, 2014 (incorporated by reference to Exhibit 10.10 to AK Steel Holding Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, as filed with the Commission on May 2, 2014).
<u>10.8+</u>	Form of Executive Officer Severance Agreement (incorporated by reference to Exhibit 10.8 to AK Steel Holding Corporation's Annual Report on Form 10-K for the year ended December 31, 2016, as filed with the Commission on February 17, 2017).
<u>10.9+</u>	Form of Executive Officer Change of Control Agreement (incorporated by reference to Exhibit 10.9 to AK Steel Holding Corporation's Annual Report on Form 10-K for the year ended December 31, 2016, as filed with the Commission on February 17, 2017).
<u>10.10+</u>	AK Steel Holding Corporation Stock Incentive Plan, as amended and restated as of May 26, 2016 (incorporated herein by reference to Exhibit 10.1 to AK Steel Holding Corporation's Current Report on Form 8-K, as filed with the Commission on May 27, 2016).
<u>10.11</u>	

Second Amended and Restated Loan and Security Agreement, dated as of September 13, 2017, among AK Steel Corporation, as Borrower, the guarantors named therein, certain financial institutions, as Lenders, and Bank of America, N.A., as agent for the Lenders (incorporated by reference to Exhibit 10.1 to AK Steel Holding Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2017, as filed with the Commission on November 3, 2017).

10.12

Air Quality Facilities Loan Agreement dated as of February 1, 2012 between AK Steel Corporation and the Ohio Air Quality Development Authority – \$36,000,000 Revenue Refunding Bonds, Series 2012-A (incorporated herein by reference to Exhibit 10.1 to AK Steel Holding Corporation's Current Report on Form 8-K, as filed with the Commission on February 7, 2012).

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Exhibit

Number Description

- 10.12(a) Guaranty Agreement dated as of April 29, 2014, by AK Tube LLC and AK Steel Properties, Inc. to Wells Fargo Bank, National Association, as trustee, pertaining to the Ohio Air Quality Development Authority – \$36,000,000 Revenue Refunding Bonds, Series 2012-A (incorporated by reference to Exhibit 10.7 to AK Steel Holding Corporation’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, as filed with the Commission on May 2, 2014).
- 10.12(b) Guaranty Agreement, dated as of July 27, 2016, by Mountain State Carbon, LLC to Wells Fargo Bank, National Association, as trustee, pertaining to the Ohio Air Quality Development Authority – \$36,000,000 Revenue Refunding Bonds, Series 2012-A (incorporated herein by reference to Exhibit 10.8 to AK Steel Holding Corporation’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2016, as filed with the Commission on July 29, 2016).
- 10.13 Loan Agreement dated as of February 1, 2012 between AK Steel Corporation and the City of Rockport, Indiana – \$30,000,000 Revenue Refunding Bonds, Series 2012-A (incorporated herein by reference to Exhibit 10.2 to AK Steel Holding Corporation’s Current Report on Form 8-K, as filed with the Commission on February 7, 2012).
- 10.13(a) Guaranty Agreement dated as of April 29, 2014, by AK Tube LLC and AK Steel Properties, Inc. to Wells Fargo Bank, National Association, as trustee, pertaining to City of Rockport, Indiana – \$30,000,000 Revenue Refunding Bonds, Series 2012-A (incorporated by reference to Exhibit 10.8 to AK Steel Holding Corporation’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, as filed with the Commission on May 2, 2014).
- 10.13(b) Guaranty Agreement, dated as of July 27, 2016, by Mountain State Carbon, LLC to Wells Fargo Bank, National Association, as trustee, pertaining to City of Rockport, Indiana – \$30,000,000 Revenue Refunding Bonds, Series 2012-A (incorporated herein by reference to Exhibit 10.9 to AK Steel Holding Corporation’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2016, as filed with the Commission on July 29, 2016).
- 10.14 Loan Agreement dated as of February 1, 2012 between AK Steel Corporation and the Butler County Industrial Development Authority – \$7,300,000 Revenue Refunding Bonds, Series 2012-A (incorporated herein by reference to Exhibit 10.3 to AK Steel Holding Corporation’s Current Report on Form 8-K, as filed with the Commission on February 7, 2012).
- 10.14(a) Guaranty Agreement dated as of April 29, 2014, by AK Tube LLC and AK Steel Properties, Inc. to Wells Fargo Bank, National Association, as trustee, pertaining to Butler County Industrial Development Authority – \$7,300,000 Revenue Refunding Bonds, Series 2012-A (incorporated by reference to Exhibit 10.9 to AK Steel Holding Corporation’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, as filed with the Commission on May 2, 2014).
- 10.14(b) Guaranty Agreement, dated as of July 27, 2016, by Mountain State Carbon, LLC to Wells Fargo Bank, National Association, as trustee, pertaining to Butler County Industrial Development Authority – \$7,300,000 Revenue Refunding Bonds, Series 2012-A (incorporated herein by reference to Exhibit 10.10 to AK Steel Holding Corporation’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2016, as filed with the Commission on July 29, 2016).
- 10.15

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Security Agreement, dated as of June 20, 2016, among the AK Steel Corporation and U.S. Bank National Association, as trustee and collateral agent (incorporated herein by reference to Exhibit 10.1 to AK Steel Holding Corporation's Current Report on Form 8-K, as filed with the Commission on June 20, 2016).

