

CORNING INC /NY

FORM 10-K (Annual Report)

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Address	ONE RIVERFRONT PLAZA CORNING, NY, 14831
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Industry	Electronic Equipment & Parts
Sector	Technology
Fiscal Year	12/31

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

Form 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2017

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from ___ to ___

Commission file number: 1-3247

CORNING INCORPORATED

(Exact name of registrant as specified in its charter)

NEW YORK

(State or other jurisdiction of incorporation or organization)

16-0393470

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

ONE RIVERFRONT PLAZA, CORNING, NY

(Address of principal executive offices)

14831

(Zip Code)

607-974-9000

(Registrant's telephone number, including area code)

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

Title of each class

Name of each exchange on which registered

Common Stock, \$0.50 par value per share

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 Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes No

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

Yes No

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

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

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

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes No

As of June 30, 2017, the aggregate market value of the registrant's common stock held by non-affiliates of the registrant was \$27 billion based on the \$ 30.05 price as reported on the New York Stock Exchange.

There were 857,453,098 shares of Corning's common stock issued and outstanding as of January 31, 2018.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Registrant's Definitive Proxy Statement dated March 16, 2018, and filed for the Registrant's 2018 Annual Meeting of Shareholders are incorporated into Part III of this Annual Report on Form 10-K, as specifically set forth in Part III.

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PART I

Corning Incorporated and its consolidated subsidiaries are hereinafter sometimes referred to as the “Company,” the “Registrant,” “Corning,” or “we.”

This report contains forward-looking statements that involve a number of risks and uncertainties. These statements relate to our future plans, objectives, expectations and estimates and may contain words such as “believes,” “expects,” “anticipates,” “estimates,” “forecasts,” or similar expressions. Our actual results could differ materially from what is expressed or forecasted in our forward-looking statements. Some of the factors that could contribute to these differences include those discussed under “Forward-Looking Statements,” “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” and elsewhere in this report.

Item 1. Business

General

Corning traces its origins to a glass business established in 1851. The present corporation was incorporated in the State of New York in December 1936. The Company’s name was changed from Corning Glass Works to Corning Incorporated on April 28, 1989.

Corning Incorporated is a leading innovator in materials science. For more than 165 years, Corning has combined its unparalleled expertise in glass science, ceramic science, and optical physics with deep manufacturing and engineering capabilities to develop category-defining products that transform industries and enhance people’s lives. We succeed through sustained investment in research and development, a unique combination of material and process innovation, and deep, trust-based relationships with customers who are global leaders in their industries.

Corning’s capabilities are versatile and synergistic, which allows the company to evolve to meet changing market needs, while also helping our customers capture new opportunities in dynamic industries. Today, Corning’s markets include optical communications, mobile consumer electronics, display technology, automotive, and life sciences vessels. Corning’s industry-leading products include damage-resistant cover glass for mobile devices; precision glass for advanced displays; optical fiber, wireless technologies, and connectivity solutions for state-of-the-art communications networks; trusted products to accelerate drug discovery and delivery; and clean-air technologies for cars and trucks.

Corning operates in five reportable segments: Display Technologies, Optical Communications, Environmental Technologies, Specialty Materials and Life Sciences, and manufactures products at 105 plants in 15 countries.

Display Technologies Segment

Corning’s Display Technologies segment manufactures glass substrates for liquid crystal displays (“LCDs”) that are used primarily in LCD televisions, notebook computers and flat panel desktop monitors. This segment develops, manufactures and supplies high quality glass substrates using technology expertise and a proprietary fusion manufacturing process, which Corning invented and is the cornerstone of the Company’s technology leadership in the LCD glass industry. The highly automated process yields glass substrates with a pristine surface and excellent thermal dimensional stability and uniformity – essential attributes for the production of large, high performance LCDs panels. Corning’s fusion process is scalable and we believe it is the most cost effective process in producing large size substrates.

We are recognized for providing product innovations that enable our customers to produce larger, lighter, thinner and higher-resolution displays. Some of the product innovations that we have launched over the past ten years utilizing our world-class processes and capabilities include the following:

- Corning® EA GLE XG® Glass, the industry's first LCD glass substrate that is free of heavy metals;
- Corning® EAGLE XG® Slim Glass, a line of thin glass substrates which enables lighter-weight portable devices and thinner televisions and monitors;
- Corning Iris™ Glass, a light-guide plate solution which enables televisions and monitors to be less than 5 mm thick;
- The family of Corning Lotus™ Glass, high-performance display glass developed to enable cutting-edge technologies, including organic light-emitting diode ("OLED") displays and next generation LCDs. These substrate glasses provide industry-leading levels of low total pitch variation, resulting in brighter, more energy-efficient displays with higher resolutions for consumers and better yields for panel makers; and
- The world's first Gen 10 and Gen 10.5 glass substrates in support of improved efficiency in manufacturing large-sized televisions.

Corning has LCD glass manufacturing operations in South Korea, Japan, Taiwan and China, and services all specialty glass customers in all regions directly, utilizing its manufacturing facilities throughout Asia.

Patent protection and proprietary trade secrets are important to the Display Technologies segment's operations. Refer to the material under the heading "Patents and Trademarks" for information relating to patents and trademarks.

The Display Technologies segment represented 30% of Corning's sales in 2017.

Optical Communications Segment

Corning invented the world's first low-loss optical fiber in 1970. Since that milestone, we have continued to pioneer optical fiber, cable and connectivity solutions. As global bandwidth demand driven by video usage grows exponentially, telecommunications networks continue to migrate from copper to optical-based systems that can deliver the required cost-effective bandwidth-carrying capacity. Our experience puts us in a unique position to design and deliver optical solutions that reach every edge of the communications network.

This segment is classified into two main product groupings – carrier network and enterprise network. The carrier network group consists primarily of products and solutions for optical-based communications infrastructure for services such as video, data and voice communications. The enterprise network group consists primarily of optical-based communication networks sold to businesses, governments and individuals for their own use.

Our carrier network product portfolio encompasses an array of optical fiber products, including Vascade® submarine optical fibers for use in submarine networks; LEAF® optical fiber for long-haul, regional and metropolitan networks; SMF-28® ULL fiber for more scalable long-haul and regional networks; SMF-28e+™ single-mode optical fiber that provides additional transmission wavelengths in metropolitan and access networks; ClearCurve® ultra-bendable single-mode fiber for use in multiple-dwelling units and fiber-to-the-home applications; and Corning® SMF-28® Ultra Fiber, designed for high performance across the range of long-haul, metro, access, and fiber-to-the-home network applications, combining the benefits of industry-leading attenuation and improved macrobend performance in one fiber. A portion of our optical fiber is sold directly to end users and third-party cabling globally. Corning's remaining fiber production is cabled internally and sold to end users as either bulk cable or as part of an integrated optical solution. Corning's cable products support various outdoor, indoor/outdoor and indoor applications and include a broad range of loose tube, ribbon and drop cable designs with flame-retardant versions available for indoor and indoor/outdoor use.

In addition to optical fiber and cable, our carrier network product portfolio also includes hardware and equipment products, including cable assemblies, fiber optic hardware, fiber optic connectors, optical components and couplers, closures, network interface devices, and other accessories. These products may be sold as individual components or as part of integrated optical connectivity solutions designed for various carrier network applications. Examples of these solutions include our FlexNAP™ terminal distribution system, which provides pre-connectorized distribution and drop cable assemblies for cost-effectively deploying fiber-to-the-home ("FTTH") networks; and the Centrix™ platform, which provides a high-density fiber management system with industry-leading density and innovative jumper routing that can be deployed in a wide variety of carrier switching centers.

To keep pace with surging demand for mobile bandwidth, Corning has a full complement of operator-grade distributed antenna systems (“DAS”), including the recently developed Optical Network Evolution wireless platform. The ONE™ Wireless Platform (“ONE”) is the first all-optical converged cellular and Wi-Fi® solution built on an all-optical backbone with modular service support. It provides virtually unlimited bandwidth, and meets all of the wireless service needs of large-scale enterprises at a lower cost than the typical DAS solution.

In addition to our optical-based portfolio, Corning’s carrier network portfolio also contains select copper-based products including subscriber demarcation, connection and protection devices, xDSL (different variations of digital subscriber lines) passive solutions and outside plant enclosures. In addition, Corning offers coaxial RF interconnects for the cable television industry as well as for microwave applications for GPS, radars, satellites, manned and unmanned military vehicles, and wireless and telecommunications systems.

Our enterprise network portfolio also includes optical fiber products, including ClearCurve® ultra-bendable multimode fiber for data centers and other enterprise network applications; InfiniCor® fibers for local area networks; and more recently ClearCurve® VSDN® ultra-bendable optical fiber designed to support emerging high-speed interconnects between computers and other consumer electronics devices. The remainder of Corning’s fiber production is cabled internally and sold to end users as either bulk cable or as part of an integrated optical solution. Corning’s cable products include a broad range of tight-buffered, loose tube and ribbon cable designs with flame-retardant versions available for indoor and indoor/outdoor applications that meet local building code requirements.

Corning’s hardware and equipment for enterprise network applications include cable assemblies, fiber optic hardware, fiber optic connectors, optical components and couplers, closures and other accessories. These products may be sold as individual components or as part of integrated optical connectivity solutions designed for various network applications. Examples of enterprise network solutions include the Pretium EDGE® platform, which provides high-density pre-connectorized solutions for data center applications, and continues to evolve with recent updates for upgrading to 40/100G applications and port tap modules for network monitoring; the previously mentioned ONE Wireless platform, which spans both carrier and enterprise network applications; and our recently introduced optical connectivity solutions to support customer initiatives.

In December 2017, Corning announced that it had entered into agreements with 3M to purchase substantially all of 3M’s Communication Markets Division in a cash transaction valued at approximately \$900 million. The acquisition is expected to close during 2018, subject to customary closing conditions and regulatory approval. Corning believes that this transaction will augment its Optical Communications segment’s global market access and expand its broad portfolio of high-bandwidth optical connectors, assemblies, hardware, and accessories for carrier networks, enterprise LAN, and data center solutions.

Our optical fiber manufacturing facilities are located in North Carolina, China and India. Cabling operations are located in North Carolina, Germany, Poland, China and smaller regional locations. Our manufacturing operations for hardware and equipment products are located in Texas, Arizona, Mexico, Brazil, Denmark, Germany, Poland, Israel, Australia and China.

Patent protection is important to the segment’s operations. The segment has an extensive portfolio of patents relating to its products, technologies and manufacturing processes. The segment licenses certain of its patents to third parties and generates revenue from these licenses, although the royalty income is not currently material to this segment’s operating results. Corning is licensed to use certain patents owned by others, which are considered important to the segment’s operations. Refer to the material under the heading “Patents and Trademarks” for information relating to the Company’s patents and trademarks.

The Optical Communications segment represented 35% of Corning’s sales in 2017.

Environmental Technologies Segment

Corning's Environmental Technologies segment manufactures ceramic substrates and filter products for emissions control in mobile applications around the world. In the early 1970s, Corning developed an economical, high-performance cellular ceramic substrate that is now the standard for catalytic converters in vehicles worldwide. As global emissions control regulations tighten, Corning has continued to develop more effective and durable ceramic substrate and filter products for gasoline and diesel applications. For example, in response to the growing popularity of gasoline direct injection engines, Corning introduced gasoline particulate filters to help automakers reduce particulate emissions generated by these engines. Corning manufactures substrate and filter products in New York, Virginia, China, Germany and South Africa. Corning sells its ceramic substrate and filter products worldwide to catalyzers and manufacturers of emission control systems who then sell to automotive and diesel vehicle or engine manufacturers. Although most sales are made to the emission control systems manufacturers, the use of Corning substrates and filters is generally required by the specifications of the automotive and diesel vehicle or engine manufacturers.

Patent protection is important to the segment's operations. The segment has an extensive portfolio of patents relating to its products, technologies and manufacturing processes. Corning is licensed to use certain patents owned by others, which are also considered important to the segment's operations. Refer to the material under the heading "Patents and Trademarks" for information relating to the Company's patents and trademarks.

The Environmental Technologies segment represented 11% of Corning's sales in 2017 .

Specialty Materials Segment

The Specialty Materials segment manufactures products that provide more than 150 material formulations for glass, glass ceramics and fluoride crystals to meet demand for unique customer needs. Consequently, this segment operates in a wide variety of commercial and industrial markets that include display optics and components, semiconductor optics components, aerospace and defense, astronomy, ophthalmic products, telecommunications components and cover glass that is optimized for display devices.

Our cover glass, known as Corning® Gorilla® Glass, is a thin sheet glass designed specifically to function as a cover glass for display devices such as mobile phones , tablets and notebook PCs. Elegant and lightweight, Corning Gorilla Glass is durable enough to resist many real-world events that commonly cause glass failure, enabling exciting new applications in technology and design. In 2016, Corning unveiled its latest Corning Gorilla Glass innovation, Corning® Gorilla® Glass 5 , which is designed to provide further protection against breakage while maintaining optical clarity , touch sensitivity, and damage resistance .

Corning Gorilla Glass is manufactured in Kentucky, South Korea, Japan and Taiwan.

Semiconductor optics manufactured by Corning includes high-performance optical material products, optical-based metrology instruments, and optical assemblies for applications in the global semiconductor industry. Corning's semiconductor optics products are manufactured in New York.

Other specialty glass products include glass lens and window components and assemblies and are made in New York, New Hampshire and France , and sourced from China.

Patent protection is important to the segment's operations. The segment has a growing portfolio of patents relating to its products, technologies and manufacturing processes. Brand recognition and loyalty, through well-known trademarks, are important to the segment. Refer to the material under the heading "Patents and Trademarks" for information relating to the Company's patents and trademarks.

The Specialty Materials segment represented approximately 14 % of Corning's sales in 2017 .

Life Sciences Segment

As a leading developer, manufacturer and global supplier of laboratory products for over 100 years, Corning's Life Sciences segment works with researchers and drug manufacturers seeking to increase efficiencies, reduce costs and compress timelines. Using unique expertise in the fields of materials science, polymer surface science, cell culture and biology, the segment provides innovative solutions that improve productivity and enable breakthrough research.

Life Sciences products include consumables (such as plastic vessels, specialty surfaces, cell culture media and serum), as well as general labware and equipment, that are used for advanced cell culture research, bioprocessing, genomics, drug discovery, microbiology and chemistry. Corning sells life sciences products under these primary brands: Corning, Falcon, Pyrex, Axygen, and Gosselin. The products are marketed globally, primarily through distributors, to pharmaceutical and biotechnology companies, academic institutions, hospitals, government entities, and other facilities. Corning manufactures these products in the United States in Illinois, Maine, Massachusetts, New York, North Carolina, Utah and Virginia and outside of the U.S. in China, France, Mexico and Poland.

Patent protection is important to the segment's operations. The segment has a growing portfolio of patents relating to its products, technologies and manufacturing processes. Brand recognition and loyalty, through well-known trademarks, are important to the segment. Refer to the material under the heading "Patents and Trademarks" for more information.

The Life Sciences segment represented approximately 9 % of Corning's sales in 2017 .

All Other

All other segments that do not meet the quantitative threshold for separate reporting have been grouped as "All Other." This group is primarily comprised of the results of the pharmaceutical technologies business and new product lines and development projects, as well as certain corporate investments such as Eurokera and Keraglass equity affiliates.

In 2017, Corning's pharmaceutical technologies business, in collaboration with two leading pharmaceutical companies, introduced Corning Valor™ Glass, a revolutionary pharmaceutical glass packaging solution that enhances the storage and delivery of today's drug formulations and provides more reliable access to medicines essential to public health. Insights into manufacturing processes from the pharmaceutical companies, in combination with Corning's glass science and precision forming capabilities, helped deliver a glass packaging solution for injectable drugs in vials and cartridges. Corning Valor Glass packaging offers superior chemical durability, strength and damage resistance. These qualities enable increased throughput and more reliable access to state-of-the-art medicines for patients, while maintaining a high level of quality assurance for pharmaceutical companies.

The All Other segment represented 1 % of Corning's sales in 2017 .

Additional explanation regarding Corning and its five reportable segments, as well as financial information about geographic areas, is presented in Management's Discussion and Analysis of Financial Condition and Results of Operations and Note 20 (Reportable Segments) to the Consolidated Financial Statements.

Corporate Investments

Dow Corning Corporation and Hemlock Semiconductor Group. Prior to May 31, 2016, Corning and The Dow Chemical Company ("Dow Chemical") each owned half of Dow Corning Corporation ("Dow Corning"), an equity company headquartered in Michigan that manufactures silicone products worldwide. Dow Corning was the majority-owner of Hemlock Semiconductor Group ("HSG"), a market leader in the production of high purity polycrystalline silicon for the semiconductor and solar energy industries.

On May 31, 2016, Corning completed the strategic realignment of its equity investment in Dow Corning pursuant to the Transaction Agreement announced in December 2015. Under the terms of the Transaction Agreement, Corning exchanged with Dow Corning its 50% stock interest in Dow Corning for 100% of the stock of a newly formed entity, which holds an equity interest in HSG and approximately \$4.8 billion in cash.

Prior to realignment, HSG, a consolidated subsidiary of Dow Corning, was an indirect equity investment of Corning. Upon completion of the exchange, Corning now has a direct equity investment in HSG. Because our ownership percentage in HSG did not change as a result of the realignment, the investment in HSG is recorded at its carrying value, which had a negative carrying value of \$383 million at the transaction date. The negative carrying value resulted from a one-time charge to this entity in 2014 for the permanent abandonment of certain assets. Excluding this charge, the entity is profitable and is expected to recover its equity in the near term.

Pittsburgh Corning Corporation . Prior to the second quarter of 2016, Corning and PPG Industries, Inc. each owned 50% of the capital stock of Pittsburgh Corning Corporation (“PCC”). PCC filed for Chapter 11 reorganization in 2000 and the Modified Third Amended Plan of Reorganization for PCC (the “Plan”) became effective in April 2016. In the second quarter of 2016, Corning contributed its equity interests in PCC and Pittsburgh Corning Europe N.V. as required by the Plan and recognized a gain of \$56 million for the difference between the fair value of the asbestos litigation liability and carrying value of the investment.

Additional information about corporate investments is presented in Note 7 (Investments) to the Consolidated Financial Statements.

Competition

Corning competes with many large and varied manufacturers, both domestic and foreign. Some of these competitors are larger than Corning, and some have broader product lines. Corning strives to maintain and improve its market position through technology and product innovation. For the foreseeable future, Corning believes its competitive advantage lies in its commitment to research and development, its commitment to reliability of supply and product quality and technical specification of its products. There is no assurance that Corning will be able to maintain or improve its market position or competitive advantage.

Display Technologies Segment

Corning is the largest worldwide producer of glass substrates for LCD displays. The environment for LCD glass substrate products is very competitive and Corning believes it has sustained its competitive advantages by investing in new products, providing a consistent and reliable supply, and continually improving its proprietary fusion manufacturing process. This process allows us to deliver glass that is larger, thinner and lighter, with exceptional surface quality and without heavy metals. Asahi Glass Co. Ltd. and Nippon Electric Glass Co. Ltd. are Corning’s principal competitors in display glass substrates.

Optical Communications Segment

Corning believes it maintains a leadership position in the segment’s principal product groups, which include carrier and enterprise networks. The competitive landscape includes industry consolidation, price pressure and competition for the innovation of new products. These competitive conditions are likely to persist. Corning believes its large scale manufacturing experience, fiber process, technology leadership and intellectual property provide cost advantages relative to several of its competitors.

The primary competing producers of the Optical Communications segment are Commscope and Prysmian Group.

Environmental Technologies Segment

Corning believes it maintains a strong position in the worldwide market for automotive ceramic substrate and filter products, as well as in the heavy-duty and light-duty diesel vehicle markets. The Company believes its competitive advantage in automotive ceramic substrate products for catalytic converters and filter products for particulate emissions in exhaust systems is based on an advantaged product portfolio, collaborative engineering design services, customer service and support, strategic global presence and continued product innovation. Corning’s Environmental Technologies products face principal competition from NGK Insulators, Ltd. and Ividen Co. Ltd.

Specialty Materials Segment

Corning has deep capabilities in materials science, optical design, shaping, coating, finishing, metrology, and system assembly. Additionally, we are addressing emerging needs of the consumer electronics industry with the development of chemically strengthened glass. Corning Gorilla Glass is a thin-sheet glass that is better able to survive events that most commonly cause glass failure. Its advanced composition allows a deeper layer of chemical strengthening than is possible with most other chemically strengthened glasses, making it both durable and damage resistant. Our products and capabilities in this segment position the Company to meet the needs of a broad array of markets including display, semiconductor, aerospace/defense, astronomy, vision care, industrial/commercial, and telecommunications. For this segment, Schott, Asahi Glass Co. Ltd., Nippon Electric Glass Co. Ltd. and Heraeus are the main competitors.

Life Sciences Segment

Corning seeks to maintain a competitive advantage by emphasizing product quality, global distribution, supply chain efficiency, a broad product line and superior product attributes. Our principal competitors include Thermo Fisher Scientific, Inc., Greiner Group AG, Eppendorf AG and Sarsedt AG. Corning also faces increasing competition from large distributors that have pursued backward integration or introduced private label products.

Raw Materials

Corning's manufacturing processes and products require access to uninterrupted power sources, significant quantities of industrial water, certain precious metals, and various batch materials. Availability of resources (ores, minerals, polymers, helium and processed chemicals) required in manufacturing operations, appears to be adequate. Corning's suppliers, from time to time, may experience capacity limitations in their own operations, or may eliminate certain product lines. Corning believes it has adequate programs to ensure a reliable supply of raw and batch materials as well as precious metals. For many of its products, Corning has alternate suppliers that would allow operations to continue without interruption in the event of specific materials shortages.

Certain key materials and proprietary equipment used in the manufacturing of products are currently sole-sourced or available only from a limited number of suppliers. To minimize this risk, Corning closely monitors raw materials and equipment with limited availability or which are sourced through one supplier. However, any future difficulty in obtaining sufficient and timely delivery of components and /or raw materials could result in lost sales due to delays or reductions in product shipments, or reductions in Corning's gross margins.

Patents and Trademarks

Inventions by members of Corning's research and engineering staff continue to be important to the Company's growth. Patents have been granted on many of these inventions in the United States and other countries. Some of these patents have been licensed to other manufacturers. Many of our earlier patents have now expired, but Corning continues to seek and obtain patents protecting its innovations. In 2017, Corning was granted about 560 patents in the U.S. and over 1,280 patents in countries outside the U.S.

Each business segment possesses a patent portfolio that provides certain competitive advantages in protecting Corning's innovations. Corning has historically enforced, and will continue to enforce, its intellectual property rights. At the end of 2017, Corning and its wholly-owned subsidiaries owned over 10,900 unexpired patents in various countries of which over 4,560 were U.S. patents. Between 2018 and 2020, approximately 7% of these patents will expire, while at the same time Corning intends to seek patents protecting its newer innovations. Worldwide, Corning has about 10,300 patent applications in process, with about 2,280 in process in the U.S. Corning believes that its patent portfolio will continue to provide a competitive advantage in protecting the Company's innovation, although Corning's competitors in each of its businesses are actively seeking patent protection as well.

While each of our reportable segments has numerous patents in various countries, no one patent is considered material to any of these segments. Important U.S.-issued patents in our reportable segments include the following:

- Display Technologies: patents relating to glass compositions and methods for the use and manufacture of glass substrates for display applications.
- Optical Communications: patents relating to (i) optical fiber products including low-loss optical fiber, high data rate optical fiber, and dispersion compensating fiber, and processes and equipment for manufacturing optical fiber, including methods for making optical fiber preforms and methods for drawing, cooling and winding optical fiber; (ii) optical fiber ribbons and methods for making such ribbon, fiber optic cable designs and methods for installing optical fiber cable; (iii) optical fiber connectors, hardware, termination and storage and associated methods of manufacture; and (iv) distributed communication systems.
- Environmental Technologies: patents relating to cellular ceramic honeycomb products, together with ceramic batch and binder system compositions, honeycomb extrusion and firing processes, and honeycomb extrusion dies and equipment for the high-volume, low-cost manufacture of such products.
- Specialty Materials: patents relating to protective cover glass, ophthalmic glasses and polarizing dyes, and semiconductor /microlithography optics and blanks, metrology instrumentation and laser/precision optics, glass polarizers, specialty fiber, and refractories.
- Life Sciences: patents relating to methods and apparatus for the manufacture and use of scientific laboratory equipment including multiwell plates and cell culture products, as well as equipment and processes for label independent drug discovery.

Products reported in All Other include development projects, new product lines, and other businesses or investments that do not meet the threshold for separate reporting.

Approximate number of patents granted to our reportable segments follows :

	Number of patents worldwide	U.S. patents	Important patents expiring between 2018 and 2020
Display Technologies	1,900	40	18
Optical Communications	4,200	1,900	34
Environmental Technologies	900	350	20
Specialty Materials	1,200	590	8
Life Sciences	570	240	

Many of the Company's patents are used in operations or are licensed for use by others, and Corning is licensed to use patents owned by others. Corning has entered into cross-licensing arrangements with some major competitors, but the scope of such licenses has been limited to specific product areas or technologies.

Corning's principal trademarks include the following: Axygen, Corning, Celcor, ClearCurve, DuraTrap, Eagle XG, Edge8, Gorilla, HPFS, Leaf, Pyrex, Steuben, Falcon, SMF-28e, Unicam, and Willow.

Protection of the Environment

Corning has a program to ensure that its facilities are in compliance with state, federal and foreign pollution-control regulations. This program has resulted in capital and operating expenditures each year. In order to maintain compliance with such regulations, capital expenditures for pollution control in operations were approximately \$39 million in 2017 and are estimated to be \$23 million in 2018.

Corning's 2017 consolidated operating results were charged with approximately \$43 million for depreciation, maintenance, waste disposal and other operating expenses associated with pollution control. Corning believes that its compliance program does not place it at a competitive disadvantage.

Employees

At December 31, 2017, Corning had approximately 46,200 full-time employees. From time to time, Corning also retains consultants, independent contractors, temporary and part-time workers.

Executive Officers of the Registrant

James P. Clappin Executive Vice President, Corning Glass Technologies

Mr. Clappin joined Corning in 1980 as a process engineer. He transitioned to GTE Corporation in 1983 when the Central Falls facility was sold and returned to Corning in 1988. He began working in the display business in 1994. Mr. Clappin relocated to Japan in 1996, as plant manager at Corning Display Technologies Shizuoka facility. In 2002, he was appointed as general manager of CDT worldwide business. He served as president of Corning Display Technologies from September 2005 through July 2010. He was appointed president, Corning Glass Technologies, in 2010. He was appointed to his present position in 2017. Age 60.

Martin J. Curran Executive Vice President and Corning Innovation Officer

Mr. Curran joined Corning in 1984 and has held a variety of roles in finance, manufacturing, and marketing. He has served as senior vice president, general manager for Corning Cable Systems Hardware and Equipment Operations in the Americas, responsible for operations in Hickory, North Carolina; Keller, Texas; Reynosa, Mexico; Shanghai, China; and the Dominican Republic. He has also served as senior vice president and general manager for Corning Optical Fiber. Mr. Curran was appointed as Corning's first innovation officer in August 2012. Age 59.

Jeffrey W. Evenson Senior Vice President and Chief Strategy Officer

Dr. Evenson joined Corning in June 2011 as senior vice president and operations chief of staff. In 2015, he was named Chief Strategy Officer. He serves on the Management Committee and oversees a variety of strategic programs and growth initiatives. Prior to joining Corning, Dr. Evenson was a senior vice president with Sanford C. Bernstein, where he served as a senior analyst since 2004. Before that, Dr. Evenson was a partner at McKinsey & Company, where he led technology and market assessment for early-stage technologies. Age 52.

Lisa Ferrero Senior Vice President and Chief Administrative Officer

Ms. Ferrero joined Corning in 1987 as a statistician and held various production management positions until joining Display Technologies in 1995 as a market analyst in Tokyo. While in Japan, she was appointed export sales manager for Taiwan and Korea. In 1998, she returned to Corning, N.Y. and was named market development manager. She was appointed director of strategic marketing, planning, and analysis for Display Technologies in 2000. In 2002, Ms. Ferrero joined Environmental Technologies as business manager for the heavy-duty diesel business and was named director of the automotive substrates business in 2003. She was named vice president and deputy general manager, Display Technologies Asia in June 2005. She served as general manager of Corning Display Technologies from July 2010 through 2015 overseeing operations across four regions: China, Japan, Taiwan and the U.S. Ms. Ferrero became senior vice president and chief administrative officer in January 2016. Age 54.

Clark S. Kinlin Executive Vice President

Mr. Kinlin joined Corning in 1981 in the Specialty Materials division. From 1985 to 1995 he worked in the Optical Fiber division. In 1995, he joined Corning Consumer Products. In 2000, Mr. Kinlin was named president, Corning International Corporation and, in 2003, he was appointed as general manager for Greater China. From April 2007 to March 2008, he was chief operating officer, Corning Cable Systems (now Corning Optical Communications) and was named president and chief executive officer in 2008. He was appointed executive vice president in 2012. Age 58.

Lawrence D. McRae Vice Chairman and Corporate Development Officer

Mr. McRae joined Corning in 1985 and served in various financial, sales and marketing positions. He was appointed vice president Corporate Development in 2000, senior vice president Corporate Development in 2003, senior vice president Strategy and Corporate Development in October 2005, and executive vice president Strategy and Corporate Development in 2010. He was appointed to his present position in August 2015. Age 59.

David L. Morse Executive Vice President and Chief Technology Officer

Dr. Morse joined Corning in 1976 in glass research and worked as a composition scientist in developing and patenting several major products. He served in a variety of product and materials research and technology director roles and was appointed division vice president and technology director for photonic technology groups beginning in March 1999. He became director of corporate research, science and technology in December 2001. He was appointed vice president in January 2003, becoming senior vice president and director of corporate research in 2006. Dr. Morse was appointed to his current position in May 2012. He is a member of the National Academy of Engineering and the National Chemistry Board. Age 65.

Eric S. Musser Executive Vice President, Corning Technologies and International

Mr. Musser joined Corning in 1986 and served in a variety of manufacturing positions at fiber plants in Wilmington, N.C. and Melbourne, Australia, before becoming manufacturing strategist for the Optical Fiber business in 1996. Mr. Musser joined Corning Lasertron in 2000 and became president later that year. He was named director, manufacturing operations for Photonic Technologies in 2002. In 2003, he returned to Optical Fiber as division vice president, development and engineering and was named vice president and general manager in 2005. In 2007, he was appointed general manager of Corning Greater China and was named president of Corning International in 2012. Mr. Musser was appointed executive vice president in 2014. Age 58.

Christine M. Pambianchi Senior Vice President, Human Resources

Ms. Pambianchi joined Corning in 2000 as division human resource manager, Corning Optical Fiber, and later was named director, Human Resources, Corning Optical Communications. She has led the Human Resources function since January 2008 when she was named vice president, Human Resources. Ms. Pambianchi was appointed to senior vice president, Human Resources, in 2010, and is responsible for leading Corning's global human resource function. Age 49.

Edward A. Schlesinger Vice President and Corporate Controller

Mr. Schlesinger joined Corning in 2013 as senior vice president and chief financial officer of Corning Optical Communications. He led the Finance function for Corning Optical Communications and served on the Communications Leadership Team. He was named vice president and corporate controller in September 2015, and appointed principal accounting officer in December 2015. Prior to joining Corning, Mr. Schlesinger served as Vice President, Finance and Sector Chief Financial Officer for two of Ingersoll Rand's business segments. Mr. Schlesinger has a financial career that spans more than 20 years garnering extensive expertise in technical financial management and reporting. Age 50.

Lewis A. Steverson Senior Vice President and General Counsel

Mr. Steverson joined Corning in June 2013 as senior vice president and general counsel. Prior to joining Corning, Mr. Steverson served as senior vice president, general counsel, and secretary of Motorola Solutions, Inc. During his 18 years with Motorola, he held a variety of legal leadership roles across the company's numerous business units. Prior to Motorola, Mr. Steverson was in private practice at the law firm of Arnold & Porter. Age 54.

R. Tony Tripeny Senior Vice President and Chief Financial Officer

Mr. Tripeny joined Corning in 1985 as the corporate accounting manager of Corning Cable Systems, and became the Keller, Texas facility's plant controller in 1989. In 1993, he was appointed equipment division controller of Corning Cable Systems and, in 1996 corporate controller. Mr. Tripeny was appointed chief financial officer of Corning Cable Systems in July 2000. In 2003, he took on the additional role of Telecommunications group controller. He was appointed division vice president, operations controller in August 2004, vice president, corporate controller in October 2005, and senior vice president and principal accounting officer in April 2009. Mr. Tripeny was appointed to his current position as senior vice president and chief financial officer in September 2015. He is a member of the board of directors of Hardinge, Inc. Age 58.

Wendell P. Weeks Chairman, Chief Executive Officer and President

Mr. Weeks joined Corning in 1983. He was named vice president and general manager of the Optical Fiber business in 1996, senior vice president in 1997, senior vice president of Opto-Electronics in 1998, executive vice president in 1999, and president, Corning Optical Communications in 2001. Mr. Weeks was named president and chief operating officer of Corning in 2002, president and chief executive officer in 2005 and chairman and chief executive officer on April 26, 2007. He added the title of president in December 2010. Mr. Weeks is a director of Merck & Co. Inc. and Amazon.com, Inc. Mr. Weeks has been a member of Corning's Board of Directors since 2000. Age 58.

Document Availability

A copy of Corning's 2017 Annual Report on Form 10-K filed with the Securities and Exchange Commission is available upon written request to Corporate Secretary, Corning Incorporated, One Riverfront Plaza, Corning, NY 14831. The Annual Report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments pursuant to Section 13(a) or 15(d) of the Exchange Act of 1934 and other filings are available as soon as reasonably practicable after such material is electronically filed or furnished to the SEC, and can be accessed electronically free of charge, through the Investor Relations page on Corning's website at www.corning.com. The information contained on the Company's website is not included in, or incorporated by reference into, this Annual Report on Form 10-K.

Other

Additional information in response to Item 1 is found in Note 20 (Reportable Segments) to the Consolidated Financial Statements and in Item 6 (Selected Financial Data).

Item 1A. Risk Factors

We operate in rapidly changing economic, political, and technological environments that present numerous risks, many of which are driven by factors that we cannot control or predict. Our operations and financial results are subject to various risks and uncertainties, including those described below, that could adversely affect our business, financial condition, results of operations, cash flows, our ability to successfully execute our strategy and capital allocation framework, and the trading price of our common stock or debt. The following discussion of "risk factors" identifies the most significant factors that may adversely affect our business, operations, financial position or future financial performance. This information should be read in conjunction with MD&A and the consolidated financial statements and related notes incorporated by reference into this report. The following discussion of risks is not all inclusive but is designed to highlight what we believe are important factors to consider, as these factors could cause our future results to differ from those in our forward-looking statements and from historical trends.

As a global company, we face many risks which could adversely impact our operations and reported financial results

We are a global company and derive a substantial portion of our revenues from, and have significant operations, outside of the United States. Our international operations include manufacturing, assembly, sales, research and development, customer support, and shared administrative service centers.

Compliance with laws and regulations increases our costs. We are subject to both U.S. laws and local laws which , among other things, include data privacy requirements, employment and labor laws, tax laws, anti-competition regulations, prohibitions on payments to governmental officials, import and trade restrictions and export requirements. Non-compliance or violations could result in fines, criminal sanctions against us, our officers or our employees, and prohibitions on the conduct of our business. Such violations could result in prohibitions on our ability to offer our products and services in one or more countries and could also materially damage our reputation, our brand, our international expansion efforts, our ability to attract and retain employees, our business and our operating results. Our success depends, in part, on our ability to anticipate and manage these risks.

We are also subject to a variety of other risks in managing a global organization, including those related to :

- The economic and political conditions in each country or region;
- Complex regulatory requirements affecting international trade and investment, including anti-dumping laws, export controls, the Foreign Corrupt Practices Act and local laws prohibiting improper payments. Our operations may be adversely affected by changes in the substance or enforcement of these regulatory requirements, and by actual or alleged violations of them;
- Fluctuations in currency exchange rates, convertibility of currencies and restrictions involving the movement of funds between jurisdictions and countries;
- Governmental protectionist policies and sovereign and political risks that may adversely affect Corning's profitability and assets;
- Tariffs, trade duties and other trade barriers including anti-dumping duties;
- Geographical concentration of our factories and operations , and regional shifts in our customer base;
- Periodic health epidemic concerns;
- Political unrest, confiscation or expropriation of our assets by foreign governments, terrorism and the potential for other hostilities;
- Difficulty in protecting intellectual property, sensitive commercial and operations data, and information technology systems;
- Differing legal systems, including protection and treatment of intellectual property and patents;
- Complex , or competing tax regimes;
- Difficulty in collecting obligations owed to us;
- Natural disasters such as floods, earthquakes, tsunamis and windstorms; and
- Potential loss of utilities or other disruption affecting manufacturing.

Corning's Display Technologies segment generates a significant amount of the Company's profits and cash flow . Any significant decrease in LCD glass pricing could have a material and negative impact on our financial results

Corning's ability to generate profits and operating cash flow depends largely upon the profitability of our LCD glass business , which is subject to continuous pricing pressure due to intense industry competition , potential over -capacity , and development of new technologies. If we are not able to achieve proportionate reductions in costs or sustain our current rate of cost reduction to offset potential pricing pressures it could have a material adverse impact on our financial results .

Because we have a concentrated customer base in each of our businesses, our sales could be negatively impacted by the actions or insolvency of one or more key customers , as well as our ability to retain these customers

A relatively small number of customers accounted for a high percentage of net sales in our reportable segments. Mergers and consolidations between customers could result in further concentration of Corning's customer base. If further concentration occurs or a key customer becomes insolvent, the loss of a key customer could result in a substantial loss of sales and reduction in anticipated cash flows. Unforeseen events or actions on the part of Corning could also result in the loss of customers, resulting in further customer concentration.

The following table details the number of combined customers of our segments that accounted for a large percentage of segment net sales:

	Number of combined customers	% of total segment net sales in 2017
Display Technologies	3	62%
Optical Communications	1	19%
Environmental Technologies	3	81%
Specialty Materials	3	58%
Life Sciences	2	47%

Business disruptions could affect our operating results

A major earthquake, fire or other catastrophic event that results in the destruction or disruption of any of our critical facilities could severely affect our ability to conduct normal business operations and, as a result, our future financial results could be materially and adversely affected. For example, certain manufacturing sites require high quality, continuous, and uninterrupted power and access to industrial water. Unplanned outages could have a material negative impact on our operations and ability to supply our customers.

Additionally, a significant amount of the specialized manufacturing capacity for our reportable segments is concentrated in single-site locations and it is reasonably possible that the operations of one or more such facilities could be disrupted. Due to the specialized nature of the assets, it may not be possible to find replacement capacity quickly or substitute production from other facilities. Accordingly, a disruption at a single-site manufacturing operation could significantly impact Corning's ability to supply its customers and could produce a near-term severe impact on our individual businesses and the Company as a whole.

Geopolitical events, as well as other events outside of Corning's control, could cause a disruption to our manufacturing operations and adversely impact our customers, resulting in a negative impact to Corning's net sales, net income, asset values and liquidity.

A natural disaster, epidemic, labor strike, war or political unrest may adversely affect Corning's ability to supply our customers and impact the value of our assets. Such events may also impact our customers' facilities and reduce our sales to such customers. For example, a sizeable portion of Corning's glass manufacturing capacity is located in South Korea and we generate a significant portion of our sales through two South Korean customers. Deterioration of the geopolitical climate in such a region could cause a disruption to our manufacturing operations and adversely impact our customers, resulting in a negative impact to Corning's net sales, net income, asset values and liquidity.

We may experience difficulties in enforcing our intellectual property rights, which could result in loss of market share, and we may be subject to claims of infringement of the intellectual property rights of others

We rely on patent and trade secret laws, copyright, trademark, confidentiality procedures, controls and contractual commitments to protect our intellectual property rights. Despite our efforts, these protections may be limited and we may encounter difficulties in protecting our intellectual property rights or obtaining rights to additional intellectual property necessary to permit us to continue or expand our businesses. We cannot provide assurance that the patents that we hold or may obtain will provide meaningful protection against our competitors. Changes in or enforcement of laws concerning intellectual property, worldwide, may affect our ability to prevent or address the misappropriation of, or the unauthorized use of, our intellectual property, potentially resulting in loss of market share. Litigation may be necessary to enforce our intellectual property rights. Litigation is inherently uncertain and outcomes are often unpredictable. If we cannot protect our intellectual property rights against unauthorized copying or use, or other misappropriation, we may not remain competitive.

The intellectual property rights of others could inhibit our ability to introduce new products. Other companies hold patents on technologies used in our industries and are aggressively seeking to expand, enforce and license their patent portfolios. We periodically receive notices from, or have lawsuits filed against us by third parties claiming infringement, misappropriation or other misuse of their intellectual property rights and/or breach of our agreements with them. These third parties often include entities that do not have the capabilities to design, manufacture, or distribute products or that acquire intellectual property like patents for the sole purpose of monetizing their acquired intellectual property through asserting claims of infringement and misuse. Such claims of infringement or misappropriation may result in loss of revenue, substantial costs, or lead to monetary damages or injunctive relief against us.

Information technology dependency and cyber security vulnerabilities could lead to reduced revenue, liability claims, or competitive harm

The Company is dependent on information technology (“IT”) systems and infrastructure for its business and manufacturing controls . Our IT systems may be vulnerable to disruptions from human error, outdated applications, computer viruses, natural disasters, unauthorized access, cyber-attack and other similar disruptions. Any significant disruption, breakdown, intrusion, interruption or corruption of these systems or data breaches could cause the loss of data, equipment damage, downtime, and/or safety related issues and could have a material adverse effect on our business. Like other global companies, we have, from time to time, experienced incidents related to our IT systems, and expect that such incidents will continue, including malware and computer virus attacks, unauthorized access, systems failures and disruptions. We have measures and defenses in place against unauthorized access, but we may not be able to prevent, immediately detect, or remediate such events. A material breach in the security of our IT systems could include the theft of our intellectual property or trade secrets. Such disruptions or security breaches could result in the theft, unauthorized use or publication of our intellectual property and/or confidential business information, harm our competitive position, disrupt our manufacturing, reduce the value of our investment in research and development and other strategic initiatives, or otherwise adversely affect our business.

Additionally, we believe that utilities and other operators of critical infrastructure that serve our facilities face heightened security risks, including cyber-attack. In the event of such an attack, disruption in service from our utility providers could disrupt our manufacturing operations which rely on a continuous source of power (electrical, gas, etc.).

We may not earn a positive return from our research , development and engineering investments

Developing our products through our innovation model of research and development is expensive and often involves a long investment cycle. We make significant expenditures and investments in research and development and four process engineering platforms that may earn an economic return . If our investments do not provide a pipeline of new technologies that our customers demand or lower cost manufacturing platforms, it could negatively impact our revenues and operating margins both near- and long-term.

We have significant exposure to foreign currency movements

A large portion of our sales, profit and cash flows are transacted in non-U.S. dollar currencies and we expect that we will continue to realize gains or losses with respect to these exposures. We will experience foreign currency gains and losses in certain instances if it is not possible or cost effective to hedge our currency exposures or should we elect not to hedge certain currency exposures. Alternatively, we may experience gains or losses if the underlying exposure which we have hedged change (increases or decreases) and we are unable to reverse, unwind, or terminate the hedges concurrent with the change in the underlying notional exposure.

Our ultimate realized loss or gain with respect to currency fluctuations will generally depend on the size and type of cross-currency exposures that we have, the exchange rates associated with these exposures and changes in those rates, whether we have entered into foreign currency contracts to offset these exposures and other factors. Our hedge portfolio may reduce our flexibility to respond to price moves by our Display Technologies segment competitors.

Foreign currency movements may also impact our competitive cost position relative to our largest, Japan-based competitors in the Display Technologies segment. The profitability of customers may also be impacted as they typically purchase from us in Japanese yen and they sell in various currencies.

All of these factors could materially impact our results of operations, anticipated future results, financial position and cash flows, the timing of which is variable and generally outside of our control.

We have significant exposure to counterparties of our related derivatives portfolio

We maintain a significant portfolio of over the counter derivatives to hedge our projected currency exposure to the Japanese yen, New Taiwan dollar, South Korean won, Chinese yuan and euro. We are exposed to potential losses in the event of non-performance by our counterparties to these derivative contracts. Any failure of a counterparty to pay on such a contract when due could materially impact our results of operations, financial position, and cash flows.

If we are unable to obtain certain specialized equipment, raw and batch materials or natural resources required in our products or processes, our business will suffer

Our ability to meet customer demand depends, in part, on our ability to obtain timely and adequate delivery of equipment, parts and components from our suppliers. We may experience shortages that could adversely affect our operations. There can be no assurances that we will not encounter problems in the future. Certain manufacturing equipment and components are available only from single or limited sources, and we may not be able to find alternate sources in a timely manner. A reduction, interruption or delay of supply, or a significant increase in the price for supplies, such as manufacturing equipment, precious metals, raw materials, utilities including energy and industrial water, could have a material adverse effect on our businesses.

We use specialized raw materials from single-source suppliers (e.g., specific mines or quarries) and natural resources (e.g., helium) in certain products and processes. If a supplier is unable to provide the required raw materials or the natural resource is in scarce supply or not readily available, we may be unable to change our product composition or manufacturing process in order to prevent a disruption to our business.

We have incurred, and may in the future incur, goodwill and other intangible asset impairment charges

At December 31, 2017, Corning had goodwill and other intangible assets of approximately \$ 2.6 billion. While we believe the estimates and judgments about future cash flows used in the goodwill impairment tests are reasonable, we cannot provide assurance that additional impairment charges in the future will not be required if the expected cash flow estimates as projected by management do not occur, especially if an economic recession occurs and continues for a lengthy period or becomes severe, or if acquisitions and investments made by the Company fail to achieve expected returns.

Changes in our effective tax rate or tax liability may have an adverse effect on our results of operations

Our effective tax rate could be adversely impacted by several factors, including:

- Changes in the relative amounts of income before taxes in the various jurisdictions in which we operate that have differing statutory tax rates;
- Changes in tax laws, tax treaties and regulations or the interpretation of them, including the recent Tax Cuts and Jobs Act (the “2017 Tax Act”) passed by the U.S. Congress and signed into law on December 22, 2017;
- Changes to our assessment about the realizability of our deferred tax assets that are based on estimates of our future results, the prudence and feasibility of possible tax planning strategies, and the economic and political environments in which we do business;
- The outcome of current and future tax audits, examinations, or administrative appeals;
- Changes in generally accepted accounting principles that affect the accounting for taxes; and
- Limitations or adverse findings regarding our ability to do business in some jurisdictions.

We may have additional tax liabilities

We are subject to income taxes in the U.S. and many foreign jurisdictions and are commonly audited by various tax authorities. In the ordinary course of our business, there are many transactions and calculations where the ultimate tax determination is uncertain. Significant judgment is required in determining our worldwide provision for income taxes. Although we believe our tax estimates are reasonable, the final determination of tax audits and any related litigation could be materially different from our historical income tax provisions and accruals. The results of an audit or litigation could have a material effect on our financial statements in the period or periods for which that determination is made.

The recent 2017 Tax Act could significantly impact how U.S. global corporations are taxed. We are in the process of evaluating the impact of this new legislation and certain changes could have a material adverse impact on our tax expense and cash flow. Among other things, the 2017 Tax Act requires companies to pay a one-time mandatory tax on unrepatriated earnings of certain foreign subsidiaries that were previously tax deferred (the “toll charge”) and creates new taxes on certain foreign sourced earnings. The toll charge resulted in an additional \$1.1 billion provisional tax expense. However, settlement of the toll charge will occur almost entirely through the use of existing foreign tax credit carryovers of \$1.1 billion.

Our innovation model depends on our ability to attract and retain specialized experts in our core technologies

Our innovation model requires us to employ highly specialized experts in glass science, ceramic science, and optical physics to conduct our research and development and engineer our products and design our manufacturing facilities. The loss of the services of any member of our key research and development or engineering team without adequate replacement, or the inability to attract new qualified personnel, could have a material adverse effect on our operations and financial performance.

We are subject to strict environmental regulations and regulatory changes that could result in fines or restrictions that interrupt our operations

Some of our manufacturing processes generate chemical waste, waste water, other industrial waste or greenhouse gases, and we are subject to numerous laws and regulations relating to the use, storage, discharge and disposal of such substances. We have installed anti-pollution equipment for the treatment of chemical waste and waste water at our facilities. We have taken steps to control the amount of greenhouse gases created by our manufacturing operations. However, we cannot provide assurance that environmental claims will not be brought against us or that government regulators will not take steps to adopt more stringent environmental standards.

Any failure on our part to comply with any present or future environmental regulations could result in the assessment of damages or imposition of fines against us, or the suspension/cessation of production or operations. In addition, environmental regulations could require us to acquire costly equipment, incur other significant compliance expenses or limit or restrict production or operations and thus materially and negatively affect our financial condition and results of operations.

Changes in regulations and the regulatory environment in the U.S. and other countries, such as those resulting from the regulation and impact of global warming and CO₂ abatement, may affect our businesses and their results in adverse ways by, among other things, substantially increasing manufacturing costs, limiting availability of scarce resources, especially energy, or requiring limitations on production and sale of our products or those of our customers.

Current or future litigation or regulatory investigations may harm our financial condition or results of operations

As a global technology and manufacturing company, we are engaged in various litigation and regulatory matters. Litigation and regulatory proceedings may be uncertain, and adverse rulings could occur, resulting in significant liabilities, penalties or damages. Such current or future substantial legal liabilities or regulatory actions could have a material adverse effect on our business, financial condition, cash flows and reputation.

Our global operations are subject to extensive trade and anti-corruption laws and regulations

Due to the international scope of our operations, we are subject to a complex system of import- and export-related laws and regulations, including U.S. regulations issued by Customs and Border Protection, the Bureau of Industry and Security, the Office of Anti - boycott Compliance, the Directorate of Defense Trade Controls and the Office of Foreign Assets Control, as well as the counterparts of these agencies in other countries. Any alleged or actual violation by an employee or the Company may subject us to government scrutiny, investigation and civil and criminal penalties, and may limit our ability to import or export our products or to provide services outside the United States. We cannot predict the nature, scope or effect of future regulatory requirements to which our operations might be subject or the manner in which existing laws might be administered or interpreted.

In addition, the U.S. Foreign Corrupt Practices Act and similar foreign anti-corruption laws generally prohibit companies and their intermediaries from making improper payments or providing anything of value to improperly influence foreign government officials for the purpose of obtaining or retaining business, or obtaining an unfair advantage. Recent years have seen a substantial increase in the global enforcement of anti-corruption laws. Our continued operation and expansion outside the United States, including in developing countries, could increase the risk of alleged violations. Violations of these laws may result in severe criminal or civil sanctions, could disrupt our business, and result in an adverse effect on our reputation, business and results of operations or financial condition.

Moreover, several of our related partners are domiciled in areas of the world with laws, rules and business practices that differ from those in the United States, and we face the reputational and legal risk that our related partners may violate applicable laws, rules and business practices.

International trade policies may negatively impact our ability to sell and manufacture our products outside of the U.S.

Government policies on international trade and investment such as import quotas, tariffs, and capital controls, whether adopted by individual governments or addressed by regional trade blocs, can affect the demand for our products and services, impact the competitive position of our products or prevent us (including our equity affiliates/ joint ventures) from being able to sell and/or manufacture products in certain countries. The implementation of more restrictive trade policies, such as higher tariffs or new barriers to entry, in countries in which we sell large quantities of products and services could negatively impact our business, results of operations and financial condition. For example, a government’s adoption of “buy national” policies or retaliation by another government against such policies could have a negative impact on our results of operations. These policies also affect our equity companies.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Corning operates 105 manufacturing plants and processing facilities in 15 countries, of which approximately 33% are located in the U.S. We own 68% of our executive and corporate buildings of which 77% are located in and around Corning, New York. The Company also owns over 65% of our sales and administrative office square footage, 88 % of our research and development square footage, 74% of our manufacturing square footage, and over 13% of our warehousing square footage.

For the years ended 2017, 2016 and 2015, we invested a total of \$ 4.2 billion, primarily in facilities outside of the U.S. in our Display Technologies segment.

Manufacturing, sales and administrative, and research and development facilities have an aggregate floor space of approximately 39.5 million square feet. Distribution of this total area follows:

(million square feet)	Total	Domestic	Foreign
Manufacturing	32.6	7.6	25.0
Sales and administrative	2.6	1.9	0.7
Research and development	2.2	1.9	0.3
Warehouse	2.1	1.6	0.5
Total	39.5	13.0	26.5

Total assets and capital expenditures by operating segment are included in Note 20 (Reportable Segments) to the Consolidated Financial Statements. Information concerning lease commitments is included in Note 14 (Commitments, Contingencies and Guarantees) to the Consolidated Financial Statements.

Item 3. Legal Proceedings

Environmental Litigation. Corning has been named by the Environmental Protection Agency (the Agency) under the Superfund Act, or by state governments under similar state laws, as a potentially responsible party for 15 active hazardous waste sites. Under the Superfund Act, all parties who may have contributed any waste to a hazardous waste site, identified by the Agency, are jointly and severally liable for the cost of cleanup unless the Agency agrees otherwise. It is Corning’s policy to accrue for its estimated liability related to Superfund sites and other environmental liabilities related to property owned by Corning based on expert analysis and continual monitoring by both internal and external consultants. At December 31, 2017 and December 31, 2016, Corning had accrued approximately \$38 million (undiscounted) and \$ 43 million (undiscounted), respectively, for the estimated liability for environmental cleanup and related litigation. Based upon the information developed to date, management believes that the accrued reserve is a reasonable estimate of the Company’s liability and that the risk of an additional loss in an amount materially higher than that accrued is remote.

Item 4. Mine Safety Disclosure

None.

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

- (a) Corning Incorporated common stock is listed on the New York Stock Exchange. In addition, it is traded on the Boston, Midwest and Philadelphia stock exchanges. Common stock options are traded on the Chicago Board Options Exchange. The ticker symbol for Corning Incorporated is “GLW.”

The following table sets forth the high and low sales price of Corning’s common stock as reported on the New York Stock Exchange Composite Tape.

	First quarter	Second quarter	Third quarter	Fourth quarter
2017				
Price range				
High	\$ 28.36	\$ 30.60	\$ 32.17	\$ 32.82
Low	\$ 24.12	\$ 26.32	\$ 27.71	\$ 29.52
2016				
Price range				
High	\$ 21.07	\$ 21.30	\$ 23.81	\$ 25.35
Low	\$ 16.13	\$ 18.21	\$ 19.78	\$ 22.23

As of December 31, 2017, there were approximately 15,205 registered holders of common stock and approximately 474,059 beneficial shareholders.

On February 3, 2016, Corning’s Board of Directors declared a 12.5% increase in the Company’s quarterly common stock dividend, which increased the quarterly dividend from \$0.12 to \$0.135 per share of common stock, beginning with the dividend paid in the first quarter of 2016.

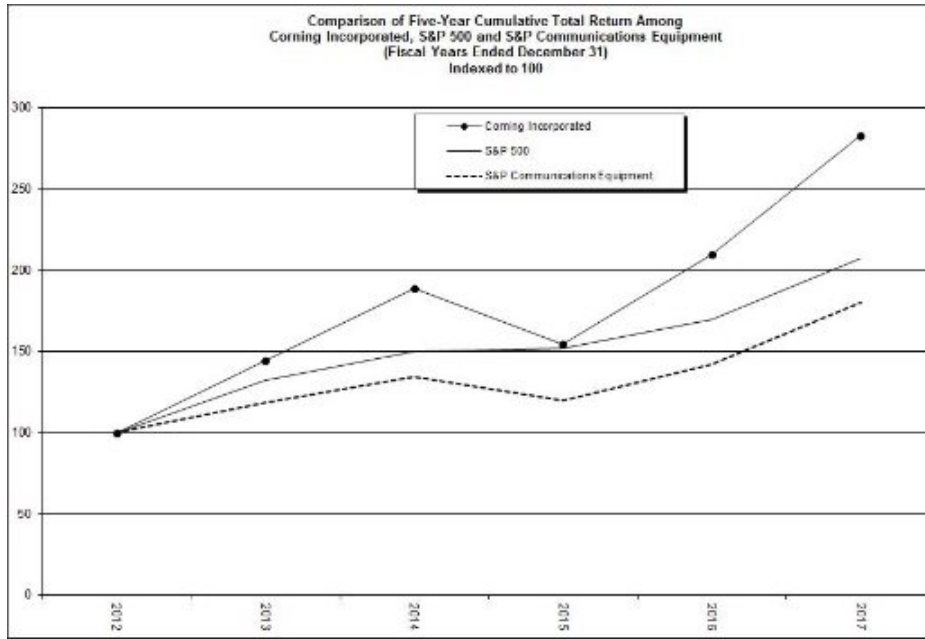
On February 1, 2017, Corning’s Board of Directors declared a 14.8% increase in the Company’s quarterly common stock dividend, which increased the quarterly dividend from \$0.135 to \$0.155 per share of common stock, beginning with the dividend paid in the first quarter of 2017.

On February 6, 2018, Corning’s Board of Directors declared a 16.1% increase in the Company’s quarterly common stock dividend, which increased the quarterly dividend from \$0.155 to \$0.18 per share of common stock, beginning with the dividend paid in the first quarter of 2018. This increase marks the seventh dividend increase since October 2011.

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Performance Graph

The following graph illustrates the cumulative total shareholder return over the last five years of Corning's common stock, the S&P 500 and the S&P Communications Equipment Companies. The graph includes the capital weighted performance results of those companies in the communications equipment company classification that are also included in the S&P 500.



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(b) Not applicable.

(c) The following table provides information about our purchases of our common stock during the fiscal fourth quarter of 2017 :

Issuer Purchases of Equity Securities

Period	Number of shares purchased (2)	Average price paid per share	Number of shares purchased as part of publicly announced plans or programs (1)	Approximate dollar value of shares that may yet be purchased under the plans or programs (1)
October 1-31, 2017				
Open market and shares surrendered for tax withholdings	4,888,629	\$ 30.41	4,866,701	
November 1-30, 2017				
Open market and shares surrendered for tax withholdings	3,971,949	\$ 31.87	3,954,613	
December 1-31, 2017				
Open market and shares surrendered for tax withholdings	3,759,076	\$ 32.27	3,719,863	
Total at December 31, 2017	12,619,654	\$ 31.42	12,541,177	\$ 1,578,548,148

(1) On December 7, 2016, Corning's Board of Directors authorized a share repurchase program with no expiration for the repurchase of up to \$4 billion of common stock (the "2016 Repurchase Program").

(2) This column reflects the following transactions during the fourth quarter of 2017: (i) the deemed surrender to us of 26,639 shares of common stock to satisfy tax withholding obligations in connection with the vesting of employee restricted stock units; (ii) the surrender to us of 51,838 shares of common stock to satisfy tax withholding obligations in connection with the vesting of restricted stock issued to employees; and (iii) the purchase of 12,541,177 shares of common stock under the 2016 Repurchase Program.

Item 6. Selected Financial Data (Unaudited)

(In millions , except per share amounts and number of employees)

	Years ended December 31,				
	2017	2016	2015	2014	2013
Results of operations					
Net sales	\$ 10,116	\$ 9,390	\$ 9,111	\$ 9,715	\$ 7,819
Research, development and engineering expenses	\$ 860	\$ 742	\$ 769	\$ 815	\$ 710
Equity in earnings of affiliated companies	\$ 361	\$ 284	\$ 299	\$ 266	\$ 547
Net (loss) income attributable to Corning Incorporated (1)(2)	\$ (497)	\$ 3,695	\$ 1,339	\$ 2,472	\$ 1,961
(Loss) earnings per common share attributable to Corning Incorporated:					
Basic	\$ (0.66)	\$ 3.53	\$ 1.02	\$ 1.82	\$ 1.35
Diluted	\$ (0.66)	\$ 3.23	\$ 1.00	\$ 1.73	\$ 1.34
Cash dividends declared per common share	\$ 0.62	\$ 0.54	\$ 0.36	\$ 0.52	\$ 0.39
Shares used in computing per share amounts:					
Basic earnings per common share	895	1,020	1,219	1,305	1,452
Diluted earnings per common share	895	1,144	1,343	1,427	1,462
Financial position					
Working capital	\$ 5,618	\$ 6,297	\$ 5,455	\$ 7,914	\$ 7,145
Total assets	\$ 27,494	\$ 27,899	\$ 28,527	\$ 30,041	\$ 28,455
Long-term debt	\$ 4,749	\$ 3,646	\$ 3,890	\$ 3,205	\$ 3,249
Total Corning Incorporated shareholders' equity	\$ 15,698	\$ 17,893	\$ 18,788	\$ 21,579	\$ 21,162
Selected data					
Capital expenditures	\$ 1,804	\$ 1,130	\$ 1,250	\$ 1,076	\$ 1,019
Depreciation and amortization	\$ 1,158	\$ 1,195	\$ 1,184	\$ 1,200	\$ 1,002
Number of employees	46,200	40,700	35,700	34,600	30,400

- (1) Year ended December 31, 2017 includes the impact of the 2017 Tax Act, including a provisional toll charge (\$1.1 billion) and provisional re-measurement of deferred tax balances due to the reduction in Corning's tax rate (\$347 million).
- (2) Year ended December 31, 2016 includes a \$2.7 billion non-taxable gain on the strategic realignment of our ownership interest in Dow Corning.

Reference should be made to the Notes to the Consolidated Financial Statements and Management's Discussion and Analysis of Financial Condition and Results of Operations.

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

Organization of Information

Management's Discussion and Analysis provides a historical and prospective narrative on the Company's financial condition and results of operations. This discussion includes the following sections:

- Overview
- Results of Operations
- Core Performance Measures
- Reportable Segments
- Liquidity and Capital Resources
- Environment
- Critical Accounting Estimates
- New Accounting Standards
- Forward-Looking Statements

OVERVIEW

Strategy and Capital Allocation Framework

In October 2015, Corning announced a strategy and capital allocation framework (the "Framework") that reflects the Company's financial and operational strengths, as well as its ongoing commitment to increasing shareholder value. The Framework outlines our leadership priorities, and articulates the opportunities we see across our businesses. We designed the Framework to create significant value for shareholders by focusing our portfolio and leveraging our financial strength. Under the Framework we target generating \$26 billion to \$30 billion of cash through 2019, returning more than \$12.5 billion to shareholders and investing \$10 billion to extend our leadership positions and deliver growth.

Our probability of success increases as we invest in our world-class capabilities. Corning is concentrating approximately 80% of its research, development and engineering investment and capital spending on a cohesive set of three core technologies, four manufacturing and engineering platforms, and five market-access platforms. This strategy will allow us to quickly apply our talents and repurpose our assets as needed.

Performance against the Framework

Since introducing the Framework, we have distributed \$9 billion to shareholders through share repurchases and dividends, and increased the annual dividend by 16.1% in 2018, 14.8% in 2017 and 12.5% in 2016 as part of our ongoing commitment to return cash to our investors.

We also utilized our financial strength in 2017 to continue our focus on innovation, advancing key programs across our market platforms. Some of our achievements in 2017 included:

- Celebrating a major milestone with the production of our one billionth kilometer of optical fiber. We also continued our technology leadership with the introduction of a new multi-use platform to simplify installation and reduce the costs of deploying 4G and 5G networks.
- Shipping the world's first Gen 10.5 glass. In addition, we captured new opportunities for Corning Iris™ Glass, which is featured in new ultra-slim, ultra-bright lines of monitors.
- Expanding into new Corning® Gorilla® Glass applications and increasing the amount of our glass on mobile electronic devices. Additionally, the superior drop performance of Gorilla Glass 5 has enabled new smartphone designs that feature glass on both the front and back.
- Securing an exclusive global supply agreement for gas particulate filters. We also won new customers for Gorilla Glass for Automotive, which is featured on thirty-five automotive platforms globally.
- Launching Valor™ Glass, a revolutionary new pharmaceutical packaging solution that dramatically reduces particle contamination, breaks, and cracks. As a result, Valor helps protect patients, while increasing manufacturing throughput.

2017 Results

Net sales in the year ended December 31, 2017 were \$10,116 million, an increase of \$726 million, or 8%, when compared to the year ended December 31, 2016. The increase was driven by the Optical Communications and the Specialty Materials segments, up \$540 million and \$279 million, respectively. The Environmental Technologies and Life Sciences segments also increased, up \$74 million and \$40 million, respectively. A decline in net sales of \$241 million in the Display Technologies segment partially offset these increases, driven by price declines of approximately 10%.

For the year ended December 31, 2017, we generated a net loss of \$497 million, or \$ (0.66) per share, compared to net income of \$3,695 million, or \$ 3.23 per share, for 2016. When compared to last year, the \$4.2 billion decrease in net income was due to the following items (amounts presented after tax):

- The absence of a \$2.7 billion non-taxable gain and \$105 million positive tax adjustment on the strategic realignment of our ownership interest in Dow Corning recorded in the second quarter of 2016;
- The impact of the passage of the 2017 Tax Act, including a provisional amount related to the one-time mandatory tax on unrepatriated foreign earnings of \$1.1 billion and a provisional amount related to the remeasurement of U.S. deferred tax assets and liabilities of \$347 million;
- The change in the amounts recorded for tax law changes, valuation allowance adjustments and other discrete tax items in the amount of \$186 million;
- Higher research, development and engineering expenses, driven by the absence of the impact of a 2016 joint development agreement in the Display Technologies segment, as well as higher costs associated with new product launches in the Optical Communications, Specialty Materials and Environmental Technologies segments; and
- A decrease of \$104 million in net income in the Display Technologies segment, primarily driven by price declines of approximately 10%, the absence of a gain of \$24 million recorded in 2016 from the contingent consideration fair value adjustment and the negative impact of movements in the Japanese yen and South Korean won in the amount of \$59 million.

Partially offsetting these events were the following items:

- A decrease in unrealized losses from our translated earnings contracts in the amount of \$162 million;
- Higher net income in the Optical Communications segment, up \$96 million, driven by an 18% increase in net sales;
- Higher net income in the Specialty Materials segment, up \$75 million, driven by a 25% increase in net sales;
- The absence of a charge of \$86 million related to the resolution of an investigation by the U.S. Department of Justice and related costs;
- Higher equity earnings of affiliated companies, driven by an increase of \$90 million in equity earnings from HSG, offset somewhat by the absence of \$76 million in equity earnings from Dow Corning's silicones business. The HSG increase was due to higher volume, which added \$33 million, and an increase of approximately \$78 million in settlements of long-term sales agreements, partially offset by higher restructuring and impairment charges of \$17 million;
- A decrease in restructuring, impairment and other charges, largely due to the absence of charges incurred in 2016 associated with restructuring activity and the disposal of long-lived assets; and
- Lower acquisition-related expenses, down \$48 million, driven by the absence of costs related to the realignment of our equity interests in Dow Corning completed in the second quarter of 2016, offset slightly by several small acquisitions occurring in 2017.

The translation impact of fluctuations in foreign currency exchange rates, including the impact of hedges realized in 2017, did not materially impact Corning's consolidated net income in the year ended December 30, 2017 when compared to the year ended December 31, 2016.

2018 Corporate Outlook

We believe 2018 will be another year of strong growth and investment, consistent with our Strategy and Capital Allocation Framework, and anticipate that core sales will grow to approximately \$11 billion. In our Display Technologies segment, we expect pricing to continue to improve, with year-over-year declines reaching mid-single digits, an important milestone toward our goal of stabilizing returns. We anticipate Corning's LCD glass volume will grow faster than the expected LCD glass market growth of mid-single digits, driven by television screen size growth and the ramp of our Gen 10.5 facility in China. In the Optical Communications segment, we expect sales to increase by about 10%, excluding any contribution from the pending acquisition of 3M's Communications Market Division, driven by strong demand from carrier and enterprise network customers. We expect high-single digit sales growth in our Environmental Technologies segment, driven by continued strength in automotive product sales, on-going improvements in the heavy-duty diesel market and from the commercial launch of gas-particulate filters. We expect growth in the Specialty Materials segment, the rate of which will depend on new model launches and the adoption of our innovations, and anticipate mid-single digit growth in the Life Sciences segment.

RESULTS OF OPERATIONS

Selected highlights from our operations follow (in millions):

	2017	2016	2015	% change	
				17 vs. 16	16 vs. 15
Net sales	\$ 10,116	\$ 9,390	\$ 9,111	8	3
Gross margin	\$ 4,032	\$ 3,746	\$ 3,653	8	3
(gross margin %)	40%	40%	40%		
Selling, general and administrative expenses	\$ 1,467	\$ 1,472	\$ 1,508	0	(2)
(as a % of net sales)	15%	16%	17%		
Research, development and engineering expenses	\$ 860	\$ 742	\$ 769	16	(4)
(as a % of net sales)	9%	8%	8%		
Equity in earnings of affiliated companies	\$ 361	\$ 284	\$ 299	27	(5)
(as a % of net sales)	4%	3%	3%		
Translated earnings contract (loss) gain, net	\$ (121)	\$ (448)	\$ 80	73	*
(as a % of net sales)	(1)%	(5)%	1%		
Gain on realignment of equity investment		2,676		*	*
(as a % of net sales)		28%			
Income before income taxes	\$ 1,657	\$ 3,692	\$ 1,486	(55)	148
(as a % of net sales)	16%	39%	16%		
(Provision) benefit for income taxes	\$ (2,154)	\$ 3	\$ (147)	*	*
(as a % of net sales)	(21)%	0%	(2)%		
Net (loss) income attributable to Corning Incorporated	\$ (497)	\$ 3,695	\$ 1,339	*	176
(as a % of net sales)	(5)%	39%	15%		

* Percent change not meaningful.

Net Sales

The following table presents net sales by reportable segment (in millions) :

	Years ended December 31,			%	%
	2017	2016	2015	Change 17 vs. 16	Change 16 vs. 15
Display Technologies	\$ 2,997	\$ 3,238	\$ 3,086	(7)%	5%
Optical Communications	3,545	3,005	2,980	18%	1%
Environmental Technologies	1,106	1,032	1,053	7%	(2)%
Specialty Materials	1,403	1,124	1,107	25%	2%
Life Sciences	879	839	821	5%	2%
All Other	186	152	64	22%	138%
Total net sales	\$ 10,116	\$ 9,390	\$ 9,111	8%	3%

For the year ended December 31, 2017, net sales increased by \$726 million, or 8%, when compared to the same period in 2016. The primary sales drivers by segment were as follows:

- A decrease of \$241 million in the Display Technologies segment, driven by price declines of approximately 10% and the negative impact from the weakening of the Japanese yen in the amount of \$79 million, partially offset by an increase in volume in the mid-single digits in percentage terms;
- An increase of \$540 million in the Optical Communications segment, due to higher sales of carrier and enterprise network products, up \$446 million and \$94 million, respectively, combined with the absence of production issues related to the implementation of new manufacturing software in the first quarter of 2016 and the impact of several small acquisitions completed in 2017. Strong growth in the North American market drove the increase in carrier network products;
- An increase of \$74 million in the Environmental Technologies segment, driven by higher sales of automotive products, up \$42 million, due to market strength in Europe, China and Asia, and initial commercial sales of gas particulate filters. Diesel product sales increased \$32 million with higher demand for heavy-duty diesel products in North America and Asia;
- An increase of \$279 million in the Specialty Materials segment, driven by strong growth in sales of Corning Gorilla Glass products, combined with an increase of \$42 million in advanced optics products;
- An increase of \$40 million in the Life Sciences segment, driven by higher sales in North America and China; and
- An increase of \$34 million in the All Other segment, driven by an increase in sales in our emerging businesses.

Movements in foreign exchange rates did not materially impact Corning's consolidated net sales in the year ended December 31, 2017, respectively, when compared to the same period in 2016.

For the year ended December 31, 2016, net sales increased by \$279 million, or 3%, when compared to the same period in 2015. The following items drove the increase:

- An increase of \$152 million in the Display Technologies segment, driven by the positive impact from the strengthening of the Japanese yen in the amount of \$370 million and a mid-single digit percentage volume increase, offset somewhat by LCD glass price declines slightly higher than 10%;
- An increase of \$25 million in the Optical Communications segment, driven primarily by an increase of \$76 million in sales of carrier products and the impact of a small acquisition completed in the second quarter of 2016, partially offset by production issues related to the implementation of new manufacturing software, which constrained our ability to manufacture product in the first half of 2016;
- A decrease of \$21 million in the Environmental Technologies segment driven by a decline of \$78 million in sales of diesel products due to the weakening of the North American truck market, offset partially by an increase of \$57 million in sales of light-duty substrates, driven by strength in the North American, European and Chinese markets;
- An increase of \$17 million in the Specialty Materials segment, driven by an increase in sales of Corning Gorilla Glass 5 and advanced optics products;
- An increase of \$18 million in the Life Sciences segment, driven by volume growth in Europe, North America and China; and
- An increase of \$88 million in the All Other segment, driven primarily by our glass tubing business acquired in the fourth quarter of 2015.

In the year ended December 31, 2016, the translation impact of fluctuations in foreign currency exchange rates, primarily the Japanese yen, positively affected Corning's consolidated net sales in the amount of \$330 million when compared to the same period in 2015.

In 2017, 2016 and 2015, sales in international markets accounted for 69%, 72% and 70%, respectively, of total net sales.

Cost of Sales

The types of expenses included in the cost of sales line item are: raw materials consumption, including direct and indirect materials; salaries, wages and benefits; depreciation and amortization; production utilities; production-related purchasing; warehousing (including receiving and inspection); repairs and maintenance; inter-location inventory transfer costs; production and warehousing facility property insurance; rent for production facilities; and other production overhead.

Gross Margin

In the year ended December 31, 2017, gross margin dollars increased by \$286 million, or 8%, and gross margin as a percentage of net sales remained consistent at 40%, when compared to the same period last year. The increase in gross margin dollars was primarily driven by the following items:

- Higher volume in the Optical Communications segment, driven by growth in North America and Europe, partially offset by higher manufacturing expenses related to capacity expansion;
- An increase in Gorilla Glass and advanced optics product volume, slightly offset by higher raw materials costs; and
- Higher light-duty substrate demand in Europe, China and Asia, offset somewhat by lower North America demand, as well as an increase in demand for heavy-duty diesel products in North America and Asia. Partially offsetting the increase in demand was a decline in manufacturing efficiency due to the use of higher-cost manufacturing facilities and sales of lower margin products.

LCD glass price declines of approximately 10% and the negative impact of movements in the Japanese yen and South Korean won in the amount of \$73 million, which primarily impacted the Display Technologies segment, partially offset the increase.

In the year ended December 31, 2016, gross margin dollars increased \$93 million, and gross margin as a percentage of net sales remained consistent at 40% when compared to the same period last year. The increase in gross margin dollars was primarily driven by the positive impact from the strengthening of the Japanese yen in the amount of \$266 million, an increase in manufacturing efficiency and cost reductions in our Display Technologies and Optical Communications segments which added approximately \$160 million, a more favorable mix of products sold in the Optical Communications segment and an increase in volume in the mid-single digit percentage in the Display Technologies segment. Display Technologies segment price declines slightly above 10% partially offset the increase.

Selling, General and Administrative Expenses

When compared to the year ended December 31, 2016, selling, general and administrative expenses decreased by \$5 million in the year ended December 31, 2017. The decrease was due to the following items:

- A decrease of \$52 million in acquisition-related costs, driven by the absence of costs related to the realignment of our equity interests in Dow Corning completed in the second quarter of 2016, offset slightly by several small acquisitions occurring in 2017;
- A decrease of \$64 million in litigation, regulatory and other legal costs, primarily driven by the absence of events occurring in the second quarter of 2016. In this period, we recorded litigation and other expenses related to the resolution of an investigation by the U.S. Department of Justice and an environmental matter in the amount of \$98 million, offset somewhat by the gain on the contribution of our equity interests in PCC and PCE as partial settlement of the asbestos litigation in the amount of \$56 million; and
- A decrease of \$46 million in the mark-to-market of our defined benefit pension plans.

Offsetting these events were the following items:

- A decrease of \$32 million in gains from the contingent consideration fair value adjustment;
- An increase of \$51 million in the Optical Communications segment due to costs associated with acquisitions and growth initiatives; and
- An increase of \$24 million in the Specialty Materials segment in support of new product launches .

In the year ended December 31, 2016, selling, general and administrative expenses decreased by \$36 million when compared to the same period in 2015, driven primarily by the following items:

- A decrease of \$94 million in the loss on the mark-to-market of our defined benefit pension plans;
- The positive impact of the change in the contingent consideration fair value adjustment of \$43 million ; and
- The absence of \$25 million of post-combination expenses incurred in 2015.