10.15(a) Security Agreement Supplement, dated as of July 27, 2016, between Mountain State Carbon, LLC and U.S. Bank National Association, as collateral agent (incorporated herein by reference to Exhibit 10.6 to AK Steel Holding Corporation's Quarterly Report on Form 10-Q for the quarter ended June 30, 2016, as filed with the Commission on July 29, 2016).

10.16 Collateral Trust Agreement dated as of November 20, 2012, among AK Steel and U.S. Bank National Association, as trustee and collateral agent (incorporated by reference to Exhibit 10.4 to AK Steel Holding Corporation's Current Report on Form 8-K, as filed with the Commission on November 20, 2012).

10.16(a) Supplement to Collateral Trust Agreement dated as of April 29, 2014, among AK Steel Corporation, AK Tube LLC, AK Steel Properties, Inc. and U.S. Bank National Association, as trustee and collateral agent (incorporated by reference to Exhibit 10.6 to AK Steel Holding Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, as filed with the Commission on May 2, 2014).

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Exhibit

Number Description

<u>10.16(b)</u>	Collateral Trust Agreement Joinder, dated as of June 20, 2016, among AK Steel Corporation and U.S. Bank National Association, as trustee and collateral agent (incorporated herein by reference to Exhibit 10.2 to AK Steel Holding Corporation's Current Report on Form 8-K, as filed with the Commission on June 20, 2016).
<u>10.16(c)</u>	Supplement to Collateral Trust Agreement, dated as of July 27, 2016, among AK Steel Corporation, Mountain State Carbon, LLC and U.S. Bank National Association, as collateral agent (incorporated herein by reference to Exhibit 10.7 to AK Steel Holding Corporation's Quarterly Report on Form 10-Q for the quarter ended June 30, 2016, as filed with the Commission on July 29, 2016).
<u>10.17+</u>	Form of Director and Officer Indemnification Agreement (incorporated by reference to Exhibit 10.1 to AK Steel Holding Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2013, as filed with the Commission on November 1, 2013).
<u>10.18</u>	Purchase Agreement, dated June 30, 2017, among PPHC Holdings, LLC, Drive Merger Sub, LLC, AK Steel Corporation and PPHC Members' Representative, LLC (incorporated herein by reference to Exhibit 2.1 to AK Steel Holding Corporation's Current Report on Form 8-K, as filed with the Commission on July 7, 2017).
<u>21.1</u>	Subsidiaries of AK Steel Holding Corporation (incorporated by reference to Exhibit 21.1 to AK Steel Holding Corporation's Annual Report on Form 10-K for the year ended December 31, 2017, as filed with the Commission on February 15, 2018).
<u>*23.1</u>	Consent of Ernst & Young LLP.
<u>*31.1</u>	Section 302 Certification of Chief Executive Officer.
<u>*31.2</u>	Section 302 Certification of Chief Financial Officer.
<u>*32.1</u>	Section 906 Certification of Chief Executive Officer.
<u>*32.2</u>	Section 906 Certification of Chief Financial Officer.
<u>*95.1</u>	Mine Safety Disclosure.
101.Ins	XBRL Instance Document – the XBRL Instance Document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL 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

* Filed or furnished herewith, as applicable

+ Management contract or compensatory plan or arrangement

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SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this Report to be signed on its behalf by the undersigned, thereunto duly authorized in West Chester, Ohio, on February 15, 2019.

AK Steel Holding Corporation
(Registrant)

/s/ Jaime Vasquez
Jaime Vasquez
Vice President, Finance and Chief Financial Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this Report has been signed below as of February 15, 2019 by the following persons on behalf of the registrant and in the capacities indicated.

Signature & Title	Signature & Title
/s/ Dr. James A. Thomson Dr. James A. Thomson Chairman of the Board	/s/ William K. Gerber William K. Gerber Director
/s/ Roger K. Newport Roger K. Newport Chief Executive Officer and Director	/s/ Gregory B. Kenny Gregory B. Kenny Director
/s/ Jaime Vasquez Jaime Vasquez Vice President, Finance and Chief Financial Officer	/s/ Ralph S. Michael, III Ralph S. Michael, III Director
/s/ Gregory A. Hoffbauer Gregory A. Hoffbauer Vice President, Controller and Chief Accounting Officer	/s/ Dwayne A. Wilson Dwayne A. Wilson Director
/s/ Dennis C. Cuneo Dennis C. Cuneo Director	/s/ Vicente Wright Vicente Wright Director
/s/ Sheri H. Edison Sheri H. Edison Director	/s/ Arlene M. Yocum Arlene M. Yocum Director
/s/ Mark G. Essig Mark G. Essig Director	