Partially offsetting these events were:

- An increase of \$59 million in acquisition-related costs primarily related to the realignment of our equity interest in Dow Corning and an acquisition completed in the second quarter of 2016;
- An increase of \$49 million in litigation, regulatory and other legal costs, driven by the resolution of an investigation by the U.S. Department of Justice and an environmental matter in the amount of \$98 million , partially offset by the gain of \$56 million on the contribution of our equity interests in PCC and PCE as partial settlement of the asbestos litigation; and
- Higher operating expenses in the Optical Communications, Environmental Technologies and Specialty Materials segments.

When compared to the same period in 2015, as a percentage of net sales, selling, general and administrative expenses decreased by 1%.

The types of expenses included in the selling, general and administrative expenses line item are: salaries, wages and benefits; travel; professional fees; and depreciation and amortization, utilities, and rent for administrative facilities.

Research, Development and Engineering Expenses

In the year ended December 31, 2017, research, development and engineering expenses increased by \$118 million , or 16%, when compared to the same period last year, driven by the absence of the impact of a 2016 joint development agreement in the Display Technologies segment, as well as higher costs associated with new product launches in the Optical Communications, Specialty Materials and Environmental Technologies segments, up \$20 million , \$11 million and \$ 7 million , respectively. As a percentage of sales, these expenses increased one percent when compared to the same period last year.

In the year ended December 31, 2016, research, development and engineering expenses declined \$27 million when compared to the same period in 2015 driven by the impact of a joint development agreement with a Display Technologies customer, offset partially by project development spending in the Optical Communications, Environmental Technologies and Specialty Materials segments. As a percentage of net sales, research, development and engineering expenses remained consistent with the same period in 2015.

Restructuring, Impairment, and Other Charges

Corning recorded restructuring, impairment, and other charges and credits in 2016 and 2015 . Additional information on restructuring and asset impairment is found in Note 2 (Restructuring, Impairment and Other Charges) to the Consolidated Financial Statements. A description of those charges and credits follows:

2017 Activity

For the year ended December 31, 2017 , we did not record significant restructuring, impairment and other charges or reversals. Cash expenditures for restructuring activities were \$4 million .

2016 Activity

For the year ended December 31, 2016, we recorded charges of \$77 million for employee related costs, asset disposals, and exit costs associated with restructuring activities with total cash expenditures of approximately \$12 million .

2015 Activity

For the year ended December 31, 2015, we did not record significant restructuring, impairment and other charges or reversals. Cash expenditures for restructuring activities were \$40 million.

Equity in Earnings of Affiliated Companies

The following provides a summary of equity earnings of affiliated companies (in millions):

	Years ended December 31,		
	2017	2016	2015
Dow Corning Corporation (1)		\$ 82	\$ 281
Hemlock Semiconductor Group (2)	\$ 352	212	
All other	9	(10)	18
Total equity earnings	\$ 361	\$ 284	\$ 299

- (1) Results include equity earnings for Dow Corning, which includes the silicones business and Hemlock Semiconductor business, through May 31, 2016, the date of the realignment of our ownership interest in Dow Corning.
- (2) Results include equity earnings for Hemlock Semiconductor Group beginning on June 1, 2016.

On May 31, 2016, Corning completed the strategic realignment of its equity investment in Dow Corning Corporation (“Dow Corning”) pursuant to the Transaction Agreement announced on December 10, 2015. Under the terms of the Transaction Agreement, Corning exchanged with Dow Corning its 50% stock interest in Dow Corning for 100% of the stock of a newly formed entity, which holds an equity interest in Hemlock Semiconductor Group and approximately \$4.8 billion in cash.

The equity in earnings line on our income statement for the year ended December 31, 2016 reflects both the equity earnings from the silicones and polysilicones (Hemlock Semiconductor) businesses of Dow Corning from January 1, 2016 through May 31, 2016, the closing date of the Transaction Agreement, and seven months of equity earnings from Hemlock Semiconductor Group. Prior to the realignment of Dow Corning, equity earnings from the Hemlock Semiconductor business were reported on the equity in earnings line in Corning’s income statement, net of Dow Corning’s 35% U.S. tax. Additionally, Corning reported its tax on equity earnings from Dow Corning on the tax provision line on its income statement at a U.S. tax provision rate of 7%. As part of the realignment, Hemlock Semiconductor Group was converted to a partnership. Each of the partners is responsible for the taxes on their portion of equity earnings. Therefore, post-realignment, Hemlock Semiconductor Group’s equity earnings is reported before tax on the equity in earnings line and Corning’s tax is reported on the tax provision line.

Refer to Note 14 (Commitments, Contingencies and Guarantees) to the consolidated financial statements for additional information.

Translated earnings contracts

Included in the line item Translated earnings contract (loss) gain, net, is the impact of foreign currency hedges which hedge our translation exposure arising from movements in the Japanese yen, South Korean won, euro, New Taiwan dollar and Chinese yuan against the U.S. dollar and its impact on our net (loss) income. The following table provides detailed information on the impact of our translated earnings contract losses and gains:

	Year ended December 31, 2017		Year ended December 31, 2016		Change 2017 vs. 2016	
	Income before income taxes	Net income	Income before income taxes	Net income	Income before income taxes	Net income
(in millions)						
Hedges related to translated earnings:						
Realized gain, net	\$ 270	\$ 169	\$ 201	\$ 127	\$ 69	\$ 42
Unrealized (loss) gain	(391)	(247)	(649)	(409)	258	162
Total translated earnings contract (loss) gain	\$ (121)	\$ (78)	\$ (448)	\$ (282)	\$ 327	\$ 204

	Year ended December 31, 2016		Year ended December 31, 2015		Change 2016 vs. 2015	
	Income before income taxes	Net income	Income before income taxes	Net income	Income before income taxes	Net income
(in millions)						
Hedges related to translated earnings:						
Realized gain, net	\$ 201	\$ 127	\$ 653	\$ 410	\$ (452)	\$ (283)
Unrealized (loss) gain	(649)	(409)	(573)	(362)	(76)	(47)
Total translated earnings contract gain (loss)	\$ (448)	\$ (282)	\$ 80	\$ 48	\$ (528)	\$ (330)

The gross notional value outstanding for our translated earnings contracts at December 31, 2017, 2016 and 2015 were as follows (in billions):

	Years ended December 31,		
	2017	2016	2015
Japanese yen-denominated hedges	\$ 13.0	\$ 14.9	\$ 8.3
South Korean won-denominated hedges	0.8	1.2	3.3
Euro-denominated hedges	0.3	0.3	0.3
Chinese yuan-denominated hedges	0.2	0.3	
Total gross notional value outstanding	\$ 14.3	\$ 16.7	\$ 11.9

Income Before Income Taxes

The translation impact of fluctuations in foreign currency exchange rates, including the impact of hedges realized in 2017, did not impact Corning's income before income taxes in the year ended December 31, 2017 when compared to the same period in 2016.

The translation impact of fluctuations in foreign currency exchange rates positively affected Corning's income before income taxes in the year ended December 31, 2016 in the amount of \$304 million when compared to 2015. This impact was partially offset by the decrease in the realized gain from our foreign currency translation hedges related to translated earnings of \$452 million.

(Provision) Benefit for Income Taxes

Our (provision) benefit for income taxes and the related effective income tax rates were as follows (dollars in millions):

	Years ended December 31,		
	2017	2016	2015
(Provision) benefit for income taxes	\$ (2,154)	\$ 3	\$ (147)
Effective tax rate (benefit)	130%	(0.1)%	9.9%

For the year ended December 31, 2017, the effective income tax rate differed from the U.S. statutory rate of 35% primarily due to the following benefits:

- As a result of the 2017 Tax Act, a provisional tax expense of \$1.1 billion for the one-time mandatory tax on uprepatriated earnings of certain foreign subsidiaries that were previously deferred (the "toll charge");
- The result of a provisional tax expense recorded for the U.S. deferred tax assets and liabilities re-measured at the reduced rate of 21%; and
- Rate differences on income (loss) of consolidated foreign companies.

The effective income tax rate for 2016 differed from the U.S. statutory rate of 35% primarily due to the following items:

- Rate differences on income (loss) of consolidated foreign companies, including the benefit of excess foreign tax credits resulting from the inclusion of foreign earnings in U.S. income; and
- The tax-free nature of the realignment of our equity interest in Dow Corning during the period, as well as the release of the deferred tax liability related to Corning's tax on Dow Corning's undistributed earnings as of the date of the transaction.

Corning's results for the year ending December 31, 2017 included a total \$2.2 billion worldwide tax provision, inclusive of tax on normal operations and the impacts of the 2017 Tax Act. Given the significant complexity of the 2017 Tax Act and anticipated future guidance from the U.S. Treasury, the Securities and Exchange Commission and the Financial Accounting Standards Board ("FASB") related to the 2017 Tax Act, the Securities Exchange Commission has issued its Staff Accounting Bulletin 118 ("SAB 118") to provide registrants additional time to analyze and report the effects of tax reform during the "measurement period". Under SAB 118, the registrant is required to record those items where ASC 740 analysis is complete; include reasonable estimates and label them as provisional where ASC 740 analysis is incomplete; and if reasonable estimates cannot be made, record items under the previous tax law. The measurement period ends on the date the entity has obtained, prepared, and analyzed the information that was needed in order to complete the accounting requirements under ASC Topic 740 and is not to exceed 1 year.

In addition to SAB 118, the FASB has issued guidance regarding how to account for tax reform as well as a proposal to reclassify stranded tax costs from AOCI to retained earnings. Furthermore, to date, the U.S. Treasury has issued Notice 2018-07 on December 29, 2017 and Notice 2018-13 on January 19, 2018 with additional guidance on how to compute the toll charges.

At December 31, 2017, we have not completed our accounting for the tax effects of the enactment of the 2017 Tax Act; however, we have made a reasonable estimate of the effects on our U.S. deferred tax balances in the amount of \$347 million, the one-time toll charge of \$1.1 billion and the impact on our state valuation allowances and recorded these as provisional amounts. The initial accounting is incomplete as we need additional time and information to analyze all aspects of the newly enacted law and how it impacts our worldwide operations. The additional information that needs to be obtained, prepared or analyzed in order to complete the accounting requirements includes receiving further guidance from the tax authorities; additional time to prepare basis calculations; post-enactment impacts, and further time to validate our assumptions.

We re-measured the U.S. deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future, which is generally 21%. However, we are still analyzing certain aspects of the 2017 Tax Act and refining our calculations, which could potentially affect the measurement of these balances or potentially give rise to new deferred tax amounts. The provisional amount recorded related to the re-measurement of our deferred tax balances was \$347 million.

The one-time toll charge is based on our unrepatriated earnings of certain foreign subsidiaries that were previously deferred. This charge resulted in an additional provisional tax expense amount of \$1.1 billion. We have not yet completed our calculation of the toll charge. This amount may change when we finalize the calculation of unrepatriated earnings that were previously deferred from U.S. federal taxation and finalize the amounts held in cash or other specified assets. Settlement of the toll charge will occur almost entirely through the use of existing foreign tax credit carryovers.

Corning has not made sufficient progress on estimating the impact of tax reform on its assertion regarding its indefinitely reinvested foreign earnings so the Company will continue to follow its historic position while it continues to analyze this issue. As of December 31, 2017, Corning estimates that its unremitted foreign earnings were \$16.9 billion. While Corning is not changing its assertion at this time, the Company has distributed approximately \$2 billion in January 2018 from two of its foreign subsidiaries to the U.S. parent of those subsidiaries. There are no incremental taxes beyond the toll charge due with respect to this distribution of cash.

Under its historic policy, Corning will continue to indefinitely reinvest substantially all of its foreign earnings, with the exception of an immaterial amount of current earnings that have very low or no tax cost associated with their repatriation. Our current analysis indicates that we have sufficient U.S. liquidity, including borrowing capacity, to fund foreseeable U.S. cash needs without requiring the repatriation of foreign cash.

Corning's accounting for the impact of the global intangible low-taxed income (GILTI) provisions of the 2017 Tax Act is incomplete and, as a result, it has not yet elected a policy to account for the GILTI provisions.

We will continue to monitor future guidance and to assess the impacts of the 2017 Tax Act.

It is reasonably possible that the amount of unrecognized tax benefits will change due to one or more of the following events during the next twelve months: audit activity, tax payments, or final decisions in matters that are the subject of controversy in various jurisdictions within which we operate. We believe we have provided adequate contingent reserves for these events. However, if upon conclusion of these matters, the ultimate determination of taxes owed is for an amount materially different than our current reserves, our overall tax expense and effective tax rate could be materially impacted in the period of adjustment.

Refer to Note 6 (Income Taxes) to the Consolidated Financial Statements for further details regarding income tax matters.

Net (Loss) Income Attributable to Corning Incorporated

As a result of the items discussed above, net (loss) income and per share data was as follows (in millions, except per share amounts):

	Years ended December 31,		
	2017	2016	2015
Net (loss) income attributable to Corning Incorporated	\$ (497)	\$ 3,695	\$ 1,339
Net (loss) income attributable to Corning Incorporated used in basic earnings per common share calculation (1)	\$ (595)	\$ 3,597	\$ 1,241
Net (loss) income attributable to Corning Incorporated used in diluted earnings per common share calculation (1)	\$ (595)	\$ 3,695	\$ 1,339
Basic (loss) earnings per common share	\$ (0.66)	\$ 3.53	\$ 1.02
Diluted (loss) earnings per common share	\$ (0.66)	\$ 3.23	\$ 1.00
Weighted-average common shares outstanding - basic	895	1,020	1,219
Weighted-average common shares outstanding - diluted	895	1,144	1,343

(1) Refer to Note 18 (Earnings per Common Share) to the Consolidated Financial Statements for additional information.

Comprehensive Income

(In millions)	Years ended December 31,		
	2017	2016	2015
Net (loss) income attributable to Corning Incorporated	\$ (497)	\$ 3,695	\$ 1,339
Foreign currency translation adjustments and other	746	(104)	(590)
Net unrealized gains (losses) on investments	14	(3)	1
Unamortized gains (losses) and prior service credits (costs) for postretirement benefit plans	30	241	121
Net unrealized gains (losses) on designated hedges	44	1	(36)
Other comprehensive income (loss), net of tax	834	135	(504)
Comprehensive income attributable to Corning Incorporated	\$ 337	\$ 3,830	\$ 835

2017 vs. 2016

For the year ended December 31, 2017, comprehensive income decreased by \$3.5 billion, when compared to the same period in 2016, driven by a decrease in net income of \$4.2 billion and a decrease in unamortized actuarial gains for postretirement benefit plans. The significant decrease in net income was largely driven by the absence of a \$2.7 billion non-taxable gain and a \$105 million positive tax adjustment on the strategic realignment of our ownership interest in Dow Corning recorded in the second quarter of 2016, combined with the impact of the passage of the 2017 Tax Act, which included a provisional toll charge of \$1.1 billion and a provisional charge of \$347 million as a result of the remeasurement of U.S. deferred tax assets and liabilities. Our unamortized actuarial gains decreased driven by a decrease in the discount rates used to value our postretirement benefit obligations.

Partially offsetting these decreases was an increase in the gain on foreign currency translation adjustments in the amount of \$850 million (after-tax), largely driven by the weakening of foreign currencies, most significantly the South Korean won, Japanese

yen and the euro, which impacted comprehensive income in the amounts of \$420 million, \$164 million and \$115 million, respectively.

2016 vs. 2015

For the year ended December 31, 2016, comprehensive income increased by \$2,995 million when compared to the same period in 2015, driven by an increase of \$2,356 million in net income, the positive impact of the change in foreign currency translation adjustments and an increase in unamortized actuarial gains for postretirement benefit plans.

The decrease in the loss on foreign currency translation adjustments for the year ended December 31, 2016 in the amount of \$486 million (after-tax) was driven by the following items: 1) the decrease in the loss on the translation of Corning's consolidated subsidiaries in the amount of \$398 million, largely driven by the strengthening of the Japanese yen; and 2) the decrease in the loss in the translation of Corning's equity method investments in the amount of \$88 million, driven by the realignment of our ownership interests in Dow Corning.

The increase in unamortized actuarial gains for postretirement benefit plans in the amount of \$120 million (after-tax) is due to the following: 1) the decrease of \$65 million related to the reclassification of actuarial gains to the income statement, largely due to higher pension asset returns; 2) an increase in actuarial losses of \$3 million; and 3) a decrease of \$188 million in unamortized losses related to our equity companies. The significant change was driven by the release of Dow Corning's unamortized actuarial loss, which was included in the gain on the realignment of our ownership interests in Dow Corning.

See Note 13 (Employee Retirement Plans) and Note 17 (Shareholders' Equity) to the Consolidated Financial Statements for additional details.

CORE PERFORMANCE MEASURES

In managing the Company and assessing our financial performance, we supplement certain measures provided by our consolidated financial statements with measures adjusted to exclude certain items, to arrive at core performance measures. We believe that reporting core performance measures provides investors greater transparency to the information used by our management team to make financial and operational decisions. Corning has adopted the use of constant currency reporting for the Japanese yen and South Korean won, and uses an internally derived yen-to-dollar management rate of ¥99 and won-to-dollar management rate of ₩1,100. The Company believes that the use of constant currency reporting allows investors to understand our results without the volatility of currency fluctuations, and reflects the underlying economics of the translated earnings contracts used to mitigate the impact of changes in currency exchange rates on our earnings and cash flows.

Net sales, equity in earnings of affiliated companies and net income are adjusted to exclude the impacts of changes in the Japanese yen and the South Korean won, gains and losses on our translated earnings contracts, acquisition-related costs, certain discrete tax items, restructuring and restructuring-related charges, certain litigation-related expenses, pension mark-to-market adjustments and other items which do not reflect on-going operating results of the Company or our equity affiliates. Management's discussion and analysis on our reportable segments has also been adjusted for these items, as appropriate. These measures are not prepared in accordance with Generally Accepted Accounting Principles in the United States ("GAAP"). We believe investors should consider these non-GAAP measures in evaluating our results as they are more indicative of our core operating performance and how management evaluates our operational results and trends. These measures are not, and should not be viewed as a substitute for GAAP reporting measures. With respect to the Company's outlooks for future periods, it is not able to provide reconciliations for these non-GAAP measures because the Company does not forecast the movement of the Japanese yen and South Korean won against the U.S. dollar, or other items that do not reflect ongoing operations, nor does it forecast items that have not yet occurred or are out of the Company's control. As a result, the Company is unable to provide outlook information on a GAAP basis.

See "Use of Non-GAAP Financial Measures" for details on core performance measures. For a reconciliation of non-GAAP performance measures to their most directly comparable GAAP financial measure, please see "Reconciliation of Non-GAAP Measures" below.

RESULTS OF OPERATIONS – CORE PERFORMANCE MEASURES

Selected highlights from our operations follow (in millions):

	2017	2016	2015	% change	
				17 vs. 16	16 vs. 15
Core net sales	\$ 10,514	\$ 9,710	\$ 9,800	8%	(1)%
Core equity in earnings of affiliated companies	\$ 212	\$ 250	\$ 269	(15)%	(7)%
Core earnings	\$ 1,756	\$ 1,774	\$ 1,882	(1)%	(6)%

Core Net Sales

The following table presents core net sales by reportable segment (in millions):

	Years ended December 31,			% Change	
	2017	2016	2015	17 vs. 16	16 vs. 15
Display Technologies	\$ 3,394	\$ 3,556	\$ 3,774	(5)%	(6)%
Optical Communications	3,545	3,005	2,980	18%	1%
Environmental Technologies	1,106	1,032	1,053	7%	(2)%
Specialty Materials	1,403	1,124	1,107	25%	2%
Life Sciences	879	839	821	5%	2%
All Other	187	154	65	21%	137%
Total core net sales	\$ 10,514	\$ 9,710	\$ 9,800	8%	(1)%

In all segments except Display Technologies, core net sales are consistent with GAAP net sales. Because a significant portion of revenues in the Display Technologies segment are denominated in Japanese yen, this segment's net sales are adjusted to remove the impact of translating yen into dollars. As of January 1, 2015, we use an internally derived management rate of ¥99, which is closely aligned to our current yen-denominated hedges related to translated earnings.

Core net sales increased by \$ 804 million, or 8%, in the year ended December 31, 2017 when compared to the same period in 2016, driven by increases in the Optical Communications and Specialty Materials segments. Lower core net sales in the Display Technologies segment partially offset the increase, down \$162 million, or 5%, driven by LCD glass price declines of approximately 10%, partially offset by an increase in volume in the mid-single digits in percentage terms.

Core net sales decreased by \$90 million in the year ended December 31, 2016 when compared to the same period in 2015. Core net sales in the Display Technologies segment decreased by \$218 million, or 6%, in the year ended December 31, 2016, driven by LCD glass price declines slightly higher than 10%, partially offset by an increase in volume of a mid-single digit percentage.

The translation impact from movements in foreign currency exchange rates, excluding the Japanese yen and South Korean won, in the year ended December 31, 2017 positively impacted core net sales in the amount of \$ 12 million, and in the year ended December 31, 2016, negatively impacted core net sales in the amount of \$ 39 million.

Core Equity in Earnings of Affiliated Companies

The following provides a summary of core equity in earnings of affiliated companies (in millions):

	2017	2016	2015	% change	
				17 vs. 16	16 vs. 15
Dow Corning Corporation (1)		\$ 98	\$ 245	(100)%	(60)%
Hemlock Semiconductor Group (2)	\$ 201	154			
All other	11	(2)	24	650%	(108)%
Total core equity earnings	\$ 212	\$ 250	\$ 269	(15)%	(7)%

(1) Results include equity earnings for Dow Corning, which includes the silicones business and Hemlock Semiconductor business, through May 31, 2016, the date of the realignment of our ownership interest in Dow Corning.

(2) Results include equity earnings for Hemlock Semiconductor Group beginning on June 1, 2016.

Core Earnings**2017 vs. 2016**

In the year ended December 31, 2017, we generated core earnings of \$1,756 million or \$1.72 per share, compared to core earnings generated in the year ended December 31, 2016 of \$1,774 million, or \$1.55 per share. The decrease in core earnings of \$18 million was driven by the following items:

- The absence of equity earnings of \$102 million from Dow Corning's silicones business due to our 2016 realignment of our ownership interest in Dow Corning;
- A decrease of \$62 million in the Display Technologies segment, driven by LCD glass price declines of approximately 10%, partially offset by an increase in volume in the mid-single digits in percentage terms;
- An increase in corporate project expenses and variable compensation of \$29 million and \$25 million, respectively.

The decline was offset by an increase in core earnings in the Optical Communications segment of \$99 million, due to higher sales of carrier and enterprise network products, combined with the absence of the production issues in the first half of 2016 related to the implementation of new software and an increase in the Specialty Materials segment of \$61 million, driven by an increase in Corning Gorilla Glass and advanced optics products.

Although core net earnings decreased in the year ended December 31, 2017, core earnings per share increased \$0.17 per share, driven by lower weighted average shares outstanding due to repurchases of our common stock in 2017.

2016 vs. 2015

In the year ended December 31, 2016, we generated core earnings of \$1,774 million, or \$1.55 per share, compared to \$1,882 million, or \$1.40 per share, in the year ended December 31, 2015. The decrease was due to declines in the Display Technologies and Environmental Technologies segments. Slightly offsetting the decline was higher core earnings in the Optical Communications segment, up \$16 million, driven by higher sales volume in carrier network products, the favorable translation impact from movements in foreign currency exchange rates, excluding the Japanese yen and South Korean won, of \$13 million and manufacturing efficiencies gained through cost reductions.

Included in core earnings for the years ended December 31, 2017, 2016 and 2015 is net periodic pension expense in the amount of \$49 million, \$51 million and \$62 million, respectively, which excludes the annual pension mark-to-market adjustments. In the years ended December 31, 2017, 2016 and 2015, the mark-to-market adjustments were a pre-tax loss of \$21 million, \$67 million and \$165 million, respectively. Refer to Note 13 (Employee Retirement Plans) to the Consolidated Financial Statements for additional information.

Core Earnings per Common Share

The following table sets forth the computation of core basic and core diluted earnings per common share (in millions, except per share amounts):

	2017	2016	2015
Core earnings attributable to Corning Incorporated	\$ 1,756	\$ 1,774	\$ 1,882
Less: Series A convertible preferred stock dividend	98	98	98
Core earnings available to common stockholders - basic	1,658	1,676	1,784
Add: Series A convertible preferred stock dividend	98	98	98
Core earnings available to common stockholders - diluted	\$ 1,756	\$ 1,774	\$ 1,882
Weighted-average common shares outstanding - basic	895	1,020	1,219
Effect of dilutive securities:			
Stock options and other dilutive securities	11	9	9
Series A convertible preferred stock	115	115	115
Weighted-average common shares outstanding - diluted	1,021	1,144	1,343
Core basic earnings per common share	\$ 1.85	\$ 1.64	\$ 1.46
Core diluted earnings per common share	\$ 1.72	\$ 1.55	\$ 1.40

Reconciliation of Non-GAAP Measures

We utilize certain financial measures and key performance indicators that are not calculated in accordance with GAAP to assess our financial and operating performance. A non-GAAP financial measure is defined as a numerical measure of a company’s financial performance that (i) excludes amounts, or is subject to adjustments that have the effect of excluding amounts, that are included in the comparable measure calculated and presented in accordance with GAAP in the statement of income or statement of cash flows, or (ii) includes amounts, or is subject to adjustments that have the effect of including amounts, that are excluded from the comparable measure as calculated and presented in accordance with GAAP in the statement of income or statement of cash flows.

Core net sales, core equity in earnings of affiliated companies and core earnings are non-GAAP financial measures utilized by our management to analyze financial performance without the impact of items that are driven by general economic conditions and events that do not reflect the underlying fundamentals and trends in the Company’s operations.

The following tables reconcile our non-GAAP financial measures to their most directly comparable GAAP financial measure (amounts in millions except percentages and per share amounts):

	Year ended December 31, 2017					
	Net Sales	Equity earnings	Income before income taxes	Net (loss) income	Effective tax rate (a)	(Loss) earnings per share
As reported	\$ 10,116	\$ 361	\$ 1,657	\$ (497)	130.0%	\$ (0.66)
Constant-yen (1)	396	3	354	276		0.31
Constant-won (1)	2		(21)	(16)		(0.02)
Translation gain on Japanese yen-denominated debt (2)			(14)	(9)		(0.01)
Translated earnings contract loss (3)			125	78		0.09
Acquisition-related costs (4)			84	59		0.07
Discrete tax items and other tax-related adjustments (5)				127		0.14
Litigation, regulatory and other legal matters (6)			(12)	(9)		(0.01)
Restructuring, impairment and other charges (7)			72	62		0.07
Equity in earnings of affiliated companies (8)		(152)	(152)	(97)		(0.11)
Adjustments related to acquisitions (9)			10	13		0.01
Pension mark-to-market adjustment (10)			22	14		0.02
Adjustments to remove the impacts of the Tax Cuts and Job Act of 2017 (13)				1,755		1.96
Core performance measures	\$ 10,514	\$ 212	\$ 2,125	\$ 1,756	17.4%	\$ 1.72

(a) Based upon statutory tax rates in the specific jurisdiction for each event.

See “Items Excluded from GAAP Measures” below for the descriptions of the footnoted reconciling items.

Year ended December 31, 2016						
	Net sales	Equity earnings	Income before income taxes	Net income	Effective tax rate (a)	Earnings per share
As reported	\$ 9,390	\$ 284	\$ 3,692	\$ 3,695	0%	\$ 3.23
Constant-yen (1)	316	4	300	222		0.19
Constant-won (1)	4	(1)	(47)	(34)		(0.03)
Translated earnings contract loss (3)			448	282		0.25
Acquisition-related costs (4)			127	107		0.09
Discrete tax items and other tax-related adjustments (5)				(27)		(0.02)
Litigation, regulatory and other legal matters (6)			55	70		0.06
Restructuring, impairment and other charges (7)			199	138		0.12
Equity in earnings of affiliated companies (8)		(37)	(37)	(18)		(0.02)
Adjustments related to acquisitions (9)			(49)	(42)		(0.04)
Pension mark-to-market adjustment (10)			67	44		0.04
Gain on realignment of equity investment (11)			(2,676)	(2,676)		(2.34)
Taiwan power outage (12)			17	13		0.01
Core performance measures	\$ 9,710	\$ 250	\$ 2,096	\$ 1,774	15.4%	\$ 1.55

(a) Based upon statutory tax rates in the specific jurisdiction for each event.

See “Items Excluded from GAAP Measures” below for the descriptions of the footnoted reconciling items.

Year ended December 31, 2015						
	Net sales	Equity earnings	Income before income taxes	Net income	Effective tax rate (a)	Earnings per share
As reported	\$ 9,111	\$ 299	\$ 1,486	\$ 1,339	9.9%	\$ 1.00
Constant-yen (1)	687	6	567	423		0.31
Constant-won (1)	2	(2)	(25)	(19)		(0.01)
Translated earnings contract loss (3)			(80)	(48)		(0.04)
Acquisition-related costs (4)			55	36		0.03
Discrete tax items and other tax-related adjustments (5)				36		0.03
Litigation, regulatory and other legal matters (6)			5	3		
Restructuring, impairment and other charges (7)			46	42		0.03
Equity in earnings of affiliated companies (8)		(34)	(34)	(33)		(0.02)
Adjustments related to acquisitions (9)			5	(2)		
Pension mark-to-market adjustment (10)			165	105		0.08
Core performance measures	\$ 9,800	\$ 269	\$ 2,190	\$ 1,882	14.1%	\$ 1.40

(a) Based upon statutory tax rates in the specific jurisdiction for each event.

See “Items Excluded from GAAP Measures” below for the descriptions of the footnoted reconciling items.

Items Excluded from GAAP Measures

Items which we exclude from GAAP measures to arrive at Core performance measures are as follows:

- (1) **Constant-currency adjustments:**
Constant-yen: Because a significant portion of Display Technologies segment revenues and manufacturing costs are denominated in Japanese yen, management believes it is important to understand the impact on core earnings of translating yen into dollars. Presenting results on a constant-yen basis mitigates the translation impact of the Japanese yen, and allows management to evaluate performance period over period, analyze underlying trends in our businesses, and establish operational goals and forecasts. As of January 1, 2015, we used an internally derived management rate of ¥99, which is closely aligned to our current yen portfolio of foreign currency hedges, and have recast all periods presented based on this rate in order to effectively remove the impact of changes in the Japanese yen.
Constant-won: Because a significant portion of Corning Precision Materials' costs are denominated in South Korean won, management believes it is important to understand the impact on core earnings from translating won into dollars. Presenting results on a constant-won basis mitigates the translation impact of the South Korean won, and allows management to evaluate performance period over period, analyze underlying trends in our businesses, and establish operational goals and forecasts without the variability caused by the fluctuations caused by changes in the rate of this currency. We use an internally derived management rate of ₩1,100, which is consistent with historical prior period averages of the won.
- (2) Translation gain on Japanese yen-denominated debt: The gain on the translation of our Yen-denominated debt to U.S. dollars.
- (3) Translated earnings contract loss (gain): We have excluded the impact of the gains and losses of our translated earnings contracts for each period presented.
- (4) Acquisition-related costs: These expenses include intangible amortization, inventory valuation adjustments and external acquisition-related deal costs.
- (5) Discrete tax items and other tax-related adjustments: This represents the removal of discrete adjustments (e.g. changes in judgment about the realizability of certain deferred tax assets) as well as other non-operational tax-related adjustments.
- (6) Litigation, regulatory and other legal matters: Includes amounts related to the Pittsburgh Corning Corporation (PCC) asbestos litigation, significant, non-recurring adjustments to our estimated liability for environmental-related items and other legal matters.
- (7) Restructuring, impairment and other charges: This amount includes restructuring, impairment and other charges, including goodwill impairment charges and other expenses and disposal costs not classified as restructuring expense.
- (8) Equity in earnings of affiliated companies: These adjustments relate to items which do not reflect expected on-going operating results of our affiliated companies, such as restructuring, impairment and other charges and settlements under "take-or-pay" contracts.
- (9) Adjustments related to acquisitions: Includes fair value adjustments to the Corning Precision Materials indemnity asset related to contingent consideration, post-combination expenses and other acquisition and disposal adjustments.
- (10) Pension mark-to-market adjustment: Mark-to-market pension gains and losses, which arise from changes in actuarial assumptions and the difference between actual and expected returns on plan assets and discount rates.
- (11) Gain on realignment of equity investment: Gain recorded upon the completion of the strategic realignment of our ownership interest in Dow Corning.
- (12) Taiwan power outage: Impact of the power outage that temporarily halted production at our Tainan, Taiwan manufacturing location in the second quarter of 2016. The impact includes asset write-offs and charges for facility repairs, offset somewhat by partial reimbursement through our insurance program.
- (13) Adjustments resulting from the 2017 Tax Act: Includes a provisional amount related to the one-time mandatory tax on unrepatriated foreign earnings, a provisional amount related to the remeasurement of U.S. deferred tax assets and liabilities, changes in valuation allowances as a result of the 2017 Tax Act, and adjustments for the elimination of excess foreign tax credit planning.

REPORTABLE SEGMENTS

Our reportable segments are as follows:

- Display Technologies – manufactures glass substrates primarily for flat panel liquid crystal displays.
- Optical Communications – manufactures carrier and enterprise network components for the telecommunications industry.
- Environmental Technologies – manufactures ceramic substrates and filters for automotive and diesel emission control applications.
- Specialty Materials – manufactures products that provide more than 150 material formulations for glass, glass ceramics and fluoride crystals to meet demand for unique customer needs.
- Life Sciences – manufactures glass and plastic labware, equipment, media and reagents enabling workflow solutions for scientific applications.

All other segments that do not meet the quantitative threshold for separate reporting have been grouped as “All Other.” This group is primarily comprised of the results of the pharmaceutical technologies business and new product lines and development projects, as well as certain corporate investments such as Eurokera and Keraglass equity affiliates.

We prepared the financial results for our reportable segments on a basis that is consistent with the manner in which we internally disaggregate financial information to assist in making internal operating decisions. We included the earnings of equity affiliates that are closely associated with our reportable segments in the respective segment’s net income. We have allocated certain common expenses among our reportable segments differently than we would for stand-alone financial information prepared in accordance with GAAP. Our reportable segments include non-GAAP measures which are not prepared in accordance with GAAP. We believe investors should consider these non-GAAP measures in evaluating our results as they are more indicative of our core operating performance and how management evaluates our operational results and trends. These measures are not, and should not be viewed as a substitute for GAAP reporting measures. For a reconciliation of non-GAAP performance measures to their most directly comparable GAAP financial measure, please see “Reconciliation of Non-GAAP Measures” above. Segment net income may not be consistent with measures used by other companies. The accounting policies of our reportable segments are the same as those applied in the consolidated financial statements.

Display Technologies

The following table provides net sales and net income for the Display Technologies segment and reconciles the non-GAAP financial measures for the Display Technologies segment with our financial statements presented in accordance with GAAP (in millions):

(in millions)	Year ended December 31, 2017		Year ended December 31, 2016		Year ended December 31, 2015	
	Sales	Net income	Sales	Net income	Sales	Net income
	As reported	\$ 2,997	\$ 831	\$ 3,238	\$ 935	\$ 3,086
Constant-yen (1)	395	260	316	222	686	419
Constant-won (1)	2	(12)	2	(33)	2	(17)
Translated earnings contract gain (3)		(169)		(127)		(416)
Discrete tax items and other tax-related adjustments (5)		38				
Litigation, regulatory and other legal matters (6)		(9)				
Restructuring, impairment and other charges (7)		13		44		
Adjustments related to acquisitions (9)		(8)		(42)		(10)
Pension mark-to-market adjustment (10)				1		4
Taiwan power outage (12)				6		
Core performance measures	\$ 3,394	\$ 944	\$ 3,556	\$ 1,006	\$ 3,774	\$ 1,075

See “Items Excluded from GAAP Measures” above for the descriptions of the footnoted reconciling items.

As Reported

2017 vs. 2016

Net sales decreased by \$241 million, or 7%, in the year ended December 31, 2017, when compared to the same period in 2016, driven by price declines of approximately 10% and the negative impact from the weakening of the Japanese yen in the amount of \$79 million, partially offset by an increase in volume in the mid-single digits in percentage terms.

Net income decreased by \$104 million, or 11 %, driven by the following items:

- The impact of price declines of approximately 10%;
- The impact of the write-off of a net deferred tax asset of \$38 million;
- A reduction of \$24 million in the gain on the fair value adjustment of the contingent consideration resulting from the acquisition of Corning Precision Materials; and
- An increase of \$40 million in research, development and engineering expenses, primarily driven by the absence of the impact of a 2016 joint development agreement.

The decrease in net income was partially offset by the following items:

- A mid-single digit percentage increase in volume;
- Improvements in manufacturing efficiency, which added \$68 million ;
- A n increase of \$42 million in the realized gain from our yen and won-denominated currency hedges; and
- A decrease in asset write-off expenses of \$31 million.

The translation impact of fluctuations in foreign currency exchange rates negatively impacted Display Technologies net income in the year ended December 31, 2017 in the amount of \$59 million when compared to the same period in 2016. This impact was partially offset by the increase in the realized gain from our translated earnings contracts in the amount of \$42 million.

2016 vs. 2015

Net sales increased by \$152 million, or 5%, in the year ended December 31, 2016 when compared to the same period in 2015, driven by the positive impact from the strengthening of the Japanese yen in the amount of \$370 million and a mid-single digit percentage volume increase driven by growth in television screen size. This increase was partially offset by LCD glass price declines slightly higher than 10%.

Net income decreased by \$160 million, or 15%, in the year ended December 31, 2016 when compared to the same period in 2015. This decrease was driven by the following items:

- The impact of price declines slightly higher than 10%;
- A decrease of \$289 million in the realized gain from our yen and won-denominated currency hedges; and
- An increase of \$44 million in asset write-off expenses.

The decrease in net income was partially offset by the following items:

- A mid-single digit percentage increase in volume;
- An increase of \$35 million in the gain on the fair value adjustment of the contingent consideration resulting from the acquisition of Corning Precision Materials;
- Improvements in manufacturing efficiency; and
- A decline in operating expenses.

The translation impact of fluctuations in foreign currency exchange rates positively impacted Display Technologies net income in the year ended December 31, 2016 in the amount of \$213 million when compared to the same period in 2015. This impact was more than offset by the decrease in the realized gain from our translated earnings contracts in the amount of \$289 million.

Core Performance

2017 vs. 2016

When compared to the same period in 2016, core net sales in the Display Technologies segment decreased by \$162 million, or 5%, in the year ended December 31, 2017, driven by the price declines described above, partially offset by the increase in volume. Core earnings also decreased in this period, down \$62 million, or 6%, driven by price declines, offset somewhat by the increase in volume.

2016 vs. 2015

Core net sales decreased by \$218 million, or 6%, in the year ended December 31, 2016 when compared to the same period in 2015, driven by LCD glass price declines slightly higher than 10%, partially offset by a mid-single digit percentage volume increase. Core earnings also decreased in this period, down \$69 million, or 6%, driven by LCD glass price declines slightly higher than 10%, partially offset by a mid-single digit percentage volume increase, improvements in manufacturing efficiency and a decline in operating expenses.

The Display Technologies segment has a concentrated customer base comprised of LCD panel and color filter makers primarily located in Japan, South Korea, China and Taiwan. In 2017, 2016 and 2015, three customers of the Display Technologies segment, which individually accounted for more than 10% of segment net sales, accounted for a combined 62%, 65% and 62% of total segment sales in those years. Our near-term sales and profitability would be impacted if any of these significant customers were unable to continue to purchase our products.

Corning has invested to expand capacity to meet the projected demand for LCD glass substrates. In 2017, 2016 and 2015, capital spending in this segment was \$795 million, \$464 million and \$594 million, respectively.

Outlook:

For full-year 2018, Corning expects LCD glass market growth to be in the mid-single digit percentages, similar to 2017. The company expects Corning's volume to grow faster than the market as Corning ramps up the world's first Gen 10.5 fab in Hefei, China. We expect LCD glass pricing to continue to improve, with year-over-year declines reaching mid-single digits on a percentage basis, an important milestone toward our goal of stabilizing returns in this segment.

Optical Communications

The following table provides net sales and net income for the Optical Communications segment and reconciles the non-GAAP financial measures for the Optical Communications segment with our financial statements presented in accordance with GAAP (in millions):

(in millions)	Year ended December 31, 2017		Year ended December 31, 2016		Year ended December 31, 2015	
	Sales	Net income	Sales	Net income	Sales	Net income
As reported	\$ 3,545	\$ 341	\$ 3,005	\$ 245	\$ 2,980	\$ 237
Acquisition-related costs (4)		39		23		16
Litigation, regulatory and other legal matters (6)						13
Restructuring, impairment and other charges (7)		14		24		(1)
Adjustments related to acquisitions (9)						16
Pension mark-to-market adjustment (10)		2		5		
Core performance measures	\$ 3,545	\$ 396	\$ 3,005	\$ 297	\$ 2,980	\$ 281

See "Items Excluded from GAAP Measures" above for the descriptions of the footnoted items.

As Reported**2017 vs. 2016**

Net sales increased by \$540 million, or 18%, in the year ended December 31, 2017, when compared to the same period in 2016, due to higher sales of carrier and enterprise network products, combined with the absence of production issues related to the implementation of new manufacturing software in the first half of 2016 and the impact of several small acquisitions completed in the 2017. Strong growth in the North American fiber-to-the-home market drove the increase in carrier network products.

Net income in the year ended December 31, 2017 increased by \$96 million, or 39%, driven by the increase in sales described above and a decrease of \$10 million in restructuring and asset write-off expenses, partially offset by capacity expansion spending and an increase in acquisition-related expenses.

Movements in foreign currency exchange rates did not materially impact net sales or net income in this segment in the year ended December 31, 2017 when compared to the same period in 2016.

2016 vs. 2015

In the year ended December 31, 2016, net sales of the Optical Communications segment increased \$25 million, or 1%, when compared to the same period in 2015, driven by an increase in carrier network sales. The sales increase was driven by fiber-to-the-home products in North America, higher sales of optical fiber and the impact of an acquisition completed in the second quarter of 2016. These increases were partially offset by production issues related to the implementation of new manufacturing software, which constrained our ability to manufacture product in the first half of 2016. Production returned to normal levels at the end of the second quarter. The translation impact from movements in foreign currency exchange rates in 2016 negatively impacted Optical Communications net sales in the amount of \$8 million, when compared to the same period in 2015.

Net income in the Optical Communications segment increased \$8 million, or 3%, in the year ended December 31, 2016 when compared to the same period in 2015. The increase was driven by cost reductions and the continuation of the favorable shift toward sales of our solutions products, partially offset by the impact of the production issues described above, costs incurred related to a small acquisition completed in the second quarter of 2016 and restructuring and asset write-off expenses. Movements in foreign exchange rates positively impacted net income in the amount of \$12 million when compared to 2015.

Core Performance**2017 vs. 2016**

Core earnings increased in the year ended December 31, 2017 by \$99 million, or 33%, driven by the increase in sales described above, partially offset by capacity expansion spending.

2016 vs. 2015

Core earnings increased \$16 million, or 6%, in the year ended December 31, 2016, driven by higher sales of our solutions products and cost reductions, partially offset by the impact of the production issues described above. Movements in foreign exchange rates positively impacted core earnings in the amounts of \$12 million when compared to 2015.

The Optical Communications segment has a concentrated customer base. In the year ended December 31, 2017, one customer that individually accounted for more than 10% of segment net sales, accounted for 19% of total segment net sales. In the year ended December 31, 2016, one customer that individually accounted for more than 10% of segment net sales, accounted for 15% of total segment net sales. In the year ended December 31, 2015, two customers that individually accounted for more than 10% of segment net sales, accounted for 22% of total segment net sales.

Outlook:

Full-year 2018 Optical Communications sales are expected to increase by about 10% year over year, excluding any contribution from the pending acquisition of 3M's Communications Markets Division.

Environmental Technologies

The following table provides net sales and net income for the Environmental Technologies segment and reconciles the non-GAAP financial measures for the Environmental Technologies segment with our financial statements presented in accordance with GAAP (in millions):

(in millions)	Year ended December 31, 2017		Year ended December 31, 2016		Year ended December 31, 2015	
	Sales	Net income	Sales	Net income	Sales	Net income
As reported	\$ 1,106	\$ 127	\$ 1,032	\$ 133	\$ 1,053	\$ 161
Restructuring, impairment and other charges (7)		12		3		
Core performance measures	\$ 1,106	\$ 139	\$ 1,032	\$ 136	\$ 1,053	\$ 161

See "Items Excluded from GAAP Measures" above for the descriptions of the footnoted items.

As Reported

2017 vs. 2016

Net sales increased \$74 million, or 7% in the year ended December 31, 2017. Automotive product sales increased by \$42 million, due to market strength in Europe, China and Asia, and initial commercial sales of gas particulate filters. Diesel product sales increased \$32 million with higher demand for heavy-duty diesel products in North America and Asia.

Net income in the year ended December 31, 2017 decreased by \$6 million, or 5%, driven by expenses in support of new product launches and charges related to the disinvestment of an equity company.

Movements in foreign currency exchange rates did not materially impact net sales or net income in this segment in the year ended December 31, 2017 when compared to the same period in 2016.

2016 vs. 2015

Net sales in the Environmental Technologies segment decreased by \$21 million, or 2%, in the year ended December 31, 2016 when compared to the same period in 2015, driven by a decrease of \$78 million in sales of diesel products due to the weakening of the heavy-duty diesel truck market in North America, offset partially by an increase of \$57 million in light-duty substrates sales, driven by strength in the North American, European and Chinese markets.

Net income decreased by \$28 million, or 17%, driven by lower sales of heavy-duty diesel products and our investment in capacity for our gas particulate filters. Movements in foreign exchange rates versus the U.S. dollar negatively impacted net sales and net income in this segment in the amounts of \$22 million and \$8 million, respectively, in the year ended December 31, 2016, when compared to the same period in 2015.

Core Performance

2017 vs. 2016

In the year ended December 31, 2017, core earnings increased by \$3 million, or 2%, when compared to the same period in 2016, driven by higher volume in both automotive and diesel products, offset by expenses in support of new product launches and a decline in manufacturing efficiency due to the use of higher-cost manufacturing facilities and sales of lower margin products.

2016 vs. 2015

Core earnings decreased by \$25 million, or 16%, in the year ended December 31, 2016, driven by the items impacting our “As Reported” results described above.

The Environmental Technologies segment sells to a concentrated customer base of catalyzer and emission control systems manufacturers, who then sell to automotive and diesel engine manufacturers. Although our sales are to the emission control systems manufacturers, the use of our substrates and filters is generally required by the specifications of the automotive and diesel vehicle or engine manufacturers. For 2017, 2016 and 2015, net sales to three customers, which individually accounted for more than 10% of segment sales, accounted for 81%, 85% and 86%, respectively, of total segment sales. While we are not aware of any significant customer credit issues with our direct customers, our near-term sales and profitability would be impacted if any individual customers were unable to continue to purchase our products.

Outlook:

For 2018, Environmental Technologies sales are expected to increase by a high-single digit percentage.

Specialty Materials

The following table provides net sales and net income for the Specialty Materials segment and reconciles the non-GAAP financial measures for the Specialty Materials segment with our financial statements presented in accordance with GAAP (in millions):

(in millions)	Year ended December 31, 2017		Year ended December 31, 2016		Year ended December 31, 2015	
	Sales	Net income	Sales	Net income	Sales	Net income
As reported	\$ 1,403	\$ 249	\$ 1,124	\$ 174	\$ 1,107	\$ 167
Constant-yen (1)				(1)		(6)
Constant-won (1)		(1)		(2)		(2)
Translated earnings contract gain (3)						5
Restructuring, impairment and other charges (7)		2		15		14
Taiwan power outage (12)				3		
Core performance measures	\$ 1,403	\$ 250	\$ 1,124	\$ 189	\$ 1,107	\$ 178

See “Items Excluded from GAAP Measures” above for the descriptions of the footnoted items.

As Reported**2017 vs. 2016**

Net sales in the Specialty Materials segment increased by \$279 million, or 25%, in the year ended December 31, 2017, when compared to the same period in 2016, driven by an increase in sales of Gorilla Glass products in support of new product launches, combined with an increase in advanced optics products.

Net income in year ended December 31, 2017 increased by \$75 million, or 43%, when compared to the same period in 2016, primarily due to the significant increase in net sales, lower restructuring charges and the absence of the costs associated with a power outage in Taiwan.

Movements in foreign currency exchange rates did not materially impact net sales or net income in this segment in the year ended December 31, 2017 when compared to the same period in 2016.

2016 vs. 2015

Net sales in the Specialty Materials segment increased by \$17 million, or 2%, in the year ended December 31, 2016 when compared to the same period in 2015, driven by an increase in sales of Corning Gorilla Glass 5 and advanced optics products. Although Corning Gorilla Glass sales were lower in the first three quarters of 2016, sales in the fourth quarter of 2016 increased approximately 22% over the same period last year, led by the rapid adoption of Corning Gorilla Glass 5. Net income increased by \$7 million, or 4%, driven by manufacturing cost reductions, higher advanced optics sales and the impact of Gorilla Glass 5, offset slightly by higher research and development costs. Movements in foreign exchange rates did not materially impact net sales and net income in the Specialty Materials segment in the twelve months ended December 31, 2016 when compared to the same period in 2015.

Core Performance**2017 vs. 2016**

Core earnings increased by \$61 million, or 32%, in the year ended December 31, 2017, driven primarily by the increase in sales of Corning Gorilla Glass and advanced optics products, offset slightly by higher selling and administrative costs.

2016 vs. 2015

Core earnings in the twelve months ended December 31, 2016 increased by \$11 million, or 6%, driven primarily by cost reductions and an increase in advanced optics and Gorilla Glass 5 sales, offset slightly by higher research and development costs.

For 2017, 2016 and 2015, three customers of the Specialty Materials segment, which individually accounted for more than 10% of segment sales, accounted for 58%, 56% and 56%, respectively, of total segment sales.

Outlook:

The company expects year-over-year sales growth for Specialty Materials in 2018, with the rate and pace dependent upon customer adoptions.

Life Sciences

The following table provides net sales and net income for the Life Sciences segment and reconciles the non-GAAP financial measures for the Life Sciences segment with our financial statements presented in accordance with GAAP (in millions):

(in millions)	Year ended December 31, 2017		Year ended December 31, 2016		Year ended December 31, 2015	
	Sales	Net income	Sales	Net income	Sales	Net income
As reported	\$ 879	\$ 64	\$ 839	\$ 58	\$ 821	\$ 61
Acquisition-related costs (4)		13		12		12
Restructuring, impairment and other charges (7)		2		7		
Pension mark-to-market adjustment (10)		1				
Core performance measures	\$ 879	\$ 80	\$ 839	\$ 77	\$ 821	\$ 73

See “Items Excluded from GAAP Measures” above for the descriptions of the footnoted items.

As Reported***2017 vs. 2016***

Net sales in the Life Sciences segment increased by \$40 million, or 5%, in the year ended December 31, 2017, when compared to the same period in 2016, driven by strong performance in North America and China, combined with a small acquisition completed in 2017.

Net income increased by \$6 million, or 10%, in the year ended December 31, 2017, driven by an increase in volume and lower asset write-offs and exit costs, offset somewhat by higher raw materials costs. Movements in foreign exchange rates did not materially impact net sales or net income in this period when compared to the same period in the prior year.

2016 vs. 2015

Net sales in the Life Sciences segment increased by \$18 million, or 2%, in the year ended December 31, 2016 when compared to the same period in 2015, driven by volume growth in North America, China and Europe, slightly offset by the impact of movements in foreign exchange rates in the amount of \$11 million. Net income declined by \$3 million, or 5%, driven by asset write-offs and exit costs and the impact of movements in foreign exchange rates of \$7 million, offset slightly by higher volume.

Core Performance***2017 vs. 2016***

In the year ended December 31, 2017, core earnings increased by \$3 million, or 4%, when compared to the same period last year, driven by higher volume, offset somewhat by higher raw materials costs.

2016 vs. 2015

In the year ended December 31, 2016, core earnings increased by \$4 million, or 5%, when compared to the same period last year, with higher volume more than offsetting the negative impact from movements in foreign exchange rates.

For 2017, 2016 and 2015, two customers in the Life Sciences segment, which individually accounted for more than 10% of total segment net sales, collectively accounted for 47%, 46% and 46%, respectively, of total segment sales.

Outlook:

For full-year 2018, sales are expected to grow by a mid-single-digit percentage year over year.

All Other

All other segments that do not meet the quantitative threshold for separate reporting have been grouped as “All Other.” This group is primarily comprised of the results of the pharmaceutical technologies business and new product lines and development projects, as well as certain corporate investments such as Eurokera and Keraglass equity affiliates.

The following table provides net sales and other data for All Other (in millions):

As Reported	2017	2016	2015
Net sales	\$ 186	\$ 152	\$ 64
Research, development and engineering expenses	\$ 211	\$ 191	\$ 186
Net loss	\$ (229)	\$ (240)	\$ (202)

2017 vs. 2016

Net sales of this segment increased by \$3.4 million, or 22%, in the year ended December 31, 2017, respectively, when compared to the same period in 2016, driven by an increase in sales in our emerging businesses. The decrease in the net loss in the year ended December 31, 2017 reflects an increase of \$14 million in equity earnings and the absence of asset write-offs in emerging businesses recorded in the first quarter of 2016.

2016 vs. 2015

The increase in net sales of this segment in the year ended December 31, 2016 reflects the impact of an acquisition in the pharmaceutical technologies business completed in the fourth quarter of 2015 and an increase in sales in our emerging businesses. The increase in the net loss of this segment was driven by asset write-offs in emerging businesses, offset slightly by the addition of the pharmaceutical technologies business net income.

LIQUIDITY AND CAPITAL RESOURCES

Financing and Capital Structure

The following items discuss Corning's financing and changes in capital structure during 2017 and 2016:

2017

In the third quarter of 2017, Corning issued ¥78 billion Japanese yen-denominated debt securities in tranches of 7, 10 and 20 years. The proceeds from these notes were received in Japanese yen and immediately converted to U.S. dollars on the date of issuance. The net proceeds received in U.S. dollars, after deducting offering expenses, was approximately \$700 million. Payments of principal and interest on the notes will be in Japanese yen, or should yen be unavailable due to circumstances beyond Corning's control, a U.S. dollar equivalent.

In the fourth quarter of 2017, Corning issued \$750 million of 4.375% senior unsecured notes that mature on November 15, 2057. The net proceeds of \$743 million will be used for general corporate purposes. We can redeem these notes at any time, subject to certain terms and conditions.

2016

In the third quarter of 2016, Corning's Board of Directors approved a \$1 billion increase to our commercial paper program, raising it to \$2 billion. If needed, this program is supported by our \$2 billion revolving credit facility that expires in 2019. Corning did not have outstanding commercial paper at December 31, 2016.

Common Stock Dividends

On February 3, 2016, Corning's Board of Directors declared a 12.5% increase in the Company's quarterly common stock dividend, which increased the quarterly dividend from \$0.12 to \$0.135 per share of common stock, beginning with the dividend to be paid in the first quarter of 2016. The Company paid four quarterly dividends of \$0.135 during the year ended December 31, 2016 and paid four quarterly dividends of \$0.12 during the year ended December 31, 2015.

On February 1, 2017, Corning's Board of Directors declared a 14.8% increase in the Company's quarterly common stock dividend, which increased the quarterly dividend from \$0.135 to \$0.155 per share of common stock, beginning with the dividend to be paid in the first quarter of 2017.

On February 6, 2018, Corning's Board of Directors declared a 16.1% increase in the Company's quarterly common stock dividend, which increased the quarterly dividend from \$0.155 to \$0.18 per share of common stock, beginning with the dividend to be paid in the first quarter of 2018. This increase marks the seventh dividend increase since October 2011.

Fixed Rate Cumulative Convertible Preferred Stock, Series A

Corning has 2,300 outstanding shares of Fixed Rate Cumulative Convertible Preferred Stock, Series A. The Preferred Stock is convertible at the option of the holder and the Company upon certain events, at a conversion rate of 50,000 shares of Corning's common stock per one share of Preferred Stock, subject to certain anti-dilution provisions. As of December 31, 2017, the Preferred Stock has not been converted, and none of the anti-dilution provisions have been triggered.

Customer Deposits

In December 2015, Corning announced that with the support of the Hefei government it will locate a Gen 10.5 glass manufacturing facility in the Hefei XinZhan General Pilot Zone in Anhui Province, China. Glass substrate production from the new facility is expected to support mass production of LCD panels for large-size televisions beginning in 2018.

As part of this investment, Corning and a Chinese customer have entered into a long-term supply agreement that commits the customer to the purchase of Gen 10.5 glass substrates from the Corning manufacturing facility in Hefei. This agreement stipulates that the customer will provide a non-refundable cash deposit in the amount of approximately \$400 million to Corning to secure rights to an amount of glass that is produced by Corning over the next 10 years. Corning has collected the full amount of this deposit, adjusted for foreign exchange movements, receiving \$185 million of this deposit in 2016 and \$197 million in 2015. As glass is shipped to the customer, Corning will recognize revenue and issue credit memoranda to reduce the amount of the customer deposit liability, which are applied against customer receivables resulting from the sale of glass. In 2017, 2016 and 2015, no credit memoranda were issued.

Capital Spending

Capital spending totaled \$1.8 billion in 2017, an increase of approximately \$700 million when compared to 2016, driven by expansions related to the Gen 10.5 glass manufacturing facility in China, the addition of capacity to support the new gas-particulate filters business in the Environmental Technologies segment, fiber and cable capacity in the Optical Communications segment and general business growth in the Specialty Materials segment. We expect our 2018 capital expenditures to be slightly more than \$2 billion.

Cash Flows

Summary of cash flow data (in millions):

	Years ended December 31,		
	2017	2016	2015
Net cash provided by operating activities	\$ 2,004	\$ 2,537	\$ 2,829
Net cash (used in) provided by investing activities	\$ (1,710)	\$ 3,662	\$ (685)
Net cash used in financing activities	\$ (1,624)	\$ (5,322)	\$ (2,623)

2017 vs. 2016

Net cash provided by operating activities decreased by \$533 million in the year ended December 31, 2017 when compared to the same period last year, driven by \$501 million of unfavorable movements in working capital. The negative impact of working capital changes was largely driven by an increase of \$143 million in VAT receivables in Asia, a payment of \$70 million related to our obligation under the plan of reorganization for PCC (refer to Note 2 (Commitments, Contingencies and Guarantees) to the consolidated financial statements for additional information), an increase in accounts receivable and inventory to support growth in the Optical Communications, Environmental Technologies and Specialty Materials segments.

Net cash used in investing activities increased by \$5.4 billion in the year ended December 31, 2017, when compared to the same period last year, driven by the absence of \$4.8 billion of cash received in the second quarter of 2016 on the realignment of Dow Corning, coupled with an increase of \$674 million in capital expenditures largely due to capacity expansions and a decline of \$92 million in liquidations of short-term investments. A decline of \$162 million in acquisition spending partially offset these events.

Net cash used in financing activities in the year ended December 31, 2017 decreased by \$3.7 billion when compared to the same period last year, driven by lower share repurchases, down \$1.8 billion, proceeds from the issuance of long-term debt of \$1.4 billion, the absence of \$481 million of commercial paper repayments made in 2016 and an increase of \$171 million in proceeds from the exercise of stock options.

2016 vs. 2015

Net cash provided by operating activities decreased \$292 million in the year ended December 31, 2016 when compared to 2015, driven largely by a decrease in net income excluding non-cash gains, an increase in accounts receivable in the Optical Communications and Specialty Materials segments, up \$81 and \$70 respectively, partially offset by an increase in accounts payable and other current liabilities. A decrease of \$58 million in dividends received from equity affiliates, driven by the strategic realignment of our ownership interest in Dow Corning, also negatively impacted cash flow from operations.

Net cash provided by investing activities increased substantially, up \$4.3 billion, in the year ended December 31, 2016 when compared to 2015, driven by \$4.8 billion in cash received upon the realignment of Dow Corning, a decrease of \$120 million in capital expenditures and a decrease of \$399 million in acquisition spending, partially offset by a decrease of \$452 million in realized gains on our translated earnings contracts.

Net cash used in financing activities in the year ended December 31, 2016 increased \$2.7 billion when compared to 2015, driven by an increase of \$999 million in share repurchases, the repayment of \$481 million of commercial paper outstanding in 2015 and the absence of cash received from the issuance of long-term debt in the amount of \$745 million in the third quarter of 2015.

Defined Benefit Pension Plans

We have defined benefit pension plans covering certain domestic and international employees. Our largest single pension plan is Corning's U.S. qualified plan. At December 31, 2017, this plan accounted for 77% of our consolidated defined benefit pension plans' projected benefit obligation and 85% of the related plans' assets.

In 2017, we made no voluntary cash contributions to our domestic defined benefit pension plan and \$29 million to our international pension plans. In 2016, we made voluntary cash contributions of \$73 million to our domestic defined benefit pension plan and \$16 million to our international pension plans. Although we are not subject to any mandatory contributions in 2018, we anticipate making voluntary cash contributions of \$10.5 million to our U.S. qualified pension plan and up to \$27 million to our international pension plans in 2018.

Refer to Note 13 (Employee Retirement Plans) to the Consolidated Financial Statements for additional information.

Restructuring

For the year ended December 31, 2017, we did not record significant restructuring, impairment and other charges or reversals. Cash expenditures for restructuring activities were approximately \$4 million.

For the year ended December 31, 2016, we recorded charges of \$77 million for employee related costs, asset disposals, and exit costs associated with some minor restructuring activities in all of the segments with total cash expenditures of approximately \$12 million.

For the year ended December 31, 2015, we did not record significant restructuring, impairment and other charges or reversals. Cash expenditures for restructuring activities were approximately \$40 million.

Refer to Note 2 (Restructuring, Impairment and Other Charges) to the Consolidated Financial Statements for additional information.

Key Balance Sheet Data

Balance sheet and working capital measures are provided in the following table (in millions):

	December 31,	
	2017	2016
Working capital	\$ 5,618	\$ 6,297
Current ratio	2.8:1	3.3:1
Trade accounts receivable, net of allowances	\$ 1,807	\$ 1,481
Days sales outstanding	62	54
Inventories	\$ 1,712	\$ 1,471
Inventory turns	3.7	3.8
Days payable outstanding (1)	51	45
Long-term debt	\$ 4,749	\$ 3,646
Total debt to total capital	25%	18%

(1) Includes trade payables only.

Credit Ratings

As of February 15, 2018, our credit ratings were as follows:

RATING AGENCY	Rating long-term debt	Outlook last update
Standard & Poor's	BBB+	Stable October 27, 2015
Moody's	Baa1	Stable October 28, 2015

Management Assessment of Liquidity

We ended the fourth quarter of 2017 with approximately \$4.3 billion of cash and cash equivalents. Our cash and cash equivalents are held in various locations throughout the world and are generally unrestricted. We utilize a variety of strategies to ensure that our worldwide cash is available in the locations in which it is needed. At December 31, 2017, approximately 79% of the consolidated amount was held outside of the United States. In January 2018, the Company distributed approximately \$2 billion from two of its foreign subsidiaries to the U.S. parent of those subsidiaries. There are no incremental taxes beyond the toll charge due with respect to this distribution of cash.

To manage interest rate exposure, the Company, from time to time, enters into interest rate swap agreements. We are currently party to two interest rate swaps that are designated as fair value hedges and economically exchange a notional amount of \$550 million of previously issued fixed rate long-term debt to floating rate debt. Under the terms of the swap agreements, we pay the counterparty a floating rate that is indexed to the one-month LIBOR rate.

Corning also has a commercial paper program pursuant to which we may issue short-term, unsecured commercial paper notes. In the third quarter of 2016, Corning's Board of Directors approved an increase to the allowable maximum aggregate principal amount outstanding at any time from \$1 billion to \$2 billion. Under this program, the Company may issue the paper from time to time and will use the proceeds for general corporate purposes. The Company's \$2 billion revolving credit facility is available to support obligations under the commercial paper program, if needed. Corning did not have outstanding commercial paper at December 31, 2017.

Share Repurchases

During 2015, Corning repurchased 167 million shares for approximately \$3.25 billion through an accelerated share repurchase agreement and open market repurchases as part of a repurchase program authorized by Corning's Board of Directors in December 2014 (the "December 2014 Repurchase Program") and repurchase programs authorized by Corning's Board of Directors in July 2015 and October 2015 (the "2015 Repurchase Programs").

During 2016, Corning repurchased 197.1 million shares for approximately \$4.2 billion through an accelerated share repurchase agreement and open market repurchases as part of the 2015 Repurchase Programs. In December 2016, Corning's Board of Directors approved a \$4 billion share repurchase program with no expiration (the "2016 Repurchase Program").

During 2017, Corning repurchased 84.4 million shares for approximately \$2.4 billion through accelerated share repurchase agreements and open market repurchases under the 2016 Repurchase Program.

Refer to Note 17 (Shareholders' Equity) to the Consolidated Financial Statements for additional information.

Other

We complete comprehensive reviews of our significant customers and their creditworthiness by analyzing their financial strength at least annually or more frequently for customers where we have identified a measure of increased risk. We closely monitor payments and developments which may signal possible customer credit issues. We currently have not identified any potential material impact on our liquidity resulting from customer credit issues.

Our major source of funding for 2017 and beyond will be our operating cash flow, our existing balances of cash and cash equivalents and proceeds from any issuances of debt. We believe we have sufficient liquidity for the next several years to fund operations, acquisitions, the asbestos litigation, capital expenditures, scheduled debt repayments, dividend payments and share repurchase programs.

Corning also has access to a \$2 billion unsecured committed revolving credit facility. This credit facility includes a leverage ratio financial covenant. The required leverage ratio, which measures debt to total capital, is a maximum of 50%. At December 31, 2017, our leverage using this measure was 25% and we are in compliance with the financial covenant.

Our debt instruments contain customary event of default provisions, which allow the lenders the option of accelerating all obligations upon the occurrence of certain events. In addition, some of our debt instruments contain a cross default provision, whereby an uncured default in excess of a specified amount on one debt obligation of the Company, also would be considered a default under the terms of another debt instrument. As of December 31, 2017, we were in compliance with all such provisions.

Management is not aware of any known trends or any known demands, commitments, events or uncertainties that will result in or that are reasonably likely to result in a material increase or decrease in our liquidity. In addition, other than items discussed, there are no known material trends, favorable or unfavorable, in our capital resources and no expected material changes in the mix and relative cost of such resources.

Translated Earnings Contracts

In the second quarter of 2013 and continuing throughout 2015, Corning entered into a series of zero cost average rate collars and average rate forwards to hedge the translation impact of Japanese yen on Corning's projected 2015, 2016 and 2017 net income. Additionally, Corning extended its foreign exchange hedging program to hedge a significant portion of its projected yen exposure for the period 2018 through 2022, with average rate forwards, collars and puts. In the years ended December 31, 2017 and 2016, we recorded pre-tax net losses of \$201 million and \$459 million, and in the year ended December 31, 2015, we recorded a pre-tax net gain of \$113 million related to changes in the fair value of these instruments. Included in these amounts are realized gains of \$268 million, \$207 million and \$686 million, respectively. The gross notional value outstanding for these instruments which hedge our exposure to the Japanese yen at December 31, 2017, 2016 and 2015 was \$13 billion, \$14.9 billion and \$8.3 billion, respectively.

We have entered into zero-cost collars and average rate forwards to hedge our translation exposure resulting from movements in the South Korean won and its impact on our net income. In the years ended December 31, 2017 and 2016, we recorded pre-tax net gains of \$95 million and \$7 million, respectively, and the year ended December 31, 2015, we recorded a pre-tax net loss of \$36 million related to changes in the fair value of these instruments. Included in these amounts are realized losses of \$1 million, \$7 million and \$33 million, respectively. These instruments had a gross notional value outstanding at December 31, 2017, 2016 and 2015 of \$0.8 billion, \$1.2 billion and \$3.3 billion, respectively.

We have entered into a portfolio of zero-cost collars and average rate forwards to hedge against our euro translation exposure. In the fourth quarter of 2016, the zero-cost collars expired. In the year ended December 31, 2017 we recorded a net pre-tax loss of \$40 million, and in the years ended December 31, 2016 and 2015, we recorded net pre-tax gains of \$15 million and \$3 million, respectively. At December 31, 2017, 2016 and 2015, the euro-denominated average rate instruments had a gross notional amount of \$0.3 billion.

In 2016, we entered into a portfolio of average rate forwards to hedge against our translation exposure resulting from movements in the Chinese yuan. In the year ended December 31, 2017, we recorded a net pre-tax gain of \$27 million, and in the year ended December 31, 2016, we recorded a net pre-tax loss of \$11 million related to changes in the fair value of these instruments. At December 31, 2017 and 2016, the yuan-denominated average rate forwards had a gross notional amount of \$0.2 billion and \$0.3 billion, respectively.

These derivative instruments are not designated as accounting hedges, and changes in their fair value are recorded in earnings in the translated earnings contract (loss) gain, net line of the Consolidated Statements of (Loss) Income.

Off Balance Sheet Arrangements

Off balance sheet arrangements are transactions, agreements, or other contractual arrangements with an unconsolidated entity for which Corning has an obligation to the entity that is not recorded in our consolidated financial statements.

Corning's off balance sheet arrangements include guarantee contracts. At the time a guarantee is issued, the Company is required to recognize a liability for the fair value or market value of the obligation it assumes. In the normal course of our business, we do not routinely provide significant third-party guarantees. Generally, third-party guarantees provided by Corning are limited to certain financial guarantees, including stand-by letters of credit and performance bonds, and the incurrence of contingent liabilities in the form of purchase price adjustments related to attainment of milestones. These guarantees have various terms, and none of these guarantees are individually significant.

Refer to Note 14 (Commitments, Contingencies and Guarantees) to the Consolidated Financial Statements for additional information.

For variable interest entities, we assess the terms of our interest in each entity to determine if we are the primary beneficiary. The primary beneficiary of a variable interest entity is the party that absorbs a majority of the entity's expected losses, receives a majority of its expected residual returns, or both, as a result of holding variable interests, which are the ownership, contractual, or other pecuniary interests in an entity that change with changes in the fair value of the entity's net assets excluding variable interests.

Corning has identified ten entities that qualify as a variable interest entity. These entities are not considered to be significant to Corning's consolidated statements of position.

Corning does not have retained interests in assets transferred to an unconsolidated entity that serve as credit, liquidity or market risk support to that entity.

Contractual Obligations

The amounts of our obligations follow (in millions):

	Amount of commitment and contingency expiration per period				
	Total	Less than 1 year	1 to 3 years	3 to 5 years	5 years and thereafter
Performance bonds and guarantees	\$ 198	\$ 88	\$ 3	\$ 1	\$ 106
Stand-by letters of credit (1)	75	62	9		4
Credit facility to equity company	10	10			
Subtotal of commitment expirations per period	\$ 283	\$ 160	\$ 12	\$ 1	\$ 110
Purchase obligations (2)	\$ 265	\$ 142	\$ 72	\$ 21	\$ 30
Capital expenditure obligations (3)	583	583			
Total debt (4)	4,749	375	550	437	3,387
Interest on long-term debt (5)	3,437	195	359	314	2,569
Capital leases and financing obligations	406	4	9	11	382
Imputed interest on capital leases and financing obligations	233	19	40	39	135
Minimum rental commitments	563	74	122	91	276
Amended PCC Plan	220	35	85	100	
Uncertain tax positions (6)	54				
Subtotal of contractual obligation payments due by period (6)	\$ 10,510	\$ 1,427	\$ 1,237	\$ 1,013	\$ 6,779
Total commitments and contingencies (6)	\$ 10,793	\$ 1,587	\$ 1,249	\$ 1,014	\$ 6,889

(1) At December 31, 2017, \$39 million of the \$75 million was included in other accrued liabilities on our consolidated balance sheets.

(2) Purchase obligations are enforceable and legally binding obligations which primarily consist of raw material and energy-related take-or-pay contracts.

(3) Capital expenditure obligations primarily reflect amounts associated with our capital expansion activities.

(4) Total debt above is stated at maturity value, and excludes interest rate swap gains/losses and bond discounts.

(5) The estimate of interest payments assumes interest is paid through the date of maturity or expiration of the related debt, based upon stated rates in the respective debt instruments.

(6) At December 31, 2017, \$54 million was included on our balance sheet related to uncertain tax positions. Of this amount, we are unable to estimate when any of that amount will become payable.

We believe a significant majority of these guarantees and contingent liabilities will expire without being funded.

ENVIRONMENT

Corning has been named by the Environmental Protection Agency (the Agency) under the Superfund Act, or by state governments under similar state laws, as a potentially responsible party for 15 active hazardous waste sites. Under the Superfund Act, all parties who may have contributed any waste to a hazardous waste site, identified by the Agency, are jointly and severally liable for the cost of cleanup unless the Agency agrees otherwise. It is Corning's policy to accrue for its estimated liability related to Superfund sites and other environmental liabilities related to property owned by Corning based on expert analysis and continual monitoring by both internal and external consultants. At December 31, 2017 and December 31, 2016, Corning had accrued approximately \$38 million (undiscounted) and \$43 million (undiscounted), respectively, for the estimated liability for environmental cleanup and related litigation. Based upon the information developed to date, management believes that the accrued reserve is a reasonable estimate of the Company's liability and that the risk of an additional loss in an amount materially higher than that accrued is remote.

CRITICAL ACCOUNTING ESTIMATES

The preparation of financial statements requires us to make estimates and assumptions that affect amounts reported therein. The estimates that required us to make difficult, subjective or complex judgments, including future projections of performance and relevant discount rates, are set forth below.

Impairment of assets held for use

We are required to assess the recoverability of the carrying value of long-lived assets when an indicator of impairment has been identified. We review our long-lived assets in each quarter to assess whether impairment indicators are present. We must exercise judgment in assessing whether an event of impairment has occurred.

Manufacturing equipment includes certain components of production equipment that are constructed of precious metals, primarily platinum and rhodium. These metals are not depreciated because they have very low physical losses and are repeatedly reclaimed and reused in our manufacturing process over a very long useful life. Precious metals are reviewed for impairment as part of our assessment of long-lived assets. This review considers all of the Company's precious metals that are either in place in the production process; in reclamation, fabrication, or refinement in anticipation of re-use; or awaiting use to support increased capacity. Precious metals are only acquired to support our operations and are not held for trading or other non-manufacturing related purposes.

Examples of events or circumstances that may be indicative of impairments include, but are not limited to:

- A significant decrease in the market price of an asset;
- A significant change in the extent or manner in which a long-lived asset is being used or in its physical condition;
- A significant adverse change in legal factors or in the business climate that could affect the value of the asset, including an adverse action or assessment by a regulator;
- An accumulation of costs significantly in excess of the amount originally expected for the acquisition or construction of an asset;
- A current-period operating or cash flow loss combined with a history of operating or cash flow losses or a projection or forecast that demonstrates continuing losses associated with the use of an asset; and
- A current expectation that, more likely than not, an asset will be sold or otherwise disposed of significantly before the end of its previously estimated useful life.

For purposes of recognition and measurement of an impairment loss, a long-lived asset or assets is grouped with other assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. We must exercise judgment in assessing the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. Our assessment is performed at the reportable segment level. For the majority of our reportable segments, we concluded that locations or businesses within these segments which share production along the supply chain must be combined in order to appropriately identify cash flows that are largely independent of the cash flows of other assets and liabilities.

For long-lived assets, when impairment indicators are present, we compare estimated undiscounted future cash flows, including the eventual disposition of the asset group at market value, to the assets' carrying value to determine if the asset group is recoverable. This assessment requires the exercise of judgment in assessing the future use of and projected value to be derived from the assets to be held and used. Assessments also consider changes in asset utilization, including the temporary idling of capacity and the expected timing for placing this capacity back into production. If there is an impairment, a loss is recorded to reflect the difference between the assets' fair value and carrying value. This may require judgment in estimating future cash flows and relevant discount rates and residual values in estimating the current fair value of the impaired assets to be held and used.

For an asset group that fails the test of recoverability, the estimated fair value of long-lived assets is determined using an "income approach" that starts with the forecast of all the expected future net cash flows including the eventual disposition at market value of long-lived assets, and also considers the fair market value of all precious metals. We assess the recoverability of the carrying value of long-lived assets at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. If there is an impairment, a loss is recorded to reflect the difference between the assets' fair value and carrying value. Our estimates are based upon our historical experience, our commercial relationships, and available external information about future trends. We believe fair value assessments are most sensitive to market growth and the corresponding impact on volume and selling prices and that these are also more subjective than manufacturing cost and other assumptions. The Company believes its current assumptions and estimates are reasonable and appropriate.

At December 31, 2017 and December 31, 2016, the carrying value of precious metals was higher than the fair market value by \$711 million and \$890 million, respectively. The majority of these precious metals are utilized by the Display Technologies and Specialty Materials segments. Corning believes these precious metal assets to be recoverable due to the significant positive cash flow in both segments. The potential for impairment exists in the future if negative events significantly decrease the cash flow of these segments. Such events include, but are not limited to, a significant decrease in demand for products or a significant decrease in profitability in our Display Technologies or Specialty Materials segments.

Impairment of Goodwill

We are required to make certain subjective and complex judgments in assessing whether an event of impairment of goodwill has occurred, including assumptions and estimates used to determine the fair value of our reporting units. We test for goodwill impairment at the reporting unit level and our reporting units are the operating segments or the components of operating segments which constitute businesses for which discrete financial information is available and is regularly reviewed by segment management.

Corning adopted ASU 2017-04, Intangibles – Goodwill and Other, on January 1, 2017, which simplifies the subsequent measurement of goodwill by removing the second step of the two-step impairment test. The amendment requires an entity to perform its annual, or interim goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. An impairment charge should be recognized for the amount by which the carrying amount exceeds the reporting unit's fair value.

Corning has recorded goodwill in the Display Technologies, Optical Communications, Specialty Materials, Life Sciences and All Other operating segments. On a quarterly basis, or if an event occurs or circumstances change that indicate the carrying amount may be impaired, management performs a qualitative assessment of factors in each reporting unit within these operating segments to determine if there have been any triggering events. We also perform a detailed quantitative impairment test every three years if no indicators suggest a test should be performed in the interim. We use this calculation as quantitative validation of the qualitative process; this process does not represent an election to perform the quantitative impairment test in place of the qualitative review.

The following events and circumstances are considered when evaluating whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount:

- Macroeconomic conditions, such as a deterioration in general economic conditions, fluctuations in foreign exchange rates and/or other developments in equity and credit markets;
- Market capital in relation to book value;
- Industry and market considerations, such as a deterioration in the environment in which an entity operates, material loss in market share and significant declines in product pricing;
- Cost factors, such as an increase in raw materials, labor or other costs;
- Overall financial performance, such as negative or declining cash flows or a decline in actual or forecasted revenue;
- Other relevant entity-specific events, such as material changes in management or key personnel; and
- Events affecting a reporting unit, such as a change in the composition or carrying amount of its net assets including acquisitions and dispositions.

The examples noted above are not all-inclusive, and the Company will consider other relevant events and circumstances that affect the fair value of a reporting unit in determining whether to perform the quantitative goodwill impairment test.

Our goodwill recoverability assessment is based on our annual strategic planning process. This process includes an extensive review of expectations for the long-term growth of our businesses and forecasted future cash flows. Our valuation method is an "income approach" using a discounted cash flow model in which cash flows anticipated over several periods, plus a terminal value at the end of that time horizon, are discounted to their present value using an appropriate rate of return. Our estimates are based upon our historical experience, our current knowledge from our commercial relationships, and available external information about future trends. If the fair value is less than the carrying value, a loss is recorded to reflect the difference between the fair value and carrying value.

Display Technologies

Goodwill for the Display Technologies segment is tested at the reporting unit level, which is also the operating segment level consisting of two components. For the purposes of the annual goodwill impairment assessment, we have aggregated these two components into one reporting unit based upon their similar economic characteristics. On a quarterly basis in 2017, management performed a qualitative assessment of factors and determined there had not been any triggering events which would indicate that the Display Technologies reporting unit's fair value is less than its carrying amount.

In addition to assessing qualitative factors each quarter, we performed a quantitative goodwill recoverability test in 2015 for this reporting unit. A discount rate of 5.8% and a growth rate of 1% were used in 2015. The results of our impairment test indicated that the fair value of the reporting unit exceeded its book value by a significant amount, and as such, further goodwill impairment testing was not necessary. We determined a range of discount rates between 3.8% and 7.8% and growth rates between 0% and 3% would not have affected our conclusion.

Optical Communications

Goodwill for the Optical Communications segment is tested at the reporting unit level, which is also the operating segment level consisting of two components. For the purposes of the annual goodwill impairment assessment, we have aggregated these two components into one reporting unit based upon their similar economic characteristics. On a quarterly basis in 2017, management performed a qualitative assessment of factors and determined there had not been any triggering events which would indicate that the Optical Communications reporting unit's fair value is less than its carrying amount.

In addition to assessing qualitative factors each quarter, we performed a quantitative goodwill recoverability test in 2015 for this reporting unit. A discount rate of 5.6% and a growth rate of 3% were used in 2015. The results of our impairment test indicated that the fair value of the reporting unit exceeded its book value by a significant amount, and as such, further goodwill impairment testing was not necessary. We determined a range of discount rates between 3.6% and 7.6% and growth rates between 0% and 3% would not have affected our conclusion.

Specialty Materials

Goodwill for the Specialty Materials segment is tested at the reporting unit level, which is one level below an operating segment, as the goodwill is the result of transactions associated with a certain business within this operating segment. On a quarterly basis in 2017, management performed a qualitative assessment of factors and determined there had not been any triggering events which would indicate that the Specialty Materials reporting unit's fair value is less than its carrying amount.

In addition to assessing qualitative factors each quarter, we performed a quantitative goodwill recoverability test in 2015 for this reporting unit. A discount rate of 5.8% and a growth rate of 3% were used in 2015. The results of our impairment test indicated that the fair value of the reporting unit exceeded its book value by a significant amount, and as such, further goodwill impairment testing was not necessary. We determined a range of discount rates between 3.8% and 7.8% and growth rates between 0% and 3% would not have affected our conclusion.

Life Sciences

Goodwill for the Life Sciences segment is tested at the reporting unit level, which is also the operating segment level. On a quarterly basis in 2017, management performed a qualitative assessment of factors and determined there had not been any triggering events which would indicate that the Life Sciences reporting unit's fair value is less than its carrying amount.

In addition to assessing qualitative factors each quarter, we performed a quantitative goodwill recoverability test in 2015 for this reporting unit. A discount rate of 6% and a growth rate of 3% were used in 2015. The results of our impairment test indicated that the fair value of the reporting unit exceeded its book value by a significant amount, and as such, further goodwill impairment testing was not necessary. We determined a range of discount rates between 4% and 8% and growth rates between 0% and 3% would not have affected our conclusion.

All Other

All Other segment is comprised of various operating segments and corporate investments that do not meet the quantitative threshold for separate reporting. Goodwill for the All Other segment is tested at the reporting unit level, which is also the operating segment level. For the purposes of the annual goodwill impairment assessment, we have identified two reporting units in this segment that require an assessment of their goodwill. On a quarterly basis in 2017, management performed a qualitative assessment of factors and determined there had not been any triggering events which would indicate that the reporting units' fair value is less than the carrying amount.

In addition to assessing qualitative factors each quarter, we performed a quantitative goodwill recoverability test in 2015. A discount rate of 7.4% and a growth rate of 3% were used in 2015. The results of our impairment test indicated that the book value of one of the reporting units exceeded its fair value by 80%. We determined a range of discount rates between 5.4% and 9.4% and growth rates between 0% and 3% would not have affected our conclusion. Corning concluded that a Step 2 analysis was required to measure the impairment loss for this reporting unit.

Our Step 2 test consisted of identifying the underlying net assets in the reporting unit, allocating the implied purchase price to the asset and liabilities of the reporting unit and the calculation of the implied fair value of goodwill and the resulting impairment loss. In December 2015, we recorded a goodwill impairment loss of \$29 million related to this reporting unit.

Restructuring charges and impairments resulting from restructuring actions

We are required to assess whether and when a restructuring event has occurred and in which periods charges related to such events should be recognized. We must estimate costs of plans to restructure including, for example, employee termination costs. Restructuring charges require us to exercise judgment about the expected future of our businesses, of portions thereof, their profitability, cash flows and in certain instances eventual outcome. The judgment involved can be difficult, subjective and complex in a number of areas, including assumptions and estimates used in estimating the future profitability and cash flows of our businesses.

Restructuring events often give rise to decisions to dispose of or abandon certain assets or asset groups which, as a result, require impairment. We are required to carry assets to be sold or abandoned at the lower of cost or fair value. We must exercise judgment in assessing the fair value of the assets to be sold or abandoned.

Income taxes

We are required to exercise judgment about our future results in assessing the realizability of our deferred tax assets. Inherent in this estimation process is the requirement for us to estimate future book and taxable income and possible tax planning strategies. These estimates require us to exercise judgment about our future results, the prudence and feasibility of possible tax planning strategies, and the economic environments in which we do business. It is possible that actual results will differ from assumptions and require adjustments to allowances.

Corning accounts for uncertain tax positions in accordance with ASC Topic 740, Income Taxes, which requires that companies only record tax benefits for technical positions that are believed to have a greater than 50% likelihood of being sustained on their technical merits and then only to the extent of the amount of tax benefit that is greater than 50% likely of being realized upon settlement. In estimating these amounts, we must exercise judgment around factors such as the weighting of the tax law in our favor, the willingness of a tax authority to aggressively pursue a particular position, or alternatively, consider a negotiated compromise, and our willingness to dispute a tax authority's assertion to the level of appeal we believe is required to sustain our position. As a result, it is possible that our estimate of the benefits we will realize for uncertain tax positions may change when we become aware of new information affecting these judgments and estimates.

At December 31, 2017, Corning has not completed its accounting for the tax effects of the enactment of the 2017 Tax Act. Pursuant to SAB 118, the Company has made a reasonable estimate of the effects on its U.S. deferred tax balances, the one-time toll charge and the impact on its state valuation allowances. In addition, Corning has not made sufficient progress on estimating the impact of tax reform on its assertion regarding its indefinitely reinvested foreign earnings so the Company will continue to follow its historic position while it continues to analyze this issue. In addition, Corning's accounting for the impact of the global intangible low-taxed income (GILTI) provisions of the 2017 Tax Act is incomplete and, as a result, it has not yet elected a policy to account for the GILTI provisions.

The initial accounting is incomplete as we need additional time and information to analyze all aspects of the newly enacted law and how it impacts our worldwide operations. The additional information that needs to be obtained, prepared or analyzed in order to complete the accounting requirements includes receiving further guidance from the tax authorities; additional time to prepare basis calculations; post enactment impacts and further time to validate our assumptions.

Equity method investments

On May 31, 2016, Corning completed the strategic realignment of its equity investment in Dow Corning pursuant to the Transaction Agreement announced on December 10, 2015. Under the terms of the Transaction Agreement, Corning exchanged with Dow Corning its 50% stock interest in Dow Corning for 100% of the stock of a newly formed entity, which holds an equity interest in Hemlock Semiconductor Group and approximately \$4.8 billion in cash.

The equity in earnings line on our income statement for the year ended December 31, 2016 reflects the equity earnings from the silicones and polysilicones (Hemlock Semiconductor) businesses of Dow Corning from January 1, 2016 through May 31, 2016, the closing date of the Transaction Agreement, and seven months of equity earnings from Hemlock Semiconductor Group. Prior to the realignment of Dow Corning, equity earnings from the Hemlock Semiconductor business were reported on the equity in earnings line in Corning's income statement, net of Dow Corning's 35% U.S. tax. Additionally, Corning reported its tax on equity earnings from Dow Corning on the tax provision line on its income statement at a U.S. tax provision rate of 7%. As part of the realignment, Hemlock Semiconductor Group was converted to a partnership. Each of the partners is responsible for the taxes on their portion of equity earnings. Therefore, post-realignment, Hemlock Semiconductor Group's equity earnings is reported before tax on the equity in earnings line and Corning's tax is reported on the tax provision line.

At December 31, 2017 and 2016, the carrying value of our equity method investment assets was \$280 million and \$269 million, respectively. In addition, we also have an equity investment (HSG) with a negative carrying value of \$105 million. The negative carrying value resulted from a one-time charge to this entity in 2014 for the permanent abandonment of certain assets. We review our equity method investments for indicators of impairment on a periodic basis or if events or circumstances change to indicate the carrying amount may be other-than-temporarily impaired. When such indicators are present, we then perform an in-depth review for impairment. An impairment assessment requires the exercise of judgment related to key assumptions such as forecasted revenue and profitability, forecasted tax rates, foreign currency exchange rate movements, terminal value assumptions, historical experience, our current knowledge from our commercial relationships, and available external information about future trends. As of December 31, 2017 and 2016, we have not identified any instances where the carrying values of our equity method investments were not recoverable.

Fair value measures

As required, Corning uses two kinds of inputs to determine the fair value of assets and liabilities: observable and unobservable. Observable inputs are based on market data or independent sources, while unobservable inputs are based on the Company's own market assumptions. Once inputs have been characterized, we prioritize the inputs used to measure fair value into one of three broad levels. Characterization of fair value inputs is required for those accounting pronouncements that prescribe or permit fair value measurement. In addition, observable market data must be used when available and the highest-and-best-use measure should be applied to non-financial assets. Corning's major categories of financial assets and liabilities required to be measured at fair value are short-term and long-term investments, certain pension asset investments and derivatives. These categories use observable inputs only and are measured using a market approach based on quoted prices in markets considered active or in markets in which there are few transactions.

Derivative assets and liabilities may include interest rate swaps and forward exchange contracts that are measured using observable quoted prices for similar assets and liabilities. Included in our forward exchange contracts are foreign currency hedges that hedge our translation exposure resulting from movements in the Japanese yen, South Korean won, euro, New Taiwan dollar and Chinese yuan. These contracts are not designated as accounting hedges, and changes in their fair value are recorded in earnings in the translated earnings contract (loss) gain, net line of the Consolidated Statements of (Loss) Income. In arriving at the fair value of Corning's derivative assets and liabilities, we have considered the appropriate valuation and risk criteria, including such factors as credit risk of the relevant party to the transaction. Amounts related to credit risk are not material.

Refer to Note 16 (Fair Value Measurements) to the Consolidated Financial Statements for additional information.

Probability of litigation outcomes

We are required to make judgments about future events that are inherently uncertain. In making determinations of likely outcomes of litigation matters, we consider the evaluation of legal counsel knowledgeable about each matter, case law, and other case-specific issues. See Part II – Item 3. Legal Proceedings for a discussion of Corning's material litigation matters.

Other possible liabilities

We are required to make judgments about future events that are inherently uncertain. In making determinations of likely outcomes of certain matters, including certain tax planning and environmental matters, these judgments require us to consider events and actions that are outside our control in determining whether probable or possible liabilities require accrual or disclosure. It is possible that actual results will differ from assumptions and require adjustments to accruals.

Pension and other postretirement employee benefits (OPEB)

Corning offers employee retirement plans consisting of defined benefit pension plans covering certain domestic and international employees and postretirement plans that provide health care and life insurance benefits for eligible retirees and dependents. The costs and obligations related to these benefits reflect the Company's assumptions related to general economic conditions (particularly interest rates), expected return on plan assets, rate of compensation increase for employees and health care trend rates. The cost of providing plan benefits depends on demographic assumptions including retirements, mortality, turnover and plan participation. While management believes that the assumptions used are appropriate, differences in actual experience or changes in assumptions may affect Corning's employee pension and other postretirement obligations, and current and future expense.

Costs for our defined benefit pension plans consist of two elements: 1) on-going costs recognized quarterly, which are comprised of service and interest costs, expected return on plan assets and amortization of prior service costs; and 2) mark-to-market gains and losses outside of the corridor, where the corridor is equal to 10% of the greater of the benefit obligation or the market-related value of plan assets at the beginning of the year, which are recognized annually in the fourth quarter of each year. These gains and losses result from changes in actuarial assumptions for discount rates and the differences between actual and expected return on plan assets. Any interim remeasurements triggered by a curtailment, settlement or significant plan changes, as well as any true-up to the annual valuation, are recognized as a mark-to-market adjustment in the quarter in which such event occurs.

Costs for our OPEB plans consist of on-going costs recognized quarterly, and are comprised of service and interest costs, amortization of prior service costs and amortization of actuarial gains and losses. We recognize the actuarial gains and losses resulting from changes in actuarial assumptions for discount rates as a component of Stockholders' Equity on our consolidated balance sheets on an annual basis and amortize them into our operating results over the average remaining service period of employees expected to receive benefits under the plans, to the extent such gains and losses are outside of the corridor.

Prior to the December 31, 2015 valuation of its defined benefit pension and OPEB plans, Corning used the traditional, single weighted-average discount rate approach to develop the obligation, interest cost and service cost components of net periodic benefit cost for its defined benefit pension and OPEB plans. The individual spot rates from the yield curve are used in measuring the pension plan projected benefit obligation (PBO) or OPEB plan accumulated postretirement benefit obligation (APBO) at the measurement date. The benefit obligation is effectively calculated as the aggregate present value at the measurement date of each future benefit payment related to past service, with each payment discounted using a spot rate from a high-quality corporate bond yield curve that matches the duration of the benefit payment. Under Corning's traditional, single weighted-average discount rate approach, a single weighted-average rate is developed from the approach described above and rounded to the nearest 25 basis points. Traditionally, the weighted-average discount rate is determined at the plan measurement date, based on the same projected future benefit payments used in developing the benefit obligation. The traditional single weighted-average discount rate represents the constant annual rate that would be required to discount all future benefit payments related to past service from the date of expected future payment to the measurement date such that the aggregate present value equals the benefit obligation.

Beginning with the December 31, 2015 valuation of its defined benefit pension and OPEB plans, Corning changed its methodology of determining the service and interest cost components of net periodic pension and other postretirement benefit costs to a more granular approach. Under the new approach, the cash flows from each applicable pension and OPEB plan are used to directly calculate the benefit obligation, service cost and interest cost using the spot rates from the applicable yield curve.

Moving to a more granular approach has a limited impact on the determination of the respective benefit obligations. The only impacts are as a result of the elimination of the rounding of the discount rate that occurred in the traditional approach and the use of specific cash flows for Corning's non-qualified pension plans, while separately applying the yield curve to each separate OPEB plan instead of aggregating the OPEB plan cash flows. For Corning's pension plans, this change will increase the immediate recognition of actuarial losses (or decrease the immediate recognition of actuarial gains), due to Corning's previous election to immediately recognize actuarial gains and losses outside of the corridor. For Corning's OPEB plans, this change will increase the accumulated other comprehensive income (AOCI) account balance due to the accumulation of lower actuarial gains or higher actuarial losses. Over time, the amortization of the actuarial losses from AOCI will begin to reduce the savings from the lower interest cost and service cost.

This change was a change in accounting estimate and therefore was applied prospectively beginning with the measurement date of December 31, 2015. No restatement of prior periods is required.

The following table presents our actual and expected return on assets, as well as the corresponding percentage, for the years ended 2017, 2016 and 2015 :

(In millions)	December 31,		
	2017	2016	2015
Actual return on plan assets – Domestic plans	\$ 393	\$ 235	\$ (111)
Expected return on plan assets – Domestic plans	163	153	166
Actual return on plan assets – International plans	18	75	3
Expected return on plan assets – International plans	11	12	12

Weighted-average actual and expected return on assets:	December 31,		
	2017	2016	2015
Actual return on plan assets – Domestic plans	14.92%	9.62%	(4.23)%
Expected return on plan assets – Domestic plans	6.00%	6.00%	6.00%
Actual return on plan assets – International plans	3.93%	19.06%	0.59%
Expected return on plan assets – International plans	3.97%	3.92%	2.97%

As of December 31, 2017, the Projected Benefit Obligation (PBO) for U.S. pension plans was \$ 3,519 million.

The following information illustrates the sensitivity to a change in certain assumptions for U.S. pension plans:

Change in assumption	Effect on 2018 pre-tax pension expense	Effect on December 31, 2017 PBO
25 basis point decrease in each spot rate	- 2 million	+ 102 million
25 basis point increase in each spot rate	+ 2 million	- 97 million
25 basis point decrease in expected return on assets	+ 7 million	
25 basis point increase in expected return on assets	- 7 million	

The above sensitivities reflect the impact of changing one assumption at a time. Note that economic factors and conditions often affect multiple assumptions simultaneously and the effects of changes in key assumptions are not necessarily linear. These changes in assumptions would have no effect on Corning's funding requirements.

In addition, at December 31, 2017, a 25 basis point decrease in each spot rate would decrease stockholders' equity by \$128 million before tax, and a 25 basis point increase in each spot rate would increase stockholders' equity by \$123 million. In addition, the impact of greater than a 25 basis point decrease in each spot rate would not be proportional to the first 25 basis point decrease in each spot rate.

The following table illustrates the sensitivity to a change in each spot rate assumption related to Corning's U.S. OPEB plans:

Change in assumption	Effect on 2018 pre-tax OPEB expense	Effect on December 31, 2017 APBO*
25 basis point decrease in each spot rate	+ 1 million	+ 26 million
25 basis point increase in each spot rate	- 0 million	- 25 million

* Accumulated Postretirement Benefit Obligation (APBO).

The above sensitivities reflect the impact of changing one assumption at a time. Note that economic factors and conditions often affect multiple assumptions simultaneously and the effects of changes in key assumptions are not necessarily linear.

Revenue recognition

The Company recognizes revenue when it is realized or realizable and earned. In certain instances, revenue recognition is based on estimates of fair value of deliverables as well as estimates of product returns, allowances, discounts, and other factors. These estimates are supported by historical data. Corning also has contractual arrangements with certain customers in which we recognize revenue on a completed contract basis. Revenues under the completed-contract method are recognized upon substantial completion, defined as acceptance by the customer and compliance with performance specifications as agreed upon in the contract, which in certain instances require s estimates and judgments in determining the timing of substantial completion of the contract. While management believes that the estimates used are appropriate, differences in actual experience or changes in estimates may affect Corning's future results.

Share-Based Compensation

Share-based compensation cost is measured at the grant date based on the fair value of the award and is recognized as expense over the requisite service period. Determining the fair value of stock-based awards at the grant date requires judgment, including estimating expected dividends. In addition, judgment is also required in estimating the amount of share-based awards that are expected to be forfeited. If actual results differ significantly from these estimates, share-based compensation expense and our results of operations could be impacted.

NEW ACCOUNTING STANDARDS

Refer to Note 1 (Summary of Significant Accounting Policies) to the Consolidated Financial Statements.

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FORWARD-LOOKING STATEMENTS

The statements in this Annual Report on Form 10-K, in reports subsequently filed by Corning with the Securities and Exchange Commission (SEC) on Form 10-Q and Form 8-K, and related comments by management that are not historical facts or information and contain words such as “will,” “believe,” “anticipate,” “expect,” “intend,” “plan,” “seek,” “see,” “would,” and “target” and similar expressions are forward-looking statements. Such statements relate to future events that by their nature address matters that are, to different degrees, uncertain. These forward-looking statements relate to, among other things, the company’s future operating performance, the company’s share of new and existing markets, the company’s revenue and earnings growth rates, the company’s ability to innovate and commercialize new products, and the company’s implementation of cost-reduction initiatives and measures to improve pricing, including the optimization of the company’s manufacturing capacity.

Although the company believes that these forward-looking statements are based upon reasonable assumptions regarding, among other things, current estimates and forecasts, general economic conditions, its knowledge of its business, and key performance indicators that impact the company, actual results could differ materially. The company does not undertake to update forward-looking statements. Some of the risks, uncertainties and other factors that could cause actual results to differ materially from those expressed in or implied by the forward-looking statements include, but are not limited to:

- global business, financial, economic and political conditions;
- tariffs and import duties;
- currency fluctuations between the U.S. dollar and other currencies, primarily the Japanese yen, New Taiwan dollar, euro, Chinese yuan and South Korean won;
- product demand and industry capacity;
- competitive products and pricing;
- availability and costs of critical components and materials;
- new product development and commercialization;
- order activity and demand from major customers;
- the amount and timing of our cash flows and earnings and other conditions, which may affect our ability to pay our quarterly dividend at the planned level or to repurchase shares at planned levels;
- possible disruption in commercial activities due to terrorist activity, cyber-attack, armed conflict, political or financial instability, natural disasters, or major health concerns;
- unanticipated disruption to equipment, facilities, IT systems or operations;
- effect of regulatory and legal developments;
- ability to pace capital spending to anticipated levels of customer demand;
- rate of technology change;
- ability to enforce patents and protect intellectual property and trade secrets;
- adverse litigation;
- product and components performance issues;
- retention of key personnel;
- customer ability, most notably in the Display Technologies segment, to maintain profitable operations and obtain financing to fund their ongoing operations and manufacturing expansions and pay their receivables when due;
- loss of significant customers;
- changes in tax laws and regulations including the 2017 Tax Act ;
- the impacts of audits by taxing authorities;
- the potential impact of legislation, government regulations, and other government action and investigations; and
- other risks detailed in Corning’s SEC filings.

Item 7A. Quantitative and Qualitative Disclosures About Market Risks

We operate and conduct business in many foreign countries and as a result are exposed to movements in foreign currency exchange rates. Our exposure to exchange rates has the following effects:

- Exchange rate movements on financial instruments and transactions denominated in foreign currencies that impact earnings; and
- Exchange rate movements upon conversion of net assets and net income of foreign subsidiaries for which the functional currency is not the U.S. dollar, which impact our net equity.

Our most significant foreign currency exposures relate to the Japanese yen, South Korean won, New Taiwan dollar, Chinese yuan, and the euro. We seek to mitigate the impact of exchange rate movements in our income statement by using over-the-counter (OTC) derivative instruments including foreign exchange forward and option contracts. In general, these hedges expire coincident with the timing of the underlying foreign currency commitments and transactions.

We are exposed to potential losses in the event of non-performance by our counterparties to these derivative contracts. However, we minimize this risk by maintaining a diverse group of highly-rated major international financial institutions as our counterparties. We do not expect to record any losses as a result of such counterparty default. Neither we nor our counterparties are required to post collateral for these financial instruments.

Our cash flow hedging activities utilize OTC foreign exchange forward contracts to reduce the risk that movements in exchange rates will adversely affect the net cash flows resulting from the sale of products to foreign customers and purchases from foreign suppliers. We also use OTC foreign exchange forward and option contracts that are not designated as hedging instruments for accounting purposes. The undesignated hedges limit exposures to foreign functional currency fluctuations related to certain subsidiaries' monetary assets, monetary liabilities and net earnings in foreign currencies. A significant portion of the Company's non-U.S. revenues are denominated in Japanese yen. When these revenues are translated back to U.S. dollars, the Company is exposed to foreign exchange rate movements in the Japanese yen. To protect translated earnings against movements in the Japanese yen, the Company has entered into a series of average rate forwards and other derivative instruments.

We use a sensitivity analysis to assess the market risk associated with our foreign currency exchange risk. Market risk is defined as the potential change in fair value of assets and liabilities resulting from an adverse movement in foreign currency exchange rates. At December 31, 2017, with respect to open foreign exchange forward and option contracts, and foreign denominated debt with values exposed to exchange rate movements, a 10% adverse movement in quoted foreign currency exchange rates could result in a loss in fair value of these instruments of \$ 1.4 billion compared to \$ 1.6 billion at December 31, 2016. Specific to the Japanese yen, a 10% adverse movement in quoted yen exchange rates could result in a loss in fair value of these instruments of \$1,266 million compared to \$1,458 million at December 31, 2016. Specific to the South Korean won, a 10% adverse movement in quoted South Korean won exchange rates could result in a loss in fair value of these instruments of \$88 million compared to \$79 million at December 31, 2016. The Company expects that these hypothetical losses from a 10% adverse movement in quoted foreign currency exchange rates on the derivative financial instruments should largely offset gains and losses on the assets, liabilities and future transactions being hedged.

Because we derive approximately 69% of our net sales from outside the U.S., our sales and net income could be affected if the U.S. dollar significantly strengthens or weakens against foreign currencies, most notably the Japanese yen, South Korean won, and euro. As an example of the impact that changes in foreign currency exchange rates could have on our financial results, we compare 2017 actual sales in yen, won and euro transaction currencies at an average currency exchange rate during the year to a 10% change in the currency exchange rate. A plus or minus 10% movement in the U.S. dollar – Japanese yen exchange rate would result in a change to 2017 net sales of approximately \$300 million. A plus or minus 10% movement in the U.S. dollar – South Korean won and U.S. dollar – euro exchange rates would result in a change to 2017 net sales of approximately \$6 million and \$96 million, respectively. We estimate that a plus or minus 10% movement in the U.S. dollar – Japanese yen exchange rate would result in a change to 2017 net income attributable to Corning Incorporated of approximately \$187 million. A plus or minus 10% movement in the U.S. dollar – South Korean won and U.S. dollar – euro exchange rates would result in a change to 2017 net income attributable to Corning Incorporated of approximately \$63 million and \$5 million, respectively.

Interest Rate Risk Management

To manage interest rate exposure, the Company, from time to time, enters into interest rate swap agreements. We are currently party to two interest rate swaps that are designated as fair value hedges and economically exchange a notional amount of \$ 550 million of previously issued fixed rate long-term debt to floating rate debt. Under the terms of the swap agreements, we pay the counterparty a floating rate that is indexed to the one-month LIBOR rate.

Item 8. Financial Statements and Supplementary Data

See Item 15 (a) 1.

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

None.

Item 9A. Controls and Procedures

Disclosure Controls and Procedures

Our principal executive and principal financial officers, after evaluating the effectiveness of our disclosure controls and procedures (as defined in the Securities Exchange Act of 1934 (Exchange Act) Rules 13a-15(e) or 15d-15(e)) as of the end of the period covered by this report, have concluded that based on the evaluation of these controls and procedures required by paragraph (b) of Exchange Act Rules 13a-15 or 15d-15, that our disclosure controls and procedures were effective.

Internal Control Over Financial Reporting

(a) Management's Annual Report on Internal Control Over Financial Reporting

Management is responsible for establishing and maintaining adequate disclosure controls and procedures and adequate internal control over financial reporting for Corning. Management is also responsible for the assessment of the effectiveness of disclosure controls and procedures and the effectiveness of internal control over financial reporting.

Disclosure controls and procedures mean controls and other procedures of an issuer that are designed to ensure that information required to be disclosed by the issuer in the reports that it files or submits under the Exchange Act is recorded, processed, summarized, and reported, within the time periods specified in the SEC's rules and forms. Corning's disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by Corning in the reports that it files or submits under the Exchange Act is accumulated and communicated to Corning's management, including Corning's principal executive and principal financial officers, or other persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure.

Corning'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 accounting principles generally accepted in the United States of America. Corning's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of Corning's assets; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with accounting principles generally accepted in the United States of America, and that Corning's receipts and expenditures are being made only in accordance with authorizations of Corning's management and directors; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of Corning's assets that could have a material effect on the financial statements. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies and procedures may deteriorate.

Management conducted an evaluation of the effectiveness of the system of internal control over financial reporting based on the framework in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Management's assessment of internal control over financial reporting includes controls over recognition of equity earnings and equity investments by Corning. Internal control over financial reporting for Hemlock Semiconductor Group is the responsibility of its management. Based on this evaluation, management concluded that Corning's internal control over financial reporting was effective as of December 31, 2017. The effectiveness of Corning's internal control over financial reporting as of December 31, 2017, has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which is included herein.

(b) Attestation Report of the Independent Registered Public Accounting Firm

Refer to Part IV, Item 15.

(c) Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting identified in connection with the evaluation required by paragraph (d) of Exchange Act Rules 13a-15 or 15d-15 that occurred during our last fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The sections entitled “Proposal 1 Election of Directors,” “Section 16(a) Beneficial Ownership Reporting Compliance” and “Corporate Governance and the Board of Directors- Committees” in our Definitive Proxy Statement relating to our Annual Meeting of Shareholders to be held on April 26, 2018, are incorporated by reference in this Annual Report on Form 10-K. Information regarding executive officers is presented in Item I of this Annual Report on Form 10-K under the caption “Executive Officers of the Registrant.”

Code of Ethics

Our Board of Directors adopted (i) the Code of Ethics for the Chief Executive Officer and Financial Executives (Code of Ethics) and (ii) the Code of Conduct for Directors and Executive Officers, which supplement our Code of Conduct that governs all employees and directors. These Codes have been in existence for more than ten years. The Code of Ethics applies to our Chief Executive Officer, Chief Financial Officer, Controller and other financial executives. During 2017, no amendments to or waivers of the provisions of the Code of Ethics were made with respect to any of our directors or executive officers. A copy of the Code of Ethics is available on our website at <http://www.corning.com/worldwide/en/about-us/investor-relations/codes-of-conduct-ethics.html>. We will also provide a copy of the Code of Ethics to shareholders without charge upon written request to Corporate Secretary, Corning Incorporated, Corning, NY 14831. We will disclose future amendments to, or waivers from, the Code of Ethics on our website within four business days following the date of such amendment or waiver.

Item 11. Executive Compensation

The sections entitled “Compensation Discussion and Analysis” and “Director Compensation” in our Definitive Proxy Statement relating to the Annual Meeting of Shareholders to be held on April 26, 2018, are incorporated by reference in this Annual Report on Form 10-K.

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

The sections entitled “Beneficial Ownership of Directors and Officers” and “Beneficial Ownership of Corning’s Largest Shareholders” in our Definitive Proxy Statement relating to the Annual Meeting of Shareholders to be held on April 26, 2018, are incorporated by reference in this Annual Report on Form 10-K.

Equity Compensation Plan Information

The following table shows the total number of outstanding stock options and shares available for other future issuances of options under our existing equity compensation plans as of December 31, 2017, including the 2010 Equity Plan for Non-Employee Directors and 2012 Long-Term Incentive Plan:

	A	B	C
	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column A)
Equity compensation plans approved by security holders (1)	23,066,982	\$ 14.61	65,280,083
Equity compensation plans not approved by security holders			
Total	23,066,982	\$ 14.61	65,280,083

(1) Shares indicated are total grants under the most recent shareholder approved plans as well as any shares remaining outstanding from any prior shareholder approved plans.

Item 13. Certain Relationships and Related Transactions and Director Independence

The sections entitled “Policy on Transactions with Related Persons”, “Director Independence ” and “ Corporate Governance and the Board of Directors- Committees” in our Definitive Proxy Statement relating to the Annual Meeting of Shareholders to be held on April 26, 2018, are incorporated by reference in this Annual Report on Form 10-K.

Item 14. Principal Accounting Fees and Services

The sections entitled “Fees Paid to Independent Registered Public Accounting Firm” and “Policy Regarding Audit Committee Pre-Approval of Audit and Permitted Non-Audit Services of Independent Registered Public Accounting Firm” in our Definitive Proxy Statement relating to the Annual Meeting of Shareholders to be held on April 26, 2018, are incorporated by reference in this Annual Report on Form 10-K.

In April 2017, PricewaterhouseCoopers LLP (PwC) issued its annual Public Company Accounting Oversight Board Rule 3526 independence letter to the Audit Committee of our Board of Directors and therein reported that it is independent under applicable standards in connection with its audit opinion for the financial statements contained in this report. The Audit Committee has discussed with PwC its independence from Corning, and concurred with PwC.

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PART IV

Item 15. Exhibits, Financial Statement Schedules

(a) Documents filed as part of this report:

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1. Financial statements	76
2. Financial statement schedule:	
(i) Valuation accounts and reserves	131
See separate index to financial statements and financial statement schedules	

(b) Exhibits filed as part of this report:

- [2.1](#) [Framework Agreement, dated as of October 22, 2013, by and among Samsung Display Co., Ltd.; Corning Incorporated and the other parties thereto. \(Incorporated by reference to Exhibit 10.65 to Corning's Form 10-K filed on February 10, 2014, as amended by its Form 10-K/A filed on March 21, 2014\). The Company has omitted certain schedules, exhibits and similar attachments to the Framework Agreement pursuant to Item 601\(b\)\(2\) of Regulation S-K.](#)
- [2.2](#) [Transaction Agreement, dated December 10, 2015, by and between Corning Incorporated, The Dow Chemical Company, Dow Corning Corporation and HS Upstate Inc. \(Incorporated by reference to Exhibit 1.1 of Corning's Form 8-K filed on December 11, 2015\).](#)
- [2.3](#) [Assignment Agreement, dated as of December 29, 2015, between Samsung Display Co., Ltd., Corning Incorporated, Corning Precision Materials Co., Ltd., and Corning Luxembourg S.à.r.l., Corning Hungary Data Services Limited Liability Company, Corning Japan K.K., and Samsung Corning Advanced Glass LLC \(Incorporated by reference to Exhibit 2.1 of Corning's Form 8-K filed on December 29, 2015\).](#)
- [3 \(i\)](#) [Restated Certificate of Incorporation dated April 27, 2012, filed with the Secretary of State of the State of New York on April 27, 2012 \(Incorporated by reference to Exhibit 3\(i\) 1 of Corning's Form 8-K filed on May 1, 2012\).](#)
- [3 \(i\)\(1\)](#) [Certificate of Amendment to the Restated Certificate of Incorporation dated January 14, 2014, filed with the Secretary of State of the State of New York on January 14, 2014 \(Incorporated by reference to Exhibit 3.1 of Corning's Form 8-K filed on January 15, 2014\).](#)
- [3 \(ii\)](#) [Amended and Restated By-Laws of Corning Incorporated, effective as of December 7, 2015 \(Incorporated by reference to Exhibit 3\(ii\) of Corning's Form 8-K filed December 7, 2015\).](#)
- [4.1](#) [Indenture, dated November 8, 2000, by and between the Company and of The Bank of New York Mellon Trust Company, N.A. \(successor to J. P. Morgan Chase & Co., formerly The Chase Manhattan Bank\), as trustee \(Incorporated by reference to Exhibit 4.01 to Corning's Registration Statement on Form S-3, Registration Statement No. 333-57082\). The Company agrees to furnish to the Commission on request copies of other instruments with respect to long-term debt.](#)
- [4.2](#) [Form of certificate for shares of the common stock \(Incorporated by reference to Exhibit 4.4 to Corning's registration statement on Form S-8 dated May 7, 2010 \(Registration Statement No. 333-166642\)\). The terms of the Company's Fixed Rate Cumulative Convertible Preferred Stock, Series A are reflected in the Certificate of Amendment to the Restated Certificate of Incorporation dated January 14, 2014, filed with the Secretary of State of the State of New York on January 14, 2014 and included as Exhibit 3\(i\)\(1\) hereto.](#)
- [4.3](#) [Shareholder Agreement, dated as of October 22, 2013, by and between Samsung Display Co., Ltd. and Corning Incorporated \(Incorporated by reference to Exhibit 10.66 to Corning's Form 10-K filed on February 10, 2014, as amended by its Form 10-K/A filed on March 21, 2014\).](#)
- [4.4](#) [Standstill Agreement, dated as of October 22, 2013, by and among Samsung Electronics Co., Ltd., Samsung Display Co., Ltd. and Corning Incorporated \(Incorporated by reference to Exhibit 10.67 to Corning's Form 10-K filed on February 10, 2014, as amended by its Form 10-K/A filed on March 21, 2014\).](#)

- [10.1](#) [2000 Employee Equity Participation Program and 2003 Amendments \(Incorporated by reference to Exhibit 1 of Corning Proxy Statement, Definitive 14A filed March 10, 2003 for April 24, 2003 Annual Meeting of Shareholders\).](#)
- [10.2](#) [2003 Variable Compensation Plan \(Incorporated by reference to Exhibit 2 of Corning Proxy Statement, Definitive 14A filed March 10, 2003 for April 24, 2003 Annual Meeting of Shareholders\).](#)
- [10.3](#) [2003 Equity Plan for Non-Employee Directors \(Incorporated by reference to Exhibit 3 of Corning Proxy Statement, Definitive 14A filed March 10, 2003 for April 24, 2003 Annual Meeting of Shareholders\).](#)
- [10.4](#) [Form of Officer Severance Agreement dated as of February 1, 2004 between Corning Incorporated and each of the following individuals: James P. Clappin, Lawrence D. McRae and David L. Morse \(Incorporated by reference to Exhibit 10.1 of Corning's Form 10-Q filed May 4, 2004\).](#)
- [10.5](#) [Form of Amendment dated as of February 1, 2004 to Change In Control Agreement dated as of October 4, 2000 between Corning Incorporated and the following individuals: James P. Clappin, Lawrence D. McRae and David L. Morse \(Incorporated by reference to Exhibit 10.4 of Corning's Form 10-Q filed May 4, 2004\).](#)
- [10.6](#) [Form of Change In Control Amendment dated as of October 4, 2000 between Corning Incorporated and the following individuals: James P. Clappin, Lawrence D. McRae and David L. Morse \(Incorporated by reference to Exhibit 10.5 of Corning's Form 10-Q filed May 4, 2004\).](#)
- [10.7](#) [Amendment dated as of February 1, 2004 to Change In Control Agreement dated as of April 23, 2002 between Corning Incorporated and Wendell P. Weeks \(Incorporated by reference to Exhibit 10.8 of Corning's Form 10-Q filed May 4, 2004\).](#)
- [10.8](#) [Change In Control Agreement dated as of April 23, 2002 between Corning Incorporated and Wendell P. Weeks \(Incorporated by reference to Exhibit 10.9 of Corning's Form 10-Q filed May 4, 2004\).](#)
- [10.9](#) [Form of Corning Incorporated Incentive Stock Plan Agreement for Restricted Stock Grants \(Incorporated by reference to Exhibit 10.1 of Corning's Form 10-Q filed October 28, 2004\).](#)
- [10.10](#) [Form of Corning Incorporated Incentive Stock Plan Agreement for Restricted Stock Retention Grants \(Incorporated by reference to Exhibit 10.2 of Corning's Form 10-Q filed October 28, 2004\).](#)
- [10.11](#) [Form of Corning Incorporated Incentive Stock Option Agreement \(Incorporated by reference to Exhibit 10.3 of Corning's Form 10-Q filed October 28, 2004\).](#)
- [10.12](#) [Form of Corning Incorporated Non-Qualified Stock Option Agreement \(Incorporated by reference to Exhibit 10.4 of Corning's Form 10-Q filed October 28, 2004\).](#)
- [10.13](#) [2005 Employee Equity Participation Program \(Incorporated by reference to Exhibit I of Corning Proxy Statement, Definitive 14A filed March 1, 2005 for April 28, 2005 Annual Meeting of Shareholders\).](#)
- [10.14](#) [2006 Variable Compensation Plan \(Incorporated by reference to Appendix J of Corning Proxy Statement, Definitive 14A filed March 8, 2006 for April 27, 2006 Annual Meeting of Shareholders\).](#)
- [10.15](#) [Amended 2003 Equity Plan for Non-Employee Directors \(Incorporated by reference to Appendix K of Corning Proxy Statement, Definitive 14A filed March 8, 2006 for April 27, 2006 Annual Meeting of Shareholders\).](#)
- [10.16](#) [Amended Corning Incorporated 2003 Equity Plan for Non-Employee Directors effective October 4, 2006 \(Incorporated by reference to Exhibit 10.28 of Corning's Form 10-K filed February 27, 2007\).](#)
- [10.17](#) [Amended Corning Incorporated 2005 Employee Equity Participation Program effective October 4, 2006 \(Incorporated by reference to Exhibit 10.29 of Corning's Form 10-K filed February 27, 2007\).](#)
- [10.18](#) [Form of Corning Incorporated Incentive Stock Plan Agreement for Restricted Stock Grants, amended effective December 6, 2006 \(Incorporated by reference to Exhibit 10.30 of Corning's Form 10-K filed February 27, 2007\).](#)
- [10.19](#) [Executive Supplemental Pension Plan effective February 7, 2007 and signed February 12, 2007 \(Incorporated by reference to Exhibit 10.31 of Corning's Form 10-K filed February 27, 2007\).](#)

- [10.20](#) [Executive Supplemental Pension Plan as restated and signed April 10, 2007 \(Incorporated by reference to Exhibit 10 of Corning's Form 10-Q filed April 27, 2007\).](#)
- [10.21](#) [Amendment No. 1 to 2006 Variable Compensation Plan dated October 3, 2007 \(Incorporated by reference to Exhibit 10.34 of Corning's Form 10-K filed February 15, 2008\).](#)
- [10.22](#) [Corning Incorporated Goalsharing Plan dated October 3, 2007 \(Incorporated by reference to Exhibit 10.35 of Corning's Form 10-K filed February 15, 2008\).](#)
- [10.23](#) [Corning Incorporated Performance Incentive Plan dated October 3, 2007 \(Incorporated by reference to Exhibit 10.36 of Corning's Form 10-K filed February 15, 2008\).](#)
- [10.24](#) [Amendment No. 1 to Deferred Compensation Plan for Directors dated October 3, 2007 \(Incorporated by reference to Exhibit 10.37 of Corning's Form 10-K filed February 15, 2008\).](#)
- [10.25](#) [Corning Incorporated Supplemental Pension Plan dated October 3, 2007 \(Incorporated by reference to Exhibit 10.38 of Corning's Form 10-K filed February 15, 2008\).](#)
- [10.26](#) [Corning Incorporated Supplemental Investment Plan dated October 3, 2007 \(Incorporated by reference to Exhibit 10.39 of Corning's Form 10-K filed February 15, 2008\).](#)
- [10.27](#) [Form of Corning Incorporated Incentive Stock Plan Agreement for Restricted Stock Grants, amended effective December 5, 2007 \(Incorporated by reference to Exhibit 10.40 of Corning's Form 10-K filed February 15, 2008\).](#)
- [10.28](#) [Form of Corning Incorporated Non-Qualified Stock Option Agreement, amended effective December 5, 2007 \(Incorporated by reference to Exhibit 10.41 of Corning's Form 10-K filed February 15, 2008\).](#)
- [10.29](#) [Amendment No. 2 dated February 13, 2008 and Amendment dated as of February 1, 2004 to Letter of Understanding between Corning Incorporated and Wendell P. Weeks, and Letter of Understanding dated April 23, 2002 between Corning Incorporated and Wendell P. Weeks \(Incorporated by reference to Exhibit 10.42 of Corning's Form 10-K filed February 15, 2008\).](#)
- [10.30](#) [Form of Change in Control Agreement Amendment No. 2, effective December 5, 2007 \(Incorporated by reference to Exhibit 10.43 of Corning's Form 10-K filed February 15, 2008\).](#)
- [10.31](#) [Form of Officer Severance Agreement Amendment, effective December 5, 2007 \(Incorporated by reference to Exhibit 10.44 of Corning's Form 10-K filed February 15, 2008\).](#)
- [10.32](#) [Amendment No. 1 to Corning Incorporated Supplemental Investment Plan, approved December 17, 2007 \(Incorporated by reference to Exhibit 10.45 of Corning's Form 10-K filed February 15, 2008\).](#)
- [10.33](#) [Amendment No. 1 to Corning Incorporated Supplemental Pension Plan, approved December 17, 2007 \(Incorporated by reference to Exhibit 10.46 of Corning's Form 10-K filed February 15, 2008\).](#)
- [10.34](#) [Amendment No. 1 to Corning Incorporated Executive Supplemental Pension Plan, approved December 17, 2007 \(Incorporated by reference to Exhibit 10.47 of Corning's Form 10-K filed February 15, 2008\).](#)
- [10.35](#) [Second Amended 2005 Employee Equity Participation Program \(Incorporated by reference to Exhibit 10 of Corning's Form 8-K filed April 25, 2008\).](#)
- [10.36](#) [Amendment No. 2 to Executive Supplemental Pension Plan effective July 16, 2008 \(Incorporated by reference to Exhibit 10 of Corning's Form 10-Q filed July 30, 2008\).](#)
- [10.37](#) [Form of Corning Incorporated Non-Qualified Stock Option Agreement effective as of December 3, 2008 \(Incorporated by reference to Exhibit 10.50 of Corning's Form 10-K filed February 24, 2009\).](#)
- [10.38](#) [Form of Corning Incorporated Incentive Stock Right Agreement effective as of December 3, 2008 \(Incorporated by reference to Exhibit 10.51 of Corning's Form 10-K filed February 24, 2009\).](#)
- [10.39](#) [Form of Corning Incorporated Incentive Stock Plan Agreement for Restricted Stock Grants effective December 3, 2008 \(Incorporated by reference to Exhibit 10.52 of Corning's Form 10-K filed February 24, 2009\).](#)

- [10.40](#) [Form of Change of Control Agreement Amendment No. 3 effective December 19, 2008 \(Incorporated by reference to Exhibit 10.53 of Corning's Form 10-K filed February 24, 2009\).](#)
- [10.41](#) [Form of Officer Severance Agreement Amendment No. 2 effective December 19, 2008 \(Incorporated by reference to Exhibit 10.54 of Corning's Form 10-K filed February 24, 2009\).](#)
- [10.42](#) [Amendment No. 3 dated December 19, 2008 to Letter of Understanding dated April 23, 2002 between Corning Incorporated and Wendell P. Weeks \(Incorporated by reference to Exhibit 10.55 of Corning's Form 10-K filed February 24, 2009\).](#)
- [10.43](#) [Amendment No. 2 to Corning Incorporated Supplemental Investment Plan approved April 29, 2009 \(Incorporated by reference to Exhibit 10.1 of Corning's Form 10-Q filed July 29, 2009\).](#)
- [10.44](#) [Amendment No. 2 to Deferred Compensation Plan dated April 29, 2009 \(Incorporated by reference to Exhibit 10.2 of Corning's Form 10-Q filed July 29, 2009\).](#)
- [10.45](#) [Amendment No. 2 to 2006 Variable Compensation Plan dated December 2, 2009 \(Incorporated by reference to Exhibit 10.58 of Corning's Form 10-K filed February 10, 2010\).](#)
- [10.46](#) [Form of Corning Incorporated Cash Performance Unit Agreement, effective December 2, 2009 \(Incorporated by reference to Exhibit 10.59 of Corning's Form 10-K filed February 10, 2010\).](#)
- [10.47](#) [Form of Corning Incorporated Incentive Stock Right Agreement for Time-Based Restricted Stock Units, effective December 2, 2009 \(Incorporated by reference to Exhibit 10.60 of Corning's Form 10-K filed February 10, 2010\).](#)
- [10.48](#) [2010 Variable Compensation Plan \(Incorporated by reference to Appendix A of Corning's Proxy Statement, Definitive 14A filed March 15, 2010 for April 29, 2010 Annual Meeting of Shareholders\).](#)
- [10.49](#) [2010 Equity Plan for Non-Employee Directors \(Incorporated by reference to Appendix B of Corning Proxy Statement, Definitive 14A filed March 15, 2010 for April 29, 2010 Annual Meeting of Shareholders\).](#)
- [10.50](#) [Amendment No. 2 to Corning Incorporated Supplemental Pension Plan dated December 18, 2008 \(Incorporated by reference to Exhibit 10.66 of Corning's Form 10-K filed February 10, 2011\).](#)
- [10.51](#) [Form of Corning Incorporated Incentive Stock Right Agreement for Time-Based Incentive Stock Rights, effective January 3, 2011 \(Incorporated by reference to Exhibit 10.67 of Corning's Form 10-K filed February 10, 2011\).](#)
- [10.52](#) [Form of Corning Incorporated Cash Performance Unit Agreement, effective January 3, 2011 \(Incorporated by reference to Exhibit 10.68 of Corning's Form 10-K filed February 10, 2011\).](#)
- [10.53](#) [Amendment No. 2 to Deferred Compensation Plan for Directors dated February 1, 2012 \(Incorporated by reference to Exhibit 10.62 of Corning's Form 10-K filed February 13, 2012\).](#)
- [10.54](#) [Amendment No. 3 to Corning Incorporated Executive Supplemental Pension Plan effective December 31, 2008 \(Incorporated by reference to Exhibit 10.59 of Corning's Form 10-K filed February 13, 2013\).](#)
- [10.55](#) [2012 Long-Term Incentive Plan \(Incorporated by reference to Appendix A of Corning Proxy Statement, Definitive 14A filed March 13, 2012, for April 26, 2012 Annual Meeting of Shareholders\).](#)
- [10.56](#) [Amendment No. 3 to Deferred Compensation Plan for Directors dated December 28, 2012 \(Incorporated by reference to Exhibit 10.61 of Corning's Form 10-K filed February 13, 2013\).](#)
- [10.57](#) [Amendment No. 4 to Corning Incorporated Executive Supplemental Pension Plan effective December 31, 2012 \(Incorporated by reference to Exhibit 10.62 of Corning's Form 10-K filed February 13, 2013\).](#)
- [10.58](#) [Form of Corning Incorporated Cash Performance Unit Agreement, effective January 1, 2014 \(Incorporated by reference to Exhibit 10.69 to Corning's Form 10-K filed on February 10, 2014, as amended by its Form 10-K/A filed on March 21, 2014\).](#)

- [10.59](#) [Amendment No. 4 to Deferred Compensation Plan for Directors dated September 30, 2014 \(Incorporated by reference to Exhibit 10.1 of Corning's Form 10-Q filed on October 29, 2014\).](#)
- [10.60](#) [Amended and Restated Credit Agreement dated as of September 30, 2014, among Corning Incorporated, JPMorgan Chase Bank, N.A., Citibank, N.A., Bank of America, N.A., Deutsche Bank AG New York Branch, The Bank of Tokyo-Mitsubishi UFJ, Ltd., HSBC Bank USA, National Association, Standard Chartered Bank, Sumitomo Mitsui Banking Corporation, Barclays Bank PLC, Goldman Sachs Bank USA, Wells Fargo Bank, National Association, Bank of China New York Branch, and The Bank of New York Mellon \(Incorporated by reference to Exhibit 10.1 to Corning's Form 8-K filed on October 3, 2014\).](#)
- [10.61](#) [2014 Variable Compensation Plan \(Incorporated by reference to Appendix B of Corning's Proxy Statement, Definitive 14A filed March 13, 2014 for the April 29, 2014 Annual Meeting of Shareholders\).](#)
- [10.6.2](#) [Form of Corning Incorporated Incentive Stock Rights Agreement, effective January 1, 2015 \(Incorporated by reference to Exhibit 10.64 of Corning's Form 10-K filed February 13, 2015\).](#)
- [10.6.3](#) [Form of Corning Incorporated Cash Performance Unit Agreement, effective January 1, 2015 \(Incorporated by reference to Exhibit 10.65 of Corning's Form 10-K filed February 13, 2015\).](#)
- [10.6.4](#) [Form of Officer Severance Agreement dated as of January 1, 2015 between Corning Incorporated and each of the following individuals: Martin J. Curran; Eric S. Musser; Christine M. Pambianchi; and R. Tony Tripeny \(Incorporated by reference to Exhibit 10.1 of Corning's Form 10-Q filed July 30, 2015\).](#)
- [10.6.5](#) [Form of Change in Control Agreement dated as of January 1, 2015 between Corning Incorporated and each of the following individuals: Martin J. Curran; Eric S. Musser; Christine M. Pambianchi; and R. Tony Tripeny \(Incorporated by reference to Exhibit 10.2 of Corning's Form 10-Q filed July 30, 2015\).](#)
- [10.6.6](#) [Master Confirmation – Uncollared Accelerated Share Repurchase, dated October 28, 2015 by and between Morgan Stanley & Co. LLC and Corning Incorporated \(Incorporated by reference to Exhibit 10.67 of Corning's Form 10-K filed February 12, 2016\).](#)
- [10.6.7](#) [Tax Matters Agreement, dated December 10, 2015, by and between Corning Incorporated, The Dow Chemical Company, Dow Corning Corporation and HS Upstate Inc. \(Incorporated by reference to Exhibit 1.2 of Corning's Form 8-K filed on December 11, 2015\).](#)
- [10.6.8](#) [Form of Corning Incorporated Incentive Stock Rights Agreement, effective January 1, 2016 \(Incorporated by reference to Exhibit 10.69 of Corning's Form 10-K filed February 12, 2016\).](#)
- [10.69](#) [Form of Corning Incorporated Cash Performance Unit Agreement, effective January 1, 2016 \(Incorporated by reference to Exhibit 10.70 of Corning's Form 10-K filed February 12, 2016\).](#)
- [10.70](#) [Master Confirmation – Uncollared Accelerated Share Repurchase \(Incorporated by reference to Exhibit 10.1 to Corning's Form 10-Q filed on October 27, 2016\).](#)
- [10.71](#) [Form of Corning Incorporated Incentive Stock Rights Agreement for Employees, effective January 1, 2017 \(Incorporated by reference to Exhibit 10.71 of Corning's Form 10-K filed February 6, 2017\).](#)
- [10.72](#) [Form of Corning Incorporated Cash Performance Unit Agreement, effective January 1, 2017 \(Incorporated by reference to Exhibit 10.72 of Corning's Form 10-K filed February 6, 2017\).](#)
- [10.73](#) [Form of Corning Incorporated Restricted Stock Unit Grant Notice and Agreement for Non-Employee Directors \(for grants made under the 2012 Equity Plan for Non-Employee Directors\), effective January 1, 2017 \(Incorporated by reference to Exhibit 10.73 of Corning's Form 10-K filed February 6, 2017\).](#)
- [10.74](#) [Form of Corning Incorporated Incentive Stock Rights Agreement for Employees, effective January 1, 2018.](#)
- [10.75](#) [Form of Corning Incorporated Cash Performance Unit Agreement, effective January 1, 2018.](#)
- [12](#) [Computation of Ratio of Earnings to Fixed Charges and Ratio of Earnings to Combined Fixed Charges and Preferred Stock Dividends.](#)

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14	Corning Incorporated Code of Ethics for Chief Executive Officer and Financial Executives, and Code of Conduct for Directors and Executive Officers (Incorporated by reference to Appendix G of Corning Proxy Statement, Definitive 14A filed March 13, 2012 for April 26, 2012 Annual Meeting of Shareholders).
21	Subsidiaries of the Registrant at December 31, 2017.
23	Consent of PricewaterhouseCoopers LLP, Independent Registered Public Accounting Firm.
24	Powers of Attorney (included on the Signatures page of this Annual Report on Form 10-K).
31.1	Certification Pursuant to Rule 13a-15(e) and 15d-15(e), As Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification Pursuant to Rule 13a-15(e) and 15d-15(e), As Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32	Certification Pursuant to 18 U.S.C. Section 1350, As Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Calculation Linkbase Document
101.LAB	XBRL Taxonomy Label Linkbase Document
101.PRE	XBRL Taxonomy Presentation Linkbase Document
101.DEF	XBRL Taxonomy Definition Document

Item 16. Form 10-K Summary.

None.

Signatures

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

Corning Incorporated

Date: February 15, 2018

By: /s/ Wendell P. Weeks
Wendell P. Weeks
Chairman of the Board of Directors,
Chief Executive Officer, President and Director

Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints R. Tony Tripeny, Lewis A. Steverson and Edward A. Schlesinger, jointly and severally, his or her attorneys-in-fact, each with the power of substitution, for him or her in any and all capacities, to sign any amendments to this Annual Report on Form 10-K, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that each of said attorneys-in-fact, or his substitute or substitutes, may do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the fifteenth day of February, 2018.

<u>Signature</u>	<u>Capacity</u>
<u>/s/ Wendell P. Weeks</u> Wendell P. Weeks	Chairman of the Board of Directors, Chief Executive Officer, President and Director (Principal Executive Officer)
<u>/s/ R. Tony Tripeny</u> R. Tony Tripeny	Senior Vice President and Chief Financial Officer (Principal Financial Officer)
<u>/s/ Edward A. Schlesinger</u> Edward A. Schlesinger	Vice President – Corporate Controller (Principal Accounting Officer)
<u>/s/ Donald W. Blair</u> Donald W. Blair	Director
<u>/s/ Stephanie A. Burns</u> Stephanie A. Burns	Director
<u>/s/ John A. Canning, Jr.</u> John A. Canning, Jr.	Director
<u>/s/ Richard T. Clark</u> Richard T. Clark	Director
<u>/s/ Robert F. Cummings, Jr.</u> Robert F. Cummings, Jr.	Director

Signature	Capacity
<hr/> <i>/s/ Deborah A. Henretta</i> Deborah A. Henretta	Director
<hr/> <i>/s/Daniel P. Huttenlocher</i> Daniel P. Huttenlocher	Director
<hr/> <i>/s/ Kurt M. Landgraf</i> Kurt M. Landgraf	Director
<hr/> <i>/s/ Kevin J. Martin</i> Kevin J. Martin	Director
<hr/> <i>/s/ Deborah D. Rieman</i> Deborah D. Rieman	Director
<hr/> <i>/s/ Hansel E. Tookes II</i> Hansel E. Tookes II	Director
<hr/> <i>/s/ Mark S. Wrighton</i> Mark S. Wrighton	Director

Corning Incorporated
2017 Annual Report
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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of Corning Incorporated:

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Corning Incorporated and its subsidiaries as of December 31, 2017 and 2016, and the related consolidated statements of (loss) income, comprehensive income, changes in shareholders' equity and cash flows for each of the three years in the period ended December 31, 2017, including the related notes and schedule of valuation accounts and reserves for each of the three years in the period ended December 31, 2017 appearing under Item 15 (a)(2) (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2017 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Annual Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("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 audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated 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 consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

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 (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) 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 (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

/s/ PricewaterhouseCoopers LLP

New York, New York

February 14, 2018

We have served as the Company's auditor since 1944.

Consolidated Statement of (Loss) Income**Corning Incorporated and Subsidiary Companies**

(In millions, except per share amounts)	Years ended December 31,		
	2017	2016	2015
Net sales	\$ 10,116	\$ 9,390	\$ 9,111
Cost of sales	6,084	5,644	5,458
Gross margin	4,032	3,746	3,653
Operating expenses:			
Selling, general and administrative expenses	1,467	1,472	1,508
Research, development and engineering expenses	860	742	769
Amortization of purchased intangibles	75	64	54
Restructuring, impairment and other charges (Note 2)		77	
Operating income	1,630	1,391	1,322
Equity in earnings of affiliated companies (Note 7)	361	284	299
Interest income	45	32	21
Interest expense	(155)	(159)	(140)
Translated earnings contract (loss) gain, net	(121)	(448)	80
Gain on realignment of equity investment		2,676	
Other expense, net	(103)	(84)	(96)
Income before income taxes	1,657	3,692	1,486
(Provision) benefit for income taxes (Note 6)	(2,154)	3	(147)
Net (loss) income attributable to Corning Incorporated	\$ (497)	\$ 3,695	\$ 1,339
(Loss) earnings per common share attributable to Corning Incorporated:			
Basic (Note 18)	\$ (0.66)	\$ 3.53	\$ 1.02
Diluted (Note 18)	\$ (0.66)	\$ 3.23	\$ 1.00
Dividends declared per common share (1)	\$ 0.62	\$ 0.54	\$ 0.36

(1) The first quarter 2015 dividend was declared on December 3, 2014.

The accompanying notes are an integral part of these consolidated financial statements.

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Consolidated Statements of Comprehensive Income**Corning Incorporated and Subsidiary Companies**

(In millions)	Years ended December 31,		
	2017	2016	2015
Net (loss) income attributable to Corning Incorporated	\$ (497)	\$ 3,695	\$ 1,339
Foreign currency translation adjustments and other	746	(104)	(590)
Net unrealized gains (losses) on investments	14	(3)	1
Unamortized gains (losses) and prior service credits (costs) for postretirement benefit plans	30	241	121
Net unrealized gains (losses) on designated hedges	44	1	(36)
Other comprehensive income (loss), net of tax (Note 17)	834	135	(504)
Comprehensive income attributable to Corning Incorporated	\$ 337	\$ 3,830	\$ 835

The accompanying notes are an integral part of these consolidated financial statements.

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Consolidated Balance Sheets**Corning Incorporated and Subsidiary Companies**

(In millions, except share and per share amounts)	December 31,	
	2017	2016
Assets		
Current assets:		
Cash and cash equivalents	\$ 4,317	\$ 5,291
Trade accounts receivable, net of doubtful accounts and allowances - \$60 and \$59	1,807	1,481
Inventories, net of inventory reserves - \$169 and \$151 (Note 5)	1,712	1,471
Other current assets (Note 11 and 15)	991	805
Total current assets	8,827	9,048
Investments (Note 7)	340	336
Property, plant and equipment, net of accumulated depreciation - \$10,809 and \$9,884 (Note 9)	14,017	12,546
Goodwill, net (Note 10)	1,694	1,577
Other intangible assets, net (Note 10)	869	796
Deferred income taxes (Note 6)	813	2,325
Other assets (Note 11 and 15)	934	1,271
Total Assets	\$ 27,494	\$ 27,899
Liabilities and Equity		
Current liabilities:		
Current portion of long-term debt and short-term borrowings (Note 12)	\$ 379	\$ 256
Accounts payable	1,439	1,079
Other accrued liabilities (Note 11 and 14)	1,391	1,416
Total current liabilities	3,209	2,751
Long-term debt (Note 12)	4,749	3,646
Postretirement benefits other than pensions (Note 13)	749	737
Other liabilities (Note 11 and 14)	3,017	2,805
Total liabilities	11,724	9,939
Commitments and contingencies (Note 14)		
Shareholders' equity (Note 17):		
Convertible preferred stock, Series A – Par value \$100 per share; Shares authorized 3,100; Shares issued: 2,300	2,300	2,300
Common stock – Par value \$0.50 per share; Shares authorized: 3.8 billion; Shares issued: 1,708 million and 1,691 million	854	846
Additional paid-in capital – common stock	14,089	13,695
Retained earnings	15,930	16,880
Treasury stock, at cost; shares held: 850 million and 765 million	(16,633)	(14,152)
Accumulated other comprehensive loss	(842)	(1,676)
Total Corning Incorporated shareholders' equity	15,698	17,893
Noncontrolling interests	72	67
Total equity	15,770	17,960
Total Liabilities and Equity	\$ 27,494	\$ 27,899

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Cash Flows
Corning Incorporated and Subsidiary Companies

(In millions)	Years ended December 31,		
	2017	2016	2015
Cash Flows from Operating Activities:			
Net (loss) income	\$ (497)	\$ 3,695	\$ 1,339
Adjustments to reconcile net (loss) income to net cash provided by operating activities:			
Depreciation	1,083	1,131	1,130
Amortization of purchased intangibles	75	64	54
Restructuring, impairment and other charges		77	
Equity in earnings of affiliated companies	(361)	(284)	(299)
Dividends received from affiliated companies	201	85	143
Deferred tax provision (benefit)	1,796	(308)	54
Customer incentives and deposits, net	100	185	197
Translated earnings contract loss (gain)	121	448	(80)
Unrealized translation losses on transactions	(339)	1	268
Gain on realignment of equity investment		(2,676)	
Changes in certain working capital items:			
Trade accounts receivable	(225)	(106)	162
Inventories	(170)	(68)	(77)
Other current assets	(172)	18	(57)
Accounts payable and other current liabilities	169	259	(126)
Other, net	223	16	121
Net cash provided by operating activities	2,004	2,537	2,829
Cash Flows from Investing Activities:			
Capital expenditures	(1,804)	(1,130)	(1,250)
Acquisitions of businesses, net of cash paid	(171)	(333)	(732)
Proceeds from sale of a business	14		12
Cash received on realignment of equity investment		4,818	
Proceeds from sale of assets to related party		42	
Short-term investments – acquisitions		(20)	(969)
Short-term investments – liquidations	29	121	1,629
Realized gains on translated earnings contracts	270	201	653
Other, net	(48)	(37)	(28)
Net cash (used in) provided by investing activities	(1,710)	3,662	(685)
Cash Flows from Financing Activities:			
Net repayments of short-term borrowings and current portion of long-term debt	(252)	(85)	(12)
Proceeds from issuance of long-term debt	1,445		745
Proceeds from issuance of short-term debt, net			3
(Payments) proceeds from issuance of commercial paper		(481)	481
Payments from the settlement of interest rate swap agreements			(10)
Principal payments under capital lease obligations	(7)	(7)	(6)
Proceeds received for asset financing and related incentives, net		1	1
Payments of employee withholding tax on stock award	(16)	(16)	(20)
Proceeds from the exercise of stock options	309	138	102
Repurchases of common stock for treasury	(2,452)	(4,227)	(3,228)
Dividends paid	(651)	(645)	(679)
Net cash used in financing activities	(1,624)	(5,322)	(2,623)
Effect of exchange rates on cash	356	(86)	(330)
Net increase (decrease) in cash and cash equivalents	(974)	791	(809)
Cash and cash equivalents at beginning of year	5,291	4,500	5,309
Cash and cash equivalents at end of year	\$ 4,317	\$ 5,291	\$ 4,500

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Changes in Shareholders' Equity
Corning Incorporated and Subsidiary Companies

(In millions)	Convertible preferred stock	Common stock	Additional paid-in capital common	Retained earnings	Treasury stock	Accumulated other comprehensive income (loss)	Total Corning Incorporated shareholders' equity	Non-controlling interests	Total
Balance, December 31, 2014	\$ 2,300	\$ 836	\$ 13,456	\$ 13,021	\$ (6,727)	\$ (1,307)	\$ 21,579	\$ 73	\$ 21,652
Net income				1,339			1,339	9	1,348
Other comprehensive loss						(504)	(504)	(1)	(505)
Purchase of common stock for treasury			(250)		(2,978)		(3,228)		(3,228)
Shares issued to benefit plans and for option exercises		4	146		(1)		149		149
Dividends on shares				(528)			(528)		(528)
Other, net					(19)		(19)	(6)	(25)
Balance, December 31, 2015	\$ 2,300	\$ 840	\$ 13,352	\$ 13,832	\$ (9,725)	\$ (1,811)	\$ 18,788	\$ 75	\$ 18,863
Net income				3,695			3,695	10	3,705
Other comprehensive income (loss)						135	135	(6)	129
Purchase of common stock for treasury			165		(4,409)		(4,244)		(4,244)
Shares issued to benefit plans and for option exercises		6	178		(2)		182		182
Dividends on shares				(647)			(647)		(647)
Other, net					(16)		(16)	(12)	(28)
Balance, December 31, 2016	\$ 2,300	\$ 846	\$ 13,695	\$ 16,880	\$ (14,152)	\$ (1,676)	\$ 17,893	\$ 67	\$ 17,960
Net (loss) income				(497)			(497)	18	(479)
Other comprehensive income (loss)						834	834	6	840
Purchase of common stock for treasury			14		(2,462)		(2,448)		(2,448)
Shares issued to benefit plans and for option exercises		8	349		(2)		355		355
Dividends on shares				(654)			(654)		(654)
Other, net (1)			31	201	(17)		215	(19)	196
Balance, December 31, 2017	\$ 2,300	\$ 854	\$ 14,089	\$ 15,930	\$ (16,633)	\$ (842)	\$ 15,698	\$ 72	\$ 15,770

(1) Adjustment to retained earnings includes the cumulative effect of the accounting change we recorded upon adoption of ASU 2016-09 in 2017 in the amount of \$233 million.

The accompanying notes are an integral part of these consolidated financial statements.

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Corning Incorporated and Subsidiary Companies
Notes to Consolidated Financial Statements

1. Summary of Significant Accounting Policies

Organization

Corning Incorporated is a provider of high-performance glass for notebook computers, flat panel desktop monitors, LCD televisions, and other information display applications; carrier network and enterprise network products for the telecommunications industry; ceramic substrates for gasoline and diesel engines in automotive and heavy duty vehicle markets; laboratory products for the scientific community and specialized polymer products for biotechnology applications; advanced optical materials for the semiconductor industry and the scientific community; and other technologies. In these notes, the terms “Corning,” “Company,” “we,” “us,” or “our” mean Corning Incorporated and subsidiary companies.

Basis of Presentation and Principles of Consolidation

Our consolidated financial statements were prepared in conformity with generally accepted accounting principles in the U.S. and include the assets, liabilities, revenues and expenses of all majority-owned subsidiaries over which Corning exercises control.

The equity method of accounting is used for investments in affiliated companies that are not controlled by Corning and in which our interest is generally between 20% and 50% and we have significant influence over the entity. Our share of earnings or losses of affiliated companies, in which at least 20% of the voting securities is owned and we have significant influence but not control over the entity, is included in consolidated operating results.

We use the cost method to account for our investments in companies that we do not control and for which we do not have the ability to exercise significant influence over operating and financial policies. In accordance with the cost method, these investments are recorded at cost or fair value, as appropriate.

All material intercompany accounts, transactions and profits are eliminated in consolidation.

Certain prior year amounts have been reclassified to conform to the current-year presentation. These reclassifications had no impact on our results of operations, financial position, or changes in shareholders' equity.

Dow Corning

Prior to May 31, 2016, Corning and Dow Chemical each owned half of Dow Corning, an equity company headquartered in Michigan that manufactures silicone products worldwide. Dow Corning was the majority-owner of HSG, a market leader in the production of high purity polycrystalline silicon for the semiconductor and solar energy industries. On May 31, 2016, Corning completed the strategic realignment of its equity investment in Dow Corning pursuant to the Transaction Agreement announced in December 2015. Under the terms of the Transaction Agreement, Corning exchanged with Dow Corning its 50% stock interest in Dow Corning for 100% of the stock of a newly formed entity, which holds an equity interest in HSG and approximately \$4.8 billion in cash. Prior to realignment, HSG, a consolidated subsidiary of Dow Corning, was an indirect equity investment of Corning. Upon completion of the exchange, Corning now has a direct equity investment in HSG.

Refer to Note 7 (Investments) to the Consolidated Financial Statements for additional information.

1. Summary of Significant Accounting Policies (continued)

Use of Estimates

The preparation of financial statements requires management to make estimates and assumptions that affect amounts reported in the consolidated financial statements and related notes. Significant estimates and assumptions in these consolidated financial statements include estimates of fair value associated with revenue recognition, restructuring charges, goodwill and long-lived asset impairment tests, estimates of acquired assets and liabilities, estimates of fair value of investments, equity interests, environmental and legal liabilities, income taxes and deferred tax valuation allowances, assumptions used in calculating pension and other postretirement employee benefit expenses and the fair value of share-based compensation. Due to the inherent uncertainty involved in making estimates, actual results reported in future periods may be different from these estimates.

Revenue Recognition

Revenue for sales of goods is recognized when a firm sales agreement is in place, delivery has occurred and sales price is fixed or determinable and collection is reasonably assured. If customer acceptance of products is not reasonably assured, sales are recorded only upon formal customer acceptance. Sales of goods typically do not include multiple product and/or service elements.

At the time revenue is recognized, allowances are recorded, with the related reduction to revenue, for estimated product returns, allowances and price discounts based upon historical experience and related terms of customer arrangements. Where we have offered product warranties, we also establish liabilities for estimated warranty costs based upon historical experience and specific warranty provisions. Warranty liabilities are adjusted when experience indicates the expected outcome will differ from initial estimates of the liability.

In addition, Corning also has contractual arrangements with certain customers in which we recognize revenue on a completed contract basis. Revenues under the completed-contract method are recognized upon substantial completion, defined as acceptance by the customer and compliance with performance specifications as agreed upon in the contract. The Company acts as a principal under the contracts, and recognizes revenues with corresponding cost of revenues on a gross basis for the full amount of the contract.

Research and Development Costs

Research and development costs are charged to expense as incurred. Research and development costs totaled \$689 million in 2017, \$637 million in 2016 and \$638 million in 2015.

Foreign Currency Translation and Transactions

The determination of the functional currency for Corning's foreign subsidiaries is made based on the appropriate economic factors. For most foreign operations, the local currencies are generally considered to be the functional currencies. Corning's most significant exception is our Taiwanese subsidiary, which uses the Japanese yen as its functional currency. For all transactions denominated in a currency other than a subsidiary's functional currency, exchange rate gains and losses are included in income for the period in which the exchange rates changed. We recorded foreign currency transaction gains of \$20 million and \$21 million for the years ended December 31, 2017 and 2016, respectively, and foreign currency transaction losses of \$22 million for the year ended December 31, 2015. These amounts were recorded in the line item Other expense, net in the Consolidated Statements of (Loss) Income.

Foreign subsidiary functional currency balance sheet accounts are translated at current exchange rates, and statement of operations accounts are translated at average exchange rates for the year. Translation gains and losses are recorded as a separate component of accumulated other comprehensive income in shareholders' equity. The effects of remeasuring non-functional currency assets and liabilities into the functional currency are included in current earnings, except for those related to intra-entity foreign currency transactions of a long-term investment nature, which are recorded together with translation gains and losses in accumulated other comprehensive income (loss) in shareholders' equity. Upon sale or substantially complete liquidation of an investment in a foreign entity, the amount of net translation gains or losses that have been accumulated in other comprehensive income attributable to that investment are reported as a gain or loss for the period in which the sale or liquidation occurs.

1. Summary of Significant Accounting Policies (continued)***Share-Based Compensation***

Corning's share-based compensation programs include employee stock option grants, time-based restricted stock awards and time-based restricted stock units, as more fully described in Note 19 (Share-based Compensation) to the Consolidated Financial Statements.

The cost of share-based compensation awards is equal to the fair value of the award at the date of grant and compensation expense is recognized for those awards earned over the vesting period. Corning estimates the fair value of share-based awards using a multiple-point Black-Scholes option valuation model, which incorporates assumptions including expected volatility, dividend yield, risk-free rate, expected term and departure rates.

Cash and Cash Equivalents

Cash equivalents consist of highly liquid investments that are readily convertible into cash. We consider securities with contractual maturities of three months or less, when purchased, to be cash equivalents. The carrying amount of these securities approximates fair value because of the short-term maturity of these instruments.

Supplemental disclosure of cash flow information follows (in millions):

	Years ended December 31,		
	2017	2016	2015
Non-cash transactions:			
Accruals for capital expenditures	\$ 584	\$ 381	\$ 298
Cash paid for interest and income taxes:			
Interest (1)	\$ 178	\$ 184	\$ 178
Income taxes, net of refunds received	\$ 405	\$ 293	\$ 253

(1) Included in this amount are approximately \$36 million, \$23 million and \$35 million of interest costs that were capitalized as part of property, plant and equipment, net of accumulated depreciation, in 2017, 2016 and 2015, respectively.

Allowance for Doubtful Accounts

The Company's allowance for doubtful accounts is determined based on a variety of factors that affect the potential collectability of the related receivables, including length of time receivables are past due, customer credit ratings, financial stability of customers, specific one-time events and past customer history. In addition, in circumstances where the Company is made aware of a specific customer's inability to meet its financial obligations, a specific allowance is established. The majority of accounts are individually evaluated on a regular basis and appropriate reserves are established as deemed appropriate based on the above criteria.

Environmental Liabilities

The Company accrues for its environmental investigation, remediation, operating and maintenance costs when it is probable that a liability has been incurred and the amount can be reasonably estimated. For environmental matters, the most likely cost to be incurred is accrued based on an evaluation of currently available facts with respect to each individual site, current laws and regulations and prior remediation experience. For sites with multiple potential ly responsible parties, the Company considers its likely proportionate share of the anticipated remediation costs and the ability of the other parties to fulfill their obligations in establishing a provision for those costs. Where no amount within a range of estimates is more likely to occur than another, the minimum amount is accrued. When future liabilities are determined to be reimbursable by insurance coverage, an accrual is recorded for the potential liability and a receivable is recorded related to the insurance reimbursement when reimbursement is virtually certain.

The uncertain nature inherent in such remediation and the possibility that initial estimates may not reflect the final outcome could result in additional costs being recognized by the Company in future periods.

1. Summary of Significant Accounting Policies (continued)

Inventories

Inventories are stated at the lower of cost (first-in, first-out basis) or market.

Property, Plant and Equipment, Net of Accumulated Depreciation

Land, buildings, and equipment, including precious metals, are recorded at cost. Depreciation is based on estimated useful lives of properties using the straight-line method. Except as described in Note 9 (Property, Plant and Equipment, Net of Accumulated Depreciation) to the Consolidated Financial Statements related to the depletion of precious metals, the estimated useful lives range from 10 to 40 years for buildings and 2 to 20 years for equipment.

Included in the subcategory of equipment are the following types of assets (excluding precious metals):

Asset type	Range of useful life
Computer hardware and software	3 to 7 years
Manufacturing equipment	2 to 15 years
Furniture and fixtures	5 to 10 years
Transportation equipment	3 to 20 years

Manufacturing equipment includes certain components of production equipment that are constructed of precious metals. These assets are not depreciated because they have very low physical losses and are repeatedly reclaimed and reused in our manufacturing process over a very long useful life. We treat the physical loss of precious metals in the manufacturing and reclamation process as depletion and account for these losses as a period expense based on actual units lost. Precious metals are integral to many of our glass production processes. They are only acquired to support our operations and are not held for trading or other purposes.

Goodwill and Other Intangible Assets

Goodwill is the excess of cost of an acquired entity over the amounts assigned to assets acquired and liabilities assumed in a business combination. Goodwill relates to and is assigned directly to a specific reporting unit. Reporting units are either operating segments or one level below the operating segment. Impairment testing for goodwill is done at a reporting unit level. Goodwill is reviewed for indicators of impairment quarterly or if an event occurs or circumstances change that indicate that the carrying amount may be impaired. Corning also performs a detailed quantitative impairment test every three years if no indicators suggest a test should be performed in the interim. We use this calculation as quantitative validation of the qualitative process; this process does not represent an election to perform the quantitative impairment test in place of the qualitative review.

The qualitative process includes an extensive review of expectations for the long-term growth of our businesses and forecasting future cash flows. If we are required to perform the quantitative impairment analysis, our valuation method is an “income approach” using a discounted cash flow model in which cash flows anticipated over several periods, plus a terminal value at the end of that time horizon, are discounted to their present value using an appropriate rate of return. Our estimates are based upon our historical experience, our current knowledge from our commercial relationships, and available external information about future trends. If the fair value is less than the carrying value, a loss is recorded to reflect the difference between the fair value and carrying value.

Other intangible assets include patents, trademarks, and other intangible assets acquired from an independent party. Such intangible assets have a definite life and are amortized on a straight-line basis over estimated useful lives ranging from 4 to 50 years.

1. Summary of Significant Accounting Policies (continued)

Impairment of Long-Lived Assets

We review the recoverability of our long-lived assets, such as plant and equipment and intangible assets, when events or changes in circumstances occur that indicate the carrying value of the asset or asset group may not be recoverable. When impairment indicators are present, we compare estimated undiscounted future cash flows, including the eventual disposition of the asset group at market value, to the assets' carrying value to determine if the asset group is recoverable. For an asset group that fails the test of recoverability, the estimated fair value of long-lived assets is determined using an "income approach" that starts with the forecast of all the expected future net cash flows including the eventual disposition at market value of long-lived assets, and also considers the fair market value of all precious metals. We assess the recoverability of the carrying value of long-lived assets at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. If there is an impairment, a loss is recorded to reflect the difference between the assets' fair value and carrying value. Refer to Note 2 (Restructuring, Impairment and Other Charges) to the Consolidated Financial Statements for more detail.

Employee Retirement Plans

Corning offers employee retirement plans consisting of defined benefit pension plans covering certain domestic and international employees and postretirement plans that provide health care and life insurance benefits for eligible retirees and dependents. The costs and obligations related to these benefits reflect the Company's assumptions related to general economic conditions (particularly interest rates), expected return on plan assets, rate of compensation increase for employees and health care trend rates. The cost of providing plan benefits depends on demographic assumptions including retirements, mortality, turnover and plan participation.

Costs for our defined benefit pension plans consist of two elements: 1) on-going costs recognized quarterly, which are comprised of service and interest costs, expected return on plan assets and amortization of prior service costs; and 2) mark-to-market gains and losses outside of the corridor, where the corridor is equal to 10% of the greater of the benefit obligation or the market-related value of plan assets at the beginning of the year, which are recognized annually in the fourth quarter of each year. These gains and losses result from changes in actuarial assumptions for discount rates and the differences between actual and expected return on plan assets. Any interim remeasurements triggered by a curtailment, settlement or significant plan changes, as well as any true-up to the annual valuation, are recognized as a mark-to-market adjustment in the quarter in which such event occurs.

Costs for our postretirement benefit plans consist of on-going costs recognized quarterly, and are comprised of service and interest costs, amortization of prior service costs and amortization of actuarial gains and losses. We recognize the actuarial gains and losses resulting from changes in actuarial assumptions for discount rates as a component of Shareholders' Equity on our consolidated balance sheets on an annual basis and amortize them into our operating results over the average remaining service period of employees expected to receive benefits under the plans, to the extent such gains and losses are outside of the corridor.

Refer to Note 13 (Employee Retirement Plans) to the Consolidated Financial Statements for additional detail.

Income Taxes

The Company accounts for income taxes using the asset and liability method. Under this method, deferred tax assets and liabilities are recognized for the future tax consequences attributable to operating loss and tax credit carryforwards and for differences between the carrying amounts of existing assets and liabilities and their respective tax bases.

The effective income tax rate reflects our assessment of the ultimate outcome of tax audits. In evaluating the tax benefits associated with our various tax filing positions, we record a tax benefit for uncertain tax positions using the highest cumulative tax benefit that is more likely than not to be realized. Adjustments are made to our liability for unrecognized tax benefits in the period in which we determine the issue is effectively settled with the tax authorities, the statute of limitations expires for the return containing the tax position or when new information becomes available. Our liability for unrecognized tax benefits, including accrued penalties and interest, is included in other accrued liabilities and other long-term liabilities on our consolidated balance sheets and in income tax expense in our Consolidated Statements of (Loss) Income.

Discrete events such as audit settlements or changes in tax laws are recognized in the period in which they occur. Valuation allowances are established when management is unable to conclude that it is more likely than not that some portion, or all, of the deferred tax asset will ultimately be realized.

1. Summary of Significant Accounting Policies (continued)

At December 31, 2017, Corning has not completed its accounting for the tax effects of the enactment of the 2017 Tax Act. Pursuant to SAB 118, the Company has made a reasonable estimate of the effects on its U.S. deferred tax balances, the one-time toll charge and the impact on its state valuation allowances. In addition, Corning has not made sufficient progress on estimating the impact of tax reform on its assertion regarding its indefinitely reinvested foreign earnings so the Company will continue to follow its historic position while it continues to analyze this issue. In addition, Corning's accounting for the impact of the global intangible low-taxed income (GILTI) provisions of the 2017 Tax Act is incomplete and, as a result, it has not yet elected a policy to account for the GILTI provisions. The initial accounting is incomplete as we need additional time and information to analyze all aspects of the newly enacted law and how it impacts our worldwide operations. The additional information that needs to be obtained, prepared or analyzed in order to complete the accounting requirements includes receiving further guidance from the tax authorities; additional time to prepare basis calculations; post enactment impacts and further time to validate of our assumptions.

Equity Method Investments

Our equity method investments are reviewed for impairment on a periodic basis or if an event occurs or circumstances change that indicate the carrying amount may be impaired. This assessment is based on a review of the equity investments' performance and a review of indicators of impairment to determine if there is evidence of a loss in value of an equity investment. Factors we consider include:

- Absence of our ability to recover the carrying amount;
- Inability of the equity affiliate to sustain an earnings capacity which would justify the carrying amount of the investment; and
- Significant litigation, bankruptcy or other events that could impact recoverability.

For an equity investment with impairment indicators, we measure fair value on the basis of discounted cash flows or other appropriate valuation methods, depending on the nature of the company involved. If it is probable that we will not recover the carrying amount of our investment, the impairment is considered other-than-temporary and recorded in earnings, and the equity investment balance is reduced to its fair value accordingly. We require our material equity method affiliates to provide audited financial statements. Consequently, adjustments for asset recoverability are included in equity earnings. We also utilize these financial statements in our recoverability assessment.

Fair Value of Financial Instruments

Major categories of financial assets and liabilities, including short-term investments, other assets and derivatives are measured at fair value on a recurring basis. Certain assets and liabilities including long-lived assets, goodwill, asset retirement obligations, and cost and equity investments are measured at fair value on a nonrecurring basis.

Fair value is the price that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. When determining the fair value measurements for assets and liabilities required to be recorded at fair value, we consider the principal or most advantageous market in which we would transact and consider assumptions that market participants would use when pricing the asset or liability, such as inherent risk, transfer restrictions, and risk of nonperformance.

Derivative Instruments

We participate in a variety of foreign exchange forward contracts and foreign exchange option contracts entered into in connection with the management of our exposure to fluctuations in foreign exchange rates. We utilize interest rate swaps to reduce the risk of changes in a benchmark interest rate from the probable forecasted issuance of debt and to swap fixed rate interest payments into floating rate interest payments. These financial exposures are managed in accordance with corporate policies and procedures.

1. Summary of Significant Accounting Policies (continued)

All derivatives are recorded at fair value on the balance sheet. Changes in the fair value of derivatives designated as cash flow hedges and hedges of net investments in foreign operations are not recognized in current operating results but are recorded in accumulated other comprehensive income. Amounts related to cash flow hedges are reclassified from accumulated other comprehensive income when the underlying hedged item impacts earnings. This reclassification is recorded in the same line item of the Consolidated Statements of (Loss) Income as where the effects of the hedged item are recorded, typically sales, cost of sales or other (expense) income, net. Changes in the fair value of derivatives not designated as hedging instruments are recorded in the Consolidated Statements of (Loss) Income in the Translated earnings contract (loss) gain, net and the Other expense, net lines.

New Accounting Standards

In May 2014, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) No. 2014-09, Revenue from Contracts with Customers, as a new Topic, Accounting Standards Codification (“ASC”) Topic 606. The new revenue recognition standard relates to revenue from contracts with customers, which, along with amendments issued in 2015 and 2016, will supersede nearly all current U.S. GAAP guidance on this topic and eliminate industry-specific guidance. The underlying principle is to use a five-step analysis of transactions to recognize revenue when promised goods or services are transferred to customers in an amount that reflects the consideration that is expected to be received for those goods or services. Corning has evaluated its material contracts, and has concluded that the impact of adopting the standard on its financial statements and related disclosure will not be material. The standard, as amended, will be effective for annual periods beginning after December 15, 2017, including interim periods within that reporting period. We will adopt the standard on a modified retrospective basis in 2018.

One of Corning’s equity affiliates is currently assessing the potential impact of adopting ASU 2014-09 on its financial statements and will adopt the standard on January 1, 2019. Preliminary analysis indicates that the impact of adoption will not have a material impact on Corning’s financial statements.

In February 2016, the FASB issued ASU 2016-02, Leases (Topic 842), which supersedes all existing guidance on accounting for leases in ASC Topic 840. ASU 2016-02 is intended to provide enhanced transparency and comparability by requiring lessees to record right-of-use assets and corresponding lease liabilities on the balance sheet. ASU 2016-02 will continue to classify leases as either finance or operating, with classification affecting the pattern of expense recognition in the statement of income. ASU 2016-02 is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. Early adoption is permitted. ASU 2016-02 is required to be applied with a modified retrospective approach to each prior reporting period presented with various optional practical expedients. We are currently assessing the potential impact of adopting ASU 2016-02 on our financial statements and related disclosures.

One of Corning’s equity affiliates is currently assessing the potential impact of adopting ASU 2016-02 on its financial statements and elected to adopt the standard on January 1, 2020.

In August 2016, the FASB issued ASU 2016-15, Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments. ASU 2016-15 refines how companies classify certain aspects of the cash flow statement in regards to debt prepayment, settlement of debt instruments, contingent consideration payments, proceeds from insurance claims and life insurance policies, distribution from equity method investees, beneficial interests in securitization transactions and separately identifiable cash flows. ASU 2016-15 is effective for annual periods beginning after December 15, 2017, and for interim periods within those fiscal years. We have determined that the impact of this standard will not be material. We will adopt this standard in 2018.

In October 2016, the FASB issued ASU No. 2016-16, Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory, which reduces the complexity in the accounting standards by allowing the recognition of current and deferred income taxes for an intra-entity asset transfer, other than inventory, when the transfer occurs. Historically, recognition of the income tax consequence was not recognized until the asset was sold to an outside party. This amendment should be applied on a modified retrospective basis through a cumulative-effect adjustment directly to retained earnings as of the beginning of the period of adoption. ASU 2016-16 is effective for annual periods beginning after December 15, 2017, including interim reporting periods within those annual reporting periods. Early adoption is permitted for all entities as of the beginning of an annual reporting period for which financial statements (interim or annual) have not been issued or made available for issuance. That is, earlier adoption should be in the first interim period if an entity issues interim financial statements. We have determined that the impact of this standard will not be material. We will adopt this standard in 2018.

1. Summary of Significant Accounting Policies (continued)

In January 2017, the FASB issued ASU 2017-04, Intangibles – Goodwill and Other (Topic 350). ASU 2017-04 simplifies the subsequent measurement of goodwill by removing the second step of the two-step impairment test. The amendment requires an entity to perform its annual, or interim goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. An impairment charge should be recognized for the amount by which the carrying amount exceeds the reporting unit's fair value; however, the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. An entity still has the option to perform the qualitative assessment for a reporting unit to determine if the quantitative impairment test is necessary. The amendment should be applied on a prospective basis. ASU 2017-04 is effective for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years. Early adoption is permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017. The Company adopted the ASU on January 1, 2017.

In March 2017, the FASB issued ASU No. 2017-07, Compensation—Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost. ASU 2017-07 requires entities to (1) disaggregate the current-service-cost component from the other components of net benefit cost (the “other components”) and present it with other current compensation costs for related employees in the income statement and (2) present the other components elsewhere in the income statement and outside of income from operations if that subtotal is presented. In addition, the ASU requires entities to disclose the income statement lines that contain the other components if they are not presented on appropriately described separate lines. The amendment should be applied retrospectively for the presentation of the service cost component and prospectively for the capitalization of the service cost component. ASU 2017-07 is effective for fiscal years beginning after December 15, 2017, including interim periods within those fiscal years. Early adoption is permitted at the beginning of any annual period for which an entity's financial statements have not been issued or made available for issuance. We have determined that the impact of this standard will not be material. We will adopt this standard in 2018.

2. Restructuring, Impairment and Other Charges

2017 Activity

For the year ended December 31, 2017, we did not record significant restructuring, impairment and other charges or reversals. Cash expenditures for restructuring activities were approximately \$ 4 million .

2016 Activity

For the year ended December 31, 2016, we recorded charges of \$77 million , pre-tax, for employee related costs of \$14 million , asset disposals of \$62 million , and exit costs associated with some minor restructuring activities in all of our segments of \$1 million , with total cash expenditures of approximately \$12 million .

Cash payments for employee-related and exit activity related to the 2016 restructuring activities were substantially completed in 2016.

2015 Activity

For the year ended December 31, 2015, we did not record significant restructuring, impairment and other charges or reversals. Cash expenditures for restructuring activities were approximately \$40 million .

Restructuring reserves as of December 31, 2017, 2016 and 2015 were not significant.

3. Available-for-Sale Investments

At December 31, 2016 and 2015 , the Company held long-term investments of \$29 million and \$33 million , respectively. The Company's investments in available-for-sale securities were held at fair value with amortized cost of \$32 million and \$37 million at December 31, 2016 and 2015, respectively.

At December 31, 2017, Corning did not hold long-term investments or available-for-sale securities.

Proceeds from sales and maturities of short-term investments totaled \$29 million , \$121 million and \$1.6 billion in 2017, 2016 and 2015, respectively.

4. Significant Customers

For 2017, no customers met or exceeded 10% of Corning's consolidated net sales. For 2016 and 2015, Corning's sales to Samsung Display Co. Ltd., a customer of our Display Technologies and Specialty Materials segments, represented 11% of the Company's consolidated net sales.

5. Inventories, Net of Inventory Reserves

Inventories, net of inventory reserves comprise the following (in millions):

	December 31,	
	2017	2016
Finished goods	\$ 739	\$ 606
Work in process	322	303
Raw materials and accessories	306	270
Supplies and packing materials	345	292
Total inventories, net of inventory reserves	\$ 1,712	\$ 1,471

6. Income Taxes

Income before income taxes follows (in millions):

	Years ended December 31,		
	2017	2016	2015
U.S. companies	\$ 653	\$ 2,658	\$ 426
Non-U.S. companies	1,004	1,034	1,060
Income before income taxes	\$ 1,657	\$ 3,692	\$ 1,486

The current and deferred amounts of the (provision) benefit for income taxes follow (in millions):

	Years ended December 31,		
	2017	2016	2015
Current:			
Federal	\$ (20)	\$ (1)	\$ (40)
State and municipal	(21)	(17)	(20)
Foreign	(317)	(287)	(33)
Deferred:			
Federal	(1,617)	310	(144)
State and municipal	(109)	48	(30)
Foreign	(70)	(50)	120
(Provision) benefit for income taxes	\$ (2,154)	\$ 3	\$ (147)

Amounts are reflected in the preceding tables based on the location of the taxing authorities.

6. Income Taxes (continued)

Reconciliation of the U.S. statutory income tax rate to our effective tax rate for operations follows:

	Years ended December 31,		
	2017	2016	2015
Statutory U.S. income tax rate	35.0 %	35.0 %	35.0 %
State income tax (benefit), net of federal effect	0.8	(0.3)	0.1
Repatriation tax on accumulated previously untaxed foreign earnings	67.4		
Remeasurement of deferred tax assets and liabilities	21.0		
Rate difference on foreign earnings	(3.9)	(9.2)	(19.8)
Uncertain tax positions	0.6	(0.1)	4.3
Equity earnings impact	0.1	(0.4)	(5.4)
Valuation allowances	6.8	1.2	(4.2)
Realignment of Dow Corning interest		(28.2)	
Other items, net	2.2	1.9	(0.1)
Effective income tax rate (benefit)	130.0 %	(0.1)%	9.9 %

Corning's results for the year ending December 31, 2017 included a total \$2.2 billion worldwide tax provision, inclusive of tax on normal operations and the impacts of the 2017 Tax Act. Given the significant complexity of the 2017 Tax Act and anticipated future guidance from the U.S. Treasury, the Securities and Exchange Commission and the Financial Accounting Standards Board ("FASB") related to the 2017 Tax Act, the Securities Exchange Commission has issued its Staff Accounting Bulletin 118 ("SAB 118") to provide registrants additional time to analyze and report the effects of tax reform during the "measurement period". Under SAB 118, the registrant is required to record those items where ASC 740 analysis is complete; include reasonable estimates and label them as provisional where ASC 740 analysis is incomplete; and if reasonable estimates cannot be made, record items under the previous tax law. The measurement period ends on the date the entity has obtained, prepared, and analyzed the information that was needed in order to complete the accounting requirements under ASC Topic 740 and is not to exceed 1 year.

In addition to SAB 118, the FASB has issued some guidance regarding how to account for tax reform as well as a proposal to reclassify stranded tax costs from AOCI to retained earnings. Furthermore, to date, the U.S. Treasury has issued Notice 2018-07 on December 29, 2017 and Notice 2018-13 on January 19, 2018 with additional guidance on how to compute the toll charges.

At December 31, 2017, we have not completed our accounting for the tax effects of the enactment of the 2017 Tax Act; however, we have made a reasonable estimate of the effects on our U.S. deferred tax balances, the one-time toll charge and the impact on our state valuation allowances. We recognized provisional amounts which are included as a component of income tax expense from continuing operations. The initial accounting is incomplete as we need additional time and information to analyze all aspects of the newly enacted law and how it impacts our worldwide operations. The additional information that needs to be obtained, prepared or analyzed in order to complete the accounting requirements includes receiving further guidance from the tax authorities; additional time to prepare basis calculations; post-enactment impacts, and further time to validate our assumptions.

We re-measured the U.S. deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future, which is generally 21%. However, we are still analyzing certain aspects of the 2017 Tax Act and refining our calculations, which could potentially affect the measurement of these balances or potentially give rise to new deferred tax amounts. The provisional amount recorded related to the re-measurement of our deferred tax balances was \$34.7 million.

The one-time toll charge is based on our unrepatriated earnings of certain foreign subsidiaries that were previously deferred. This charge resulted in an additional provisional tax expense amount of \$1.1 billion. We have not yet completed our calculation of the toll charge. This amount may change when we finalize the calculation of unrepatriated earnings that were previously deferred from U.S. federal taxation and finalize the amounts held in cash or other specified assets. Settlement of the toll charge will occur almost entirely through the use of existing foreign tax credit carryovers.

6. Income Taxes (continued)

Corning has not made sufficient progress on estimating the impact of tax reform on its assertion regarding its indefinitely reinvested foreign earnings so the Company will continue to follow its historic position while it continues to analyze this item. As of December 31, 2017, Corning estimates that its unremitted foreign earnings were \$16.9 billion. While Corning is not changing its assertion at this time, the Company has distributed approximately \$2 billion in January 2018 from two of its foreign subsidiaries to the U.S. parent of those subsidiaries. There are no incremental taxes beyond the toll charge due with respect to this distribution of cash.

Under its historic policy, Corning will continue to indefinitely reinvest substantially all of its foreign earnings, with the exception of an immaterial amount of current earnings that have very low or no tax cost associated with their repatriation. Our current analysis indicates that we have sufficient U.S. liquidity, including borrowing capacity, to fund foreseeable U.S. cash needs without requiring the repatriation of foreign cash.

Corning's accounting for the impact of the global intangible low-taxed income (GILTI) provisions of the 2017 Tax Act is incomplete and, as a result, it has not yet elected a policy to account for the GILTI provisions.

We will continue to monitor for future guidance and to assess the impacts of the 2017 Tax Act.

Tax benefit associated with rate differences on foreign earnings is primarily the income of subsidiaries with lower statutory rates than the U.S. for 2017 and for 2016 and 2015 includes the benefit of excess foreign tax credits resulting from the inclusion of foreign earnings in U.S. income.

During 2016, a realignment of Dow Corning interest took place. Refer to Note 7 (Investments) of the Consolidated Financial Statements for additional detail.

The tax effects of temporary differences and carryforwards that gave rise to significant portions of the deferred tax assets and liabilities follows (in millions):

	December 31,	
	2017	2016
Loss and tax credit carryforwards	\$ 652	\$ 1,465
Other assets	43	62
Asset impairments and restructuring reserves	94	154
Postretirement medical and life benefits	191	283
Other accrued liabilities		190
Other employee benefits	278	462
Gross deferred tax assets	1,258	2,616
Valuation allowance	(456)	(270)
Total deferred tax assets	802	2,346
Intangible and other assets	(101)	(104)
Other accrued liabilities	(94)	
Fixed assets	(245)	(234)
Total deferred tax liabilities	(440)	(338)
Net deferred tax assets	\$ 362	\$ 2,008

6. Income Taxes (continued)

The net deferred tax assets are classified in our consolidated balance sheets as follows (in millions):

	December 31,	
	2017	2016
Deferred tax assets	\$ 813	\$ 2,325
Deferred tax liabilities	(451)	(317)
Net deferred tax assets	\$ 362	\$ 2,008

Details on deferred tax assets for loss and tax credit carryforwards at December 31, 2017 follow (in millions):

	Amount	Expiration			
		2017-2021	2022-2026	2027-2036	Indefinite
Net operating losses	\$ 497	\$ 137	\$ 72	\$ 45	\$ 243
Tax credits	155		4	135	16
Totals as of December 31, 2017	\$ 652	\$ 137	\$ 76	\$ 180	\$ 259

Deferred tax assets are to be reduced by a valuation allowance if, based on the weight of available positive and negative evidence, it is more likely than not (a likelihood of greater than 50 percent) that some portion or all of the deferred tax assets will not be realized. Corning has valuation allowances on certain shorter-lived deferred tax assets such as those represented by capital loss and state tax net operating loss carryforwards, as well as other foreign net operating loss carryforwards, because we cannot conclude that it is more likely than not that we will earn income of the character required to utilize these assets before they expire. The amount of U.S. and foreign deferred tax assets that have remaining valuation allowances at December 31, 2017 and 2016 was \$456 million and \$270 million, respectively.

The 2017 Tax Act makes the following key changes to U.S. tax law which will potentially impact Corning's deferred tax assets. Corporate alternative minimum tax ("AMT") has been eliminated. Taxpayers with AMT credit carryovers can use credits to offset regular tax liability for any tax year or such credits will be fully refundable by year 2022. Corning has \$28 million of AMT carryover. Net operating losses ("NOL's") generated prior to the 2017 Tax Act may still be carried back two years and forward 20 years. Corning has \$34 million of Federal NOL's that are subject to these provisions. The 2017 Tax Act limits and in some cases eliminates foreign tax credits. Corning has \$49 million of foreign tax credit carryforwards that may be subject to these restrictions.

In 2017, we adopted ASU 2016-09, Improvements to Employee Share-Based Payment Accounting. As a result, cumulative tax benefits totaling \$233 million were recorded as an adjustment to beginning retained earnings.

The following is a tabular reconciliation of the total amount of unrecognized tax benefits (in millions):

	2017	2016
Balance at January 1	\$ 243	\$ 253
Additions based on tax positions related to the current year	1	10
Additions for tax positions of prior years	13	4
Reductions for tax positions of prior years		(18)
Settlements and lapse of statute of limitations	(5)	(6)
Balance at December 31	\$ 252	\$ 243

Included in the balance at December 31, 2017 and 2016 are \$97 million and \$92 million, respectively, of unrecognized tax benefits that would impact our effective tax rate if recognized.

We recognize accrued interest and penalties associated with uncertain tax positions as part of tax expense. For the years ended December 31, 2017 and 2016 the amount recognized in interest expense is not material. The amounts accrued at December 31, 2017 and 2016 for the payment of interest and penalties were also not material.

6. Income Taxes (continued)

It is possible that the amount of unrecognized tax benefits will change due to one or more of the following events during the next twelve months: audit activity, tax payments, or final decisions in matters that are the subject of controversy in various jurisdictions within which we operate. The majority of the potential change relates to tax litigation in Korea as well as our ongoing U.S. tax audit. We believe we have provided adequate contingent reserves for these matters. However, if upon conclusion of these matters, the ultimate determination of taxes owed is for an amount materially different than our current reserves, our overall tax expense and effective tax rate could be materially impacted in the period of adjustment.

Corning Incorporated, as the common parent company, and all 80% -or-more-owned of its U.S. subsidiaries join in the filing of consolidated U.S. federal income tax returns. The statute of limitations is closed for all periods ending through December 31, 2012. All returns for periods ended through December 31, 2004, have been audited by and settled with the Internal Revenue Service (IRS).

Corning Incorporated and its U.S. subsidiaries file income tax returns on a combined, unitary or stand-alone basis in multiple state and local jurisdictions, which generally have statutes of limitations ranging from 3 to 5 years. Various state income tax returns are currently in the process of examination or administrative appeal.

Our foreign subsidiaries file income tax returns in the countries in which they have operations. Generally, these countries have statutes of limitations ranging from 3 to 7 years. Years still open to examination by foreign tax authorities in major jurisdictions include Japan (2009, 2015 onward), Taiwan (2015 onward) and South Korea (2015 onward). Corning is currently appealing certain tax assessments resulting from audits performed by the South Korean tax authorities covering periods 2006 through 2015. The Company is required to deposit the disputed tax amounts with the South Korean government as a condition of its appeal of these assessments. Because we believe that it is more likely than not that we will prevail in the appeals process, we have recorded a non-current receivable of \$319 million for the amount on deposit with the South Korean government.

7. Investments

Investments are comprised of the following (in millions):

	Ownership interest	December 31,	
		2017	2016
Affiliated companies accounted for by the equity method (1)	20% to 50%	\$ 280	\$ 269
Other investments		60	67
Subtotal Investment Assets		\$ 340	\$ 336
Affiliated companies accounted for by the equity method - HSG (1)(2)	50%	\$ 105	\$ 241
Subtotal Investment Liabilities		\$ 105	\$ 241

(1) Amount reflects Corning's direct ownership interests in the affiliated companies at December 31, 2017 and December 31, 2016. Corning does not control any of such entities.

(2) HSG indirectly holds an 80.5% interest in a HSG operating partnership. The negative carrying value of the investment in HSG is recorded in Other Liabilities.

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7. Investments (continued)***Affiliated Companies at Equity***

The results of operations and financial position of the investments accounted for under the equity method follow (in millions):

	Years ended December 31,		
	2017	2016	2015
Statement of operations:			
Net sales	\$ 2,346	\$ 4,024	\$ 6,461
Gross profit	\$ 560	\$ 1,006	\$ 1,606
Net income	\$ 721	\$ 565	\$ 586
Corning's equity in earnings of affiliated companies	\$ 361	\$ 284	\$ 299
Related party transactions:			
Corning sales to affiliated companies	\$ 108	\$ 95	\$ 75
Corning purchases from affiliated companies	\$ 12	\$ 12	\$ 19
Corning transfers of assets, at cost, to affiliated companies	\$ 22	\$ 44	
Dividends received from affiliated companies	\$ 201	\$ 85	\$ 143
Balance sheet:			
Current assets	\$ 1,593	\$ 1,522	
Noncurrent assets	\$ 1,999	\$ 2,112	
Short-term borrowings, including current portion of long-term debt	\$ 3	\$ 3	
Other current liabilities	\$ 700	\$ 715	
Long-term debt	\$ 16	\$ 23	
Other long-term liabilities	\$ 2,128	\$ 2,523	
Non-controlling interest	\$ 313	\$ 267	
Related party transactions:			
Balances due from affiliated companies	\$ 47	\$ 33	

We have contractual agreements with several of our equity affiliates which include sales, purchasing, licensing and technology agreements.

As of December 31, 2017 and 2016, the undistributed earnings of equity companies included in our retained earnings are not material.

HSG and Dow Corning

On May 31, 2016, Corning completed the strategic realignment of its equity investment in Dow Corning Corporation ("Dow Corning") pursuant to the Transaction Agreement announced in December 2015. Under the terms of the Transaction Agreement, Corning exchanged with Dow Corning its 50% stock interest in Dow Corning for 100% of the stock of a newly formed entity, which holds an equity interest in Hemlock Semiconductor Group ("HSG") and approximately \$4.8 billion in cash.

Prior to realignment, HSG, a consolidated subsidiary of Dow Corning, was an indirect equity investment of Corning. Upon completion of the exchange, Corning now has a direct equity investment in HSG. Because our ownership percentage in HSG did not change as a result of the realignment, the investment in HSG is recorded at its carrying value, which had a negative carrying value of \$383 million at the transaction date. The negative carrying value resulted from a one-time charge to this entity in 2014 for the permanent abandonment of certain assets. Excluding this charge, the entity is profitable and is expected to recover its equity in the near term.

7. Investments (continued)

Corning’s financial statements as of December 31, 2016 include the positive impact of the release of a deferred tax liability of \$105 million related to Corning’s tax on Dow Corning’s earnings that were not distributed as of the date of the transaction and a non-taxable gain of \$2,676 million on the realignment. Details of the gain are illustrated below (in millions):

Cash	\$	4,818
Carrying Value of Dow Corning Equity Investment		(1,560)
Carrying Value of HSG Equity Investment		(383)
Other (1)		(199)
Gain	\$	2,676

(1) Primarily consists of the release of accumulated other comprehensive income items related to unamortized actuarial losses related to Dow Corning’s pension plan and foreign currency translation gains in the amounts of \$260 million and \$45 million, respectively.

Corning began reporting HSG equity earnings and dividends on June 1, 2016. HSG information presented below is shown for the year ended December 31, 2017 and seven months ended December 31, 2016 (in millions):

	Years ended December 31,	
	2017	2016
Statement of operations:		
Net sales	\$ 1,716	\$ 1,119
Gross profit	\$ 469	\$ 361
Net income	\$ 706	\$ 421
Corning’s equity in earnings of affiliated companies	\$ 352	\$ 212
Related party transactions:		
Dividends received from affiliated companies	\$ 196	\$ 65
	December 31,	
	2017	2016
Balance sheet:		
Current assets	\$ 1,206	\$ 1,130
Noncurrent assets	\$ 1,522	\$ 1,745
Short-term borrowings, including current portion of long-term debt	\$ 3	\$ 3
Other current liabilities	\$ 484	\$ 555
Long-term debt	\$ 15	\$ 17
Other long-term liabilities	\$ 2,126	\$ 2,518
Non-controlling interest	\$ 313	\$ 267

7. Investments (continued)

For the period ended December 31, 2016, Corning reported Dow Corning equity earnings and dividends through May 31, 2016, the transaction date. Dow Corning information presented below is shown for the five months ended May 31, 2016 (in millions):

	Years ended December 31,	
	2016	2015
Statement of operations:		
Net sales	\$ 2,215	\$ 5,649
Gross profit (1)	\$ 588	\$ 1,472
Net income attributable to Dow Corning	\$ 163	\$ 563
Corning's equity in earnings of Dow Corning	\$ 82	\$ 281
Related party transactions:		
Corning purchases from Dow Corning	\$ 7	\$ 15
Dividends received from Dow Corning	\$ 20	\$ 143

(1) Gross profit for the five months ended May 31, 2016 and the twelve months ended December 31, 2015 includes R&D costs of \$100 million and \$233 million, respectively.

8. Acquisitions**Years ended December 31, 2017 and 2016**

There were no material acquisitions completed in 2017 or 2016. See Note 10 (Goodwill and Other Intangible Assets) for further information on goodwill and intangibles acquired in 2017 and 2016.

Year ended December 31, 2015

Corning completed five acquisitions in 2015. There were minor adjustments during 2015 made to the preliminary allocation of the total purchase consideration related to working capital adjustments and true-up of the fair value of assets acquired for the acquisitions. Corning has completed the purchase accounting for all of these acquisitions. A summary of the allocation of the total purchase consideration for the five acquisitions is as follows (in millions):

Cash and cash equivalents	\$ 2
Trade receivables	63
Inventory	47
Property, plant and equipment	117
Other intangible assets	286
Other current and non-current assets	27
Current and non-current liabilities	(117)
Total identified net assets	425
Purchase consideration	(725)
Goodwill (1)	\$ 300

(1) The goodwill recognized is partially deductible for U.S. income tax purposes. The goodwill was allocated to the Optical Communications and All Other reporting segment in the amount of \$213 million and \$87 million, respectively.

The goodwill generated from these acquisitions is primarily related to the value of the product portfolio and customer/distribution networks acquired, combined with Corning's existing business segments, as well as market participant synergies and other intangibles that do not qualify for separate recognition.

The acquired amortizable intangible assets have a weighted-average useful life of approximately 10 years.

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Acquisition-related costs of \$11 million included in selling, general and administrative expense in the Consolidated Statements of (Loss) Income for the year ended December 31, 2015 included costs for legal, accounting, valuation and other professional services. The Consolidated Financial Statements include the operating results of each business combination from the date of acquisition. Pro forma results of operations have not been presented because the effects of the acquisitions, individually and in the aggregate, were not material to Corning's financial results.

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9. Property, Plant and Equipment, Net of Accumulated Depreciation

Property, plant and equipment, net of accumulated depreciation follow (in millions):

	December 31,	
	2017	2016
Land	\$ 482	\$ 435
Buildings	5,864	5,540
Equipment	16,648	14,973
Construction in progress	1,832	1,482
	24,826	22,430
Accumulated depreciation	(10,809)	(9,884)
Total	\$ 14,017	\$ 12,546

Approximately \$36 million, \$23 million and \$35 million of interest costs were capitalized as part of property, plant and equipment, net of accumulated depreciation, in 2017, 2016 and 2015, respectively.

Manufacturing equipment includes certain components of production equipment that are constructed of precious metals. At December 31, 2017 and 2016, the recorded value of precious metals totaled \$3 billion in each period. Depletion expense for precious metals in the years ended December 31, 2017, 2016 and 2015 was \$13 million, \$20 million and \$19 million, respectively.

10. Goodwill and Other Intangible Assets

Goodwill

Changes in the carrying amount of goodwill for the twelve months ended December 31, 2017 and 2016 were as follows (in millions):

	Display Technologies	Optical Communications	Specialty Materials	Life Sciences	All Other	Total
Balance at December 31, 2015	\$ 128	\$ 439	\$ 150	\$ 562	\$ 101	\$ 1,380
Acquired goodwill (1)		205				205
Measurement period adjustment		(4)				(4)
Foreign currency translation adjustment	(2)	5		(4)	(3)	(4)
Balance at December 31, 2016	\$ 126	\$ 645	\$ 150	\$ 558	\$ 98	\$ 1,577
Acquired goodwill (2)		22		43	34	99
Measurement period adjustment (3)		(1)		1	(28)	(28)
Foreign currency translation adjustment	10	5		21	10	46
Balance at December 31, 2017	\$ 136	\$ 671	\$ 150	\$ 623	\$ 114	\$ 1,694

(1) The Company completed two acquisitions in the Optical Communications segment during the year ended December 31, 2016 with total purchase price of \$356 million.

(2) The Company completed two small acquisitions in the third quarter of 2017 which are reported in the Optical Communications and Life Sciences segment and one small acquisition in the first quarter of 2017 which is reported in All Other.

(3) In the second quarter of 2017, the Company recorded measurement period adjustments of \$28 million related to an acquisition completed in a previous period.

Corning's gross goodwill balance for the fiscal years ended December 31, 2017 and 2016 were \$8.2 billion and \$8.1 billion, respectively. Accumulated impairment losses were \$6.5 billion for the fiscal years ended December 31, 2017 and 2016, respectively, and were generated primarily through goodwill impairments related to the Optical Communications segment.

10. Goodwill and Other Intangible Assets (continued)**Other Intangible Assets**

Other intangible assets follow (in millions):

	December 31,					
	2017			2016		
	Gross	Accumulated amortization	Net	Gross	Accumulated amortization	Net
Amortized intangible assets:						
Patents, trademarks & trade names	\$ 382	\$ 188	\$ 194	\$ 360	\$ 176	\$ 184
Customer list and other	884	209	675	761	149	612
Total	\$ 1,266	\$ 397	\$ 869	\$ 1,121	\$ 325	\$ 796

Amortized intangible assets are primarily related to the Optical Communications and Life Sciences segments. The net carrying amount of intangible assets increased by \$73 million during the year ended December 31, 2017, primarily due to acquisitions of \$131 million and foreign currency translation adjustments of \$17 million offset by amortization of \$75 million.

Amortization expense related to these intangible assets is estimated to be \$72 million annually from 2018 to 2019, \$71 million annually from 2020 through 2022.

11. Other Assets and Other Liabilities

Other assets follow (in millions):

	December 31,	
	2017	2016
Current assets:		
Contingent consideration asset	\$ 300	
Derivative instruments	197	\$ 435
Other current assets	494	370
Other current assets	\$ 991	\$ 805
Non-current assets:		
Derivative instruments	\$ 68	\$ 146
Contingent consideration asset		289
South Korean tax deposits	319	274
Other non-current assets	547	562
Other assets	\$ 934	\$ 1,271

South Korean tax deposits

Corning is currently appealing certain tax assessments resulting from audits performed by the South Korean tax authorities. The Company is required to deposit the disputed tax amounts with the South Korean government as a condition of its appeal of these assessments. Because we believe that it is more likely than not that we will prevail in the appeal process, we have recorded a non-current receivable for the amount on deposit with the South Korean government.

11. Other Assets and Other Liabilities (continued)

Other liabilities follow (in millions):

	December 31,	
	2017	2016
Current liabilities:		
Wages and employee benefits	\$ 620	\$ 487
Income taxes	148	150
Derivative instruments	42	88
Asbestos and other litigation	41	75
Other current liabilities	540	616
Other accrued liabilities	\$ 1,391	\$ 1,416
Non-current liabilities:		
Defined benefit pension plan liabilities	\$ 713	\$ 692
Derivative instruments	333	282
Asbestos and other litigation	338	388
Investment in Hemlock Semiconductor Group (1)	105	241
Customer deposits	382	382
Other non-current liabilities	1,146	820
Other liabilities	\$ 3,017	\$ 2,805

(1) The negative carrying value resulted from a one-time charge to this entity in 2014 for the permanent abandonment of certain assets. Refer to Note 7 (Investments) to the Consolidated Financial Statements for additional information.

Asbestos Litigation

Corning and PPG each owned 50% of the capital stock of PCC. Over a period of more than two decades, PCC and several other defendants were named in numerous lawsuits involving claims alleging personal injury from exposure to asbestos. Refer to Note 14 (Commitments, Contingencies and Guarantees) to the Consolidated Financial Statements for additional information on the asbestos litigation.

Customer Deposits

In December 2015, Corning announced that with the support of the Hefei government it will locate a Gen 10.5 glass manufacturing facility in the Hefei XinZhan General Pilot Zone in Anhui Province, China. Glass substrate production from the new facility is expected to support mass production of LCD panels for large-size televisions beginning in 2018.

As part of this investment, Corning and a Chinese customer have entered into a long-term supply agreement that commits the customer to the purchase of Gen 10.5 glass substrates from the Corning manufacturing facility in Hefei. This agreement stipulates that the customer will provide a non-refundable cash deposit in the amount of approximately \$400 million to Corning to secure rights to an amount of glass that is produced by Corning over the next 10 years. Corning has collected the full amount of this deposit, adjusted for foreign exchange movements, receiving \$185 million of this deposit in 2017 and \$197 million in 2016. As glass is shipped to the customer, Corning will recognize revenue and issue credit memoranda to reduce the amount of the customer deposit liability, which are applied against customer receivables resulting from the sale of glass. In 2017 and 2016, there were no credit memoranda issued.

12. Debt

(In millions)

	December 31,	
	2017	2016
Current portion of long-term debt	\$ 379	\$ 256
Long-term debt		
Debtures, 1.45% , due 2017		\$ 250
Debtures, 1.5% , due 2018	\$ 375	374
Debtures, 6.625% , due 2019	245	245
Debtures, 4.25% , due 2020	288	290
Debtures, 8.875% , due 2021	66	67
Debtures, 2.9% , due 2022	373	372
Debtures, 3.70% , due 2023	249	248
Medium-term notes, average rate 7.66% , due through 2023	45	45
Debtures, 7.00% , due 2024	99	99
Yen-denominated debtures, .698% , due 2024	185	
Yen-denominated debtures, .992% , due 2027	414	
Debtures, 6.85% , due 2029	166	167
Debtures, callable, 7.25% , due 2036	248	248
Debtures, 4.70% , due 2037	248	248
Yen-denominated debtures, 1.583% , due 2037	85	
Debtures, 5.75% , due 2040	397	395
Debtures, 4.75% , due 2042	496	495
Debtures, 4.375%, due 2057	743	
Other, average rate 5.05% , due through 2042	406	359
Total long-term debt	5,128	3,902
Less current portion of long-term debt	379	256
Long-term debt	\$ 4,749	\$ 3,646

At December 31, 2017 and 2016, the weighted-average interest rate on current portion of long-term debt was 1.5% . Corning did not have outstanding commercial paper at December 31, 2017 and 2016.

Based on borrowing rates currently available to us for loans with similar terms and maturities, the fair value of long-term debt was \$5.1 billion at December 31, 2017 and \$3.9 billion at December 31, 2016. The Company measures the fair value of its long-term debt using Level 2 inputs based primarily on current market yields for its existing debt traded in the secondary market.

The following table shows debt maturities by year at December 31, 2017 (in millions)*:

	2018	2019	2020	2021	2022	Thereafter
	\$ 379	\$ 254	\$ 305	\$ 67	\$ 381	\$ 3,769

* Excludes interest rate swap gains and bond discounts.

12. Debt (continued)

Debt Issuances and Retirements

2017

In the third quarter of 2017, Corning issued three Japanese yen-denominated debt securities (the “Notes”), as follows:

- ¥21 billion 0.698% senior unsecured long term notes with a maturity of 7 years;
- ¥47 billion 0.992% senior unsecured long term notes with a maturity of 10 years; and
- ¥10 billion 1.583% senior unsecured long term notes with a maturity of 20 years.

The proceeds from these Notes were received in Japanese yen and converted to U.S. dollars on the date of issuance. The net proceeds received in U.S. dollars, after deducting offering expenses, was approximately \$700 million. Payments of principal and interest on the Notes will be in Japanese yen, or should yen be unavailable due to circumstances beyond Corning’s control, a U.S. dollar equivalent.

On a quarterly basis, Corning will recognize the transaction gains and losses resulting from changes in the JPY/USD exchange rate in the Other expense, net line of the Consolidated Statements of (Loss) Income. Cash proceeds from the offerings and payments for debt issuance costs are disclosed as financing activities, and cash payments to bondholders for interest will be disclosed as operating activities, in the Consolidated Statements of Cash Flows.

In the fourth quarter of 2017, Corning issued \$750 million of 4.375% senior unsecured notes that mature on November 15, 2057. The net proceeds of \$743 million will be used for general corporate purposes. We can redeem these notes at any time, subject to certain terms and conditions.

2016

In the third quarter of 2016, Corning’s Board of Directors approved a \$1 billion increase to our commercial paper program, raising it to \$2 billion. If needed, this program is supported by our \$2 billion revolving credit facility that expires in 2019.

13. Employee Retirement Plans

Defined Benefit Plans

We have defined benefit pension plans covering certain domestic and international employees. Our funding policy has been to contribute, as necessary, an amount in excess of the minimum requirements in order to achieve the Company’s long-term funding targets. In 2017, we made no voluntary cash contributions to our domestic defined benefit pension plan and \$29 million to our international pension plans. In 2016, we made voluntary cash contributions of \$73 million to our domestic defined benefit pension plan and \$16 million to our international pension plans. We are not subject to any mandatory contributions in 2018, and anticipate making voluntary cash contributions of up to \$105 million to our U.S. qualified pension plan. We anticipate contributing up to \$27 million to our international pension plans in 2018. The amount recognized in accumulated other comprehensive loss and not yet reflected in periodic benefit cost expected to be amortized in next year’s periodic benefit cost is a net actuarial loss of \$5.9 million.

Corning offers postretirement plans that provide health care and life insurance benefits for retirees and eligible dependents. Certain employees may become eligible for such postretirement benefits upon reaching retirement age and service requirements. For current retirees (including surviving spouses) and active employees eligible for the salaried retiree medical program, we have placed a “cap” on the amount we will contribute toward retiree medical coverage in the future. The cap is equal to 120% of our 2005 contributions toward retiree medical benefits. Once our contributions toward salaried retiree medical costs reach this cap, impacted retirees will have to pay the excess amount in addition to their regular contributions for coverage. This cap was attained for post-65 retirees in 2008 and attained for pre-65 retirees in 2010. Furthermore, employees hired or rehired on or after January 1, 2007 will be eligible for Corning retiree medical benefits upon retirement; however, these employees will pay 100% of the cost.

13. Employee Retirement Plans (continued)

Obligations and Funded Status

The change in benefit obligation and funded status of our employee retirement plans follows (in millions):

December 31,	Total pension benefits		Domestic pension benefits		International pension benefits	
	2017	2016	2017	2016	2017	2016
Change in benefit obligation						
Benefit obligation at beginning of year	\$ 3,887	\$ 3,715	\$ 3,289	\$ 3,161	\$ 598	\$ 554
Service cost	92	85	66	61	26	24
Interest cost	126	124	112	111	14	13
Plan participants' contributions	2	1	1	1	1	
Actuarial loss (gain)	208	229	222	145	(14)	84
Other	3	(3)	3	1		(4)
Benefits paid	(195)	(210)	(171)	(191)	(24)	(19)
Foreign currency translation	65	(54)			65	(54)
Benefit obligation at end of year	\$ 4,188	\$ 3,887	\$ 3,522	\$ 3,289	\$ 666	\$ 598
Change in plan assets						
Fair value of plan assets at beginning of year	\$ 3,225	\$ 3,058	\$ 2,765	\$ 2,616	\$ 460	\$ 442
Actual return on plan assets	413	310	395	235	18	75
Employer contributions	46	125	14	104	32	21
Plan participants' contributions	1	1	1	1		
Benefits paid	(195)	(210)	(171)	(191)	(24)	(19)
Foreign currency translation	49	(59)			49	(59)
Fair value of plan assets at end of year	\$ 3,539	\$ 3,225	\$ 3,004	\$ 2,765	\$ 535	\$ 460
Funded status at end of year						
Fair value of plan assets	\$ 3,539	\$ 3,225	\$ 3,004	\$ 2,765	\$ 535	\$ 460
Benefit obligations	(4,188)	(3,887)	(3,522)	(3,289)	(666)	(598)
Funded status of plans	\$ (649)	\$ (662)	\$ (518)	\$ (524)	\$ (131)	\$ (138)
Amounts recognized in the consolidated balance sheets consist of:						
Noncurrent asset	\$ 76	\$ 35			\$ 76	\$ 35
Current liability	(20)	(18)	(12)	(13)	(8)	(5)
Noncurrent liability	(705)	(679)	(506)	(511)	(199)	(168)
Recognized liability	\$ (649)	\$ (662)	\$ (518)	\$ (524)	\$ (131)	\$ (138)
Amounts recognized in accumulated other comprehensive income consist of:						
Net actuarial loss	\$ 300	\$ 348	\$ 285	\$ 311	\$ 15	\$ 37
Prior service cost (credit)	22	30	25	31	(3)	(1)
Amount recognized at end of year	\$ 322	\$ 378	\$ 310	\$ 342	\$ 12	\$ 36

The accumulated benefit obligation for defined benefit pension plans was \$3.9 billion and \$3.6 billion at December 31, 2017 and 2016, respectively.

13. Employee Retirement Plans (continued)

December 31,	Postretirement benefits	
	2017	2016
Change in benefit obligation		
Benefit obligation at beginning of year	\$ 776	\$ 763
Service cost	10	9
Interest cost	26	26
Plan participants' contributions	8	8
Actuarial loss	17	16
Other		2
Benefits paid	(50)	(50)
Medicare subsidy received	2	2
Benefit obligation at end of year	\$ 789	\$ 776
Funded status at end of year		
Fair value of plan assets		
Benefit obligations	\$ (789)	\$ (776)
Funded status of plans	\$ (789)	\$ (776)

Amounts recognized in the consolidated balance sheets consist of:

Current liability	\$ (40)	\$ (39)
Noncurrent liability	(749)	(737)
Recognized liability	\$ (789)	\$ (776)

Amounts recognized in accumulated other comprehensive income consist of:

Net actuarial loss	\$ 68	\$ 50
Prior service credit	(12)	(15)
Amount recognized at end of year	\$ 56	\$ 35

The following information is presented for pension plans where the projected benefit obligation as of December 31, 2017 and 2016 exceeded the fair value of plan assets (in millions):

	December 31,	
	2017	2016
Projected benefit obligation	\$ 3,843	\$ 3,607
Fair value of plan assets	\$ 3,173	\$ 2,787

In 2017, the fair value of plan assets exceeded the projected benefit obligation for the United Kingdom and one of the South Korea pension plans.

The following information is presented for pension plans where the accumulated benefit obligation as of December 31, 2017 and 2016 exceeded the fair value of plan assets (in millions):

	December 31,	
	2017	2016
Accumulated benefit obligation	\$ 3,555	\$ 3,285
Fair value of plan assets	\$ 3,025	\$ 2,786

In 2017, the fair value of plan assets exceeded the accumulated benefit obligation for one of the Taiwan, the United Kingdom, and the South Korea pension plans.

13. Employee Retirement Plans (continued)

The components of net periodic benefit cost for our employee retirement plans follow (in millions):

December 31,	Total pension benefits			Domestic pension benefits			International pension benefits		
	2017	2016	2015	2017	2016	2015	2017	2016	2015
Service cost	\$ 92	\$ 85	\$ 90	\$ 66	\$ 61	\$ 64	\$ 26	\$ 24	\$ 26
Interest cost	126	124	144	112	111	126	14	13	18
Expected return on plan assets	(174)	(165)	(178)	(163)	(153)	(166)	(11)	(12)	(12)
Amortization of prior service cost (credit)	5	6	6	6	6	7	(1)		(1)
Recognition of actuarial loss	21	67	165	18	55	162	3	12	3
Settlement charge		1			1				
Total net periodic benefit cost	\$ 70	\$ 118	\$ 227	\$ 39	\$ 81	\$ 193	\$ 31	\$ 37	\$ 34

Other changes in plan assets and benefit obligations recognized in other comprehensive income:

Settlements		\$ (2)	\$ (1)		\$ (2)				\$ (1)
Current year actuarial (gain) loss	\$ (30)	84	191	\$ (8)	63	189	\$ (22)	21	2
Recognition of actuarial loss	(21)	(64)	(165)	(18)	(55)	(162)	(3)	(9)	(3)
Amortization of prior service cost (credit)	(5)	(6)	(6)	(6)	(6)	(7)	1		1
Total recognized in other comprehensive (income) loss	\$ (56)	\$ 12	\$ 19	\$ (32)	\$ 20	\$ (24)	\$ 12	\$ (1)	

	Postretirement benefits		
	2017	2016	2015
Service cost	\$ 10	\$ 9	\$ 13
Interest cost	26	26	33
Amortization of net (loss) gain	(1)	(1)	3
Amortization of prior service credit	(3)	(4)	(7)
Total net periodic benefit expense	\$ 32	\$ 30	\$ 42

Other changes in plan assets and benefit obligations recognized in other comprehensive income:

Current year actuarial loss (gain)	\$ 17	\$ 15	\$ (96)
Amortization of actuarial gain (loss)	1	1	(3)
Amortization of prior service credit	3	5	7
Total recognized in other comprehensive loss (income)	\$ 21	\$ 21	\$ (92)

Total recognized in net periodic benefit cost and other comprehensive loss (income)	\$ 53	\$ 51	\$ (50)
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13. Employee Retirement Plans (continued)

The Company expects to recognize \$6 million of net prior service cost as a component of net periodic pension cost in 2018 for its defined benefit pension plans. The Company expects to recognize no net actuarial gain and \$3 million of net prior service credit as components of net periodic postretirement benefit cost in 2018.

Corning uses a hypothetical yield curve and associated spot rate curve to discount the plan's projected benefit payments. Once the present value of projected benefit payments is calculated, the suggested discount rate is equal to the level rate that results in the same present value. The yield curve is based on actual high-quality corporate bonds across the full maturity spectrum, which also includes private placements as well as Eurobonds that are denominated in U.S. currency. The curve is developed from yields on approximately 350 - 375 bonds from four grading sources, Moody's, S&P, Fitch and the Dominion Bond Rating Service. A bond will be included if at least half of the grades from these sources are Aa, non-callable bonds. The very highest 10% yields and the lowest 40% yields are excluded from the curve to eliminate outliers in the bond population.

Mortality is one of the key assumptions used in valuing liabilities of retirement plans. It is used to assign a probability of payment for future plan benefits that are contingent upon participants' survival. To make this assumption, benefit plan sponsors typically use a base mortality table and an improvement scale that adjusts the rates of mortality for future anticipated changes to historical death rates.

Corning last revised its mortality assumption for its U.S. benefits plans at year-end 2014 subsequent to the Society of Actuaries publication of the RP-2014 base mortality tables and MP-2014 mortality improvement scales. At that time, a review of Corning's actual mortality experience for its retiree population was undertaken and consideration given to Corning's view of future mortality improvements. As a result of that study, Corning adopted the RP-2014 base mortality tables (white collar table for its non-union population and blue collar table for its union population) with adjustments to those tables that would calibrate for Corning's experience to the extent credible. Based on Corning's view of future mortality experience, it adopted the BB-2D mortality improvement scale as it felt that scale represented the best available data to predict future improvement experience.

In 2017, Corning refreshed its analysis of its own retiree mortality experience. As a result of that review, Corning decided to update the adjustment factors applied to its base mortality assumption (RP-2014 white collar table and RP-2014 blue collar table for non-union and union participants respectively) to value its U.S. benefit plan obligations as of December 31, 2017. In addition, as the Society of Actuaries has published additional mortality improvement scales (MP-2015, MP-2016 and MP-2017), Corning has considered these revised improvement scales in setting its future mortality improvement assumption. As of December 31, 2017, Corning decided to update its future improvement scale to the MP-2017 scale.

Furthermore, Corning has updated the mortality assumption applied to disabled participants to be the RP-2014 disabled mortality base table with future improvements using MP-2017.

Beginning with the December 31, 2015 valuation of its defined benefit pension and OPEB plans, Corning changed its methodology of determining the service and interest cost components of net periodic pension and other postretirement benefit costs to a more granular approach. Under the new approach the cash flows from each applicable pension and OPEB plan will be used to directly calculate the benefit obligation, service cost and interest cost using the spot rates from the applicable yield curve.

Moving to a more granular approach has a limited impact on the determination of the respective benefit obligations. The only impacts will be as a result of the elimination of the rounding of the discount rate that occurred in the traditional approach and the use of specific cash flows for Corning's non-qualified pension plans, while separately applying the yield curve to each separate OPEB plan instead of aggregating the OPEB plan cash flows. This change will result in a decrease in the interest cost and service cost components of net periodic pension and OPEB costs. For the year ended December 31, 2017, net periodic pension and OPEB costs will be lower by approximately \$23 million and \$5 million, respectively, due to this change. For Corning's pension plans, this change will increase the immediate recognition of actuarial losses (or decrease the immediate recognition of actuarial gains), due to Corning's previous election to immediately recognize actuarial gains and losses outside of the corridor. For Corning's OPEB plans, this change will increase the accumulated other comprehensive income (AOCI) account balance due to the accumulation of lower actuarial gains or higher actuarial losses. Over time, the amortization of the actuarial losses from AOCI will begin to reduce the savings from the lower interest cost and service cost.

This change is a change in accounting estimate and therefore applied prospectively (beginning with the next measurement date of December 31, 2015). No restatement of prior periods is required.

13. Employee Retirement Plans (continued)

Measurement of postretirement benefit expense is based on assumptions used to value the postretirement benefit obligation at the beginning of the year.

The weighted-average assumptions used to determine benefit obligations at December 31 follow:

	Pension benefits						Postretirement benefits		
	Domestic			International			2017	2016	2015
	2017	2016	2015	2017	2016	2015			
Discount rate	3.58 %	4.01 %	4.24 %	1.93 %	2.29 %	3.23 %	3.63 %	4.07 %	4.31 %
Rate of compensation increase	3.50 %	3.50 %	3.50 %	2.81 %	3.97 %	3.92 %			

The weighted-average assumptions used to determine net periodic benefit cost for years ended December 31 follow:

	Pension benefits						Postretirement benefits		
	Domestic			International			2017	2016	2015
	2017	2016	2015	2017	2016	2015			
Discount rate	4.01 %	4.24 %	4.00 %	2.29 %	3.23 %	3.21 %	4.06 %	4.31 %	4.00 %
Expected return on plan assets	6.00 %	6.00 %	6.00 %	3.97 %	3.92 %	2.97 %			
Rate of compensation increase	3.50 %	3.50 %	3.50 %	2.06 %	2.89 %	3.88 %			

The assumed rate of return was determined based on the current interest rate environment and historical market premiums relative to fixed income rates of equities and other asset classes. Reasonableness of the results is tested using models provided by the plan actuaries.

Assumed health care trend rates at December 31	2017	2016
Health care cost trend rate assumed for next year	6.50%	6.75%
Rate that the cost trend rate gradually declines to	5%	5%
Year that the rate reaches the ultimate trend rate	2024	2024

Assumed health care cost trend rates have a significant effect on the amounts reported for the health care plans. A one-percentage-point change in assumed health care cost trend rates would have the following effects (in millions):

	One-percentage-point increase	One-percentage-point decrease
Effect on annual total of service and interest cost (credit)	\$ 3	\$ (3)
Effect on postretirement benefit obligation	\$ 57	\$ (47)

Plan Assets

Corning's expected long-term rates of return on plan assets reflect the average rates of earnings expected on the funds invested to provide for the benefits included in our domestic and international projected benefit obligations. We based these rates on asset/liability forecast modeling, which is based on our current asset allocation, the return and standard deviation for each asset class, current market conditions and transitions from current conditions to long-term returns.

The Company's overall investment strategy is to obtain sufficient return to offset or exceed inflation and provide adequate liquidity to meet the benefit obligations of the pension plan. Investments are made in public securities to ensure adequate liquidity to support benefit payments. Domestic and international stocks and bonds provide diversification to the portfolio. The target allocation range for global equity investment is 20%-25% which includes large, mid and small cap companies and investments in both developed and emerging markets. The target allocation for bond investments is 60%, which predominately includes corporate bonds. Long duration fixed income assets are utilized to mitigate the sensitivity of funding ratios to changes in interest rates. The target allocation range for non-public investments in private equity and real estate is 5%-15%, and is used to enhance returns and offer additional asset diversification. The target allocation range for commodities is 0%-5%, which provides some inflation protection to the portfolio.

13. Employee Retirement Plans (continued)

The following tables provide fair value measurement information for the Company's major categories; Level 1 (quoted market prices in active markets for identical assets), Level 2 (significant other observable inputs) and Level 3 (significant unobservable inputs) of our domestic defined benefit plan assets:

(in millions)	December 31, 2017				December 31, 2016			
	Total	(Level 1)	(Level 2)	(Level 3)	Total	(Level 1)	(Level 2)	(Level 3)
Equity securities:								
U.S. companies	\$ 374	\$ 57	\$ 317		\$ 318	\$ 47	\$ 271	
International companies	420	117	303		340	90	250	
Fixed income:								
U.S. corporate bonds	1,815	197	1,618		1,608	175	1,433	
Private equity (1)	105			\$ 105	137			\$ 137
Real estate (2)	147			147	150			150
Cash equivalents	21	21			100	100		
Commodities (3)	122		122		112		112	
Total	\$ 3,004	\$ 392	\$ 2,360	\$ 252	\$ 2,765	\$ 412	\$ 2,066	\$ 287

- (1) This category includes venture capital, leverage buyouts and distressed debt limited partnerships invested primarily in U.S. companies. The inputs are valued by discounted cash flow analysis and comparable sale analysis.
- (2) This category includes industrial, office, apartments, hotels, infrastructure and retail investments which are limited partnerships predominately in the U.S. The inputs are valued by discounted cash flow analysis; comparable sale analysis and periodic external appraisals.
- (3) This category includes investments in energy, industrial metals, precious metals, agricultural and livestock primarily through futures, options, swaps and exchange traded funds.

The following tables provide fair value measurement information for the Company's major categories; Level 1 (quoted market prices in active markets for identical assets), Level 2 (significant other observable inputs) and Level 3 (significant unobservable inputs) of our international defined benefit plan assets:

(in millions)	December 31, 2017				December 31, 2016			
	Total	(Level 1)	(Level 2)	(Level 3)	Total	(Level 1)	(Level 2)	(Level 3)
Equity securities:								
U.S. companies	\$ 8		\$ 8		\$ 7		\$ 7	
International companies	29		29		26		26	
Fixed income:								
International fixed income	440	\$ 367	73		385	\$ 321	64	
Insurance contracts	2			\$ 2	2			\$ 2
Mortgages	16			16				
Cash equivalents	40	40			40	40		
Total	\$ 535	\$ 407	\$ 110	\$ 18	\$ 460	\$ 361	\$ 97	\$ 2

13. Employee Retirement Plans (continued)

The tables below set forth a summary of changes in the fair value of the defined benefit plans Level 3 assets for the years ended December 31, 2017 and 2016 :

(in millions)	Level 3 assets – Domestic		Level 3 assets – International	
	Year ended December 2017		Year ended December 2017	
	Private equity	Real estate	Mortgages	Insurance contracts
Beginning balance at December 31, 2016	\$ 137	\$ 150	\$ 2	2
Actual return on plan assets relating to assets still held at the reporting date	7	6		
Transfers in and/or out of level 3	(39)	(9)	\$ 16	
Ending balance at December 31, 2017	\$ 105	\$ 147	\$ 16	\$ 2

(in millions)	Level 3 assets – Domestic		Level 3 assets – International	
	Year ended December 2016		Year ended December 2016	
	Private equity	Real estate	Mortgages	Insurance contracts
Beginning balance at December 31, 2015	\$ 163	\$ 61	\$ 2	\$ 3
Actual return on plan assets relating to assets still held at the reporting date	14	(7)		
Transfers in and/or out of level 3	(40)	96	(2)	(1)
Ending balance at December 31, 2016	\$ 137	\$ 150	\$ 2	\$ 3

Credit Risk

60% of domestic plan assets are invested in long duration bonds. The average rating for these bonds is A. These bonds are subject to credit risk, such that a decline in credit ratings for the underlying companies, countries or assets (for asset-backed securities) would result in a decline in the value of the bonds. These bonds are also subject to default risk.

Currency Risk

14% of domestic assets are valued in non-U.S. dollar denominated investments that are subject to currency fluctuations. The value of these securities will decline if the U.S. dollar increases in value relative to the value of the currencies in which these investments are denominated.

Liquidity Risk

8% of the domestic securities are invested in Level 3 securities. These are long-term investments in private equity and private real estate investments that may not mature or be sellable in the near-term without significant loss.

At December 31, 2017 and 2016, the amount of Corning common stock included in equity securities was not significant.

Cash Flow Data

In 2018, we expect to make voluntary cash contributions of approximately \$106 million to our domestic defined benefit plan and expect to make voluntary contributions of approximately \$27 million to our international defined benefit plans.

13. Employee Retirement Plans (continued)

The following reflects the gross benefit payments that are expected to be paid for our domestic and international defined benefit pension plans, the postretirement medical and life plans and the gross amount of annual Medicare Part D federal subsidy expected to be received (in millions):

	Expected benefit payments			Expected federal subsidy payments postretirement benefits
	Domestic pension benefits	International pension benefits	Postretirement benefits	
2018	\$ 191	\$ 23	\$ 41	\$ 3
2019	\$ 195	\$ 28	\$ 41	\$ 3
2020	\$ 201	\$ 30	\$ 41	\$ 3
2021	\$ 210	\$ 30	\$ 41	\$ 3
2022	\$ 215	\$ 33	\$ 42	\$ 3
2023-2027	\$ 1,180	\$ 192	\$ 209	\$ 16

Other Benefit Plans

We offer defined contribution plans covering employees meeting certain eligibility requirements. Total consolidated defined contribution plan expense was \$60 million, \$53 million and \$62 million for the years ended December 31, 2017, 2016 and 2015, respectively.

14. Commitments, Contingencies and Guarantees

The amounts of our obligations follow (in millions):

	Total	Amount of commitment and contingency expiration per period			
		Less than 1 year	1 to 3 years	3 to 5 years	5 years and thereafter
Performance bonds and guarantees	\$ 198	\$ 88	\$ 3	\$ 1	\$ 106
Stand-by letters of credit (1)	75	62	9		4
Credit facility to equity company	10	10			
Subtotal of commitment expirations per period	\$ 283	\$ 160	\$ 12	\$ 1	\$ 110
Purchase obligations (2)	\$ 265	\$ 142	\$ 72	\$ 21	\$ 30
Capital expenditure obligations (3)	583	583			
Total debt (4)	4,749	375	550	437	3,387
Interest on long-term debt (5)	3,437	195	359	314	2,569
Capital leases and financing obligations	406	4	9	11	382
Imputed interest on capital leases and financing obligations	233	19	40	39	135
Minimum rental commitments	563	74	122	91	276
Amended PCC Plan	220	35	85	100	
Uncertain tax positions (6)	54				
Subtotal of contractual obligation payments due by period (6)	\$ 10,510	\$ 1,427	\$ 1,237	\$ 1,013	\$ 6,779
Total commitments and contingencies (6)	\$ 10,793	\$ 1,587	\$ 1,249	\$ 1,014	\$ 6,889

- (1) At December 31, 2017, \$39 million of the \$75 million was included in other accrued liabilities on our consolidated balance sheets.
- (2) Purchase obligations are enforceable and legally binding obligations which primarily consist of raw material and energy-related take-or-pay contracts.
- (3) Capital expenditure obligations primarily reflect amounts associated with our capital expansion activities.
- (4) Total debt above is stated at maturity value, and excludes interest rate swap gains/losses and bond discounts.
- (5) The estimate of interest payments assumes interest is paid through the date of maturity or expiration of the related debt, based upon stated rates in the respective debt instruments.
- (6) At December 31, 2017, \$54 million was included on our balance sheet related to uncertain tax positions. Of this amount, we are unable to estimate when any of that amount will become payable.

14. Commitments, Contingencies and Guarantees (continued)

We are required, at the time a guarantee is issued, to recognize a liability for the fair value or market value of the obligation it assumes. In the normal course of our business, we do not routinely provide significant third-party guarantees. Generally, third-party guarantees provided by Corning are limited to certain financial guarantees, including stand-by letters of credit and performance bonds, and the incurrence of contingent liabilities in the form of purchase price adjustments related to attainment of milestones. These guarantees have various terms, and none of these guarantees are individually significant.

We believe a significant majority of these guarantees and contingent liabilities will expire without being funded.

Minimum rental commitments under leases outstanding at December 31, 2017 follow (in millions):

	2018	2019	2020	2021	2022	2023 and thereafter
\$	74	\$ 65	\$ 57	\$ 49	\$ 42	\$ 276

Total rental expense was \$135 million for 2017, \$105 million for 2016 and \$94 million for 2015.

Product warranty liability accruals at December 31, 2017 and 2016 are insignificant.

The ability of certain subsidiaries and affiliated companies to transfer funds is limited by provisions of foreign government regulations, affiliate agreements and certain loan agreements. At December 31, 2017, the amount of equity subject to such restrictions for consolidated subsidiaries and affiliated companies was not significant. While this amount is legally restricted, it does not result in operational difficulties since we have generally permitted subsidiaries to retain a majority of equity to support their growth programs.

Corning is a defendant in various lawsuits and is subject to various claims that arise in the normal course of business, the most significant of which are summarized below. In the opinion of management, the likelihood that the ultimate disposition of these matters will have a material adverse effect on Corning's consolidated financial position, liquidity, or results of operations, is remote.

Pittsburgh Corning Corporation

Corning and PPG Industries, Inc. each owned 50% of the capital stock of Pittsburgh Corning Corporation ("PCC"). PCC filed for Chapter 11 reorganization in 2000 and the Modified Third Amended Plan of Reorganization for PCC (the "Plan") became effective in April 2016. At December 31, 2015, the Company's liability under the Plan was estimated to be \$528 million. At December 31, 2016, this estimated liability was \$290 million, due to the Company's contribution, in the second quarter of 2016, of its equity interests in PCC and Pittsburgh Corning Europe N.V. in the total amount of \$238 million, as required by the Plan. Corning recognized a gain of \$56 million in the second quarter of 2016 in the selling, general and administrative expenses line of the Company's Consolidated Statements of (Loss) Income for the difference between the fair value of the asbestos litigation liability and carrying value of the investment. This gain includes the release of foreign translation losses in the amount of \$25 million reclassified from accumulated other comprehensive income. The remaining \$290 million liability is for the series of fixed payments required by the Plan. At December 31, 2017, the liability was reduced to \$220 million due to a cash payment of \$70 million in the second quarter of 2017, as required by the Plan. The total amount of the payments due in years 2019 through 2022 is \$185 million and is classified as a non-current liability at December 31, 2017. The remaining \$35 million payment is due in the second quarter of 2018 and is classified as a current liability.

Asbestos Litigation

Corning is a defendant in certain cases alleging personal injuries from exposure to asbestos. Corning has been defending the claims in these cases, which are covered in part by insurance, without material impact to Corning to date. Corning previously established a \$150 million reserve for these non-PCC asbestos claims. The estimated reserve represents the undiscounted projection of claims and related legal fees. The amount may need to be adjusted in future periods as more data becomes available; however, we cannot estimate any lesser or greater liabilities at this time.

14. Commitments, Contingencies and Guarantees (continued)***Asbestos Claims Insurance Litigation***

Several of Corning’s insurers have commenced litigation in state courts for a declaration of the rights and obligations of the parties under insurance policies related to asbestos claims. Corning has resolved these issues with all of its solvent insurers and some of its insolvent insurers. Corning continues to seek resolution with the remaining insolvent insurers. Management is unable to predict the outcome of the litigation with these remaining insolvent insurers.

A summary of changes of the estimated litigation liability is as follows (in millions):

	Amended PCC Plan			Non-PCC	Total Asbestos Litigation Liability
	Equity Interests	Fixed Series of Payments			
Fair Value of Asbestos Litigation Liability as of December 31, 2015	\$ 238	\$ 290	\$ 150	\$	678
Contribution of PCC & PCE Equity Interest - Carrying Value	(182)				(182)
Gain on Contribution of Equity Interests	(56)				(56)
Other adjustments			(1)		(1)
Fair Value of Asbestos Litigation Liability as of December 31, 2016	\$ 0	\$ 290	\$ 149	\$	439
Fixed payment		(70)			(70)
Other adjustments			(2)		(2)
Asbestos Litigation Liability as of December 31, 2017	\$ 0	\$ 220	\$ 147	\$	367

Dow Corning Chapter 11 Related Matters

Until June 1, 2016, Corning and The Dow Chemical Company (“Dow”) each owned 50% of the common stock of Dow Corning Corporation (“Dow Corning”). On May 31, 2016, Corning and Dow realigned their ownership interest in Dow Corning. In connection with the realignment, Corning retained its indirect ownership interest in the Hemlock Semiconductor Group and acquired HS Upstate, Inc. (now known as Corning Research & Development Corporation) which had been capitalized by Dow Corning with \$4.8 billion. Following the realignment, Corning no longer owns any interest in Dow Corning. In connection with the realignment, Corning agreed to indemnify Dow Corning for 50% of Dow Corning’s non-ordinary course, pre-closing liabilities to the extent such liabilities exceed the amounts reserved for them by Dow Corning as of May 31, 2016, including two legacy Dow Corning matters: the Dow Corning Breast Implant Litigation, and the Dow Corning Bankruptcy Pendency Interest Claims.

Dow Corning Breast Implant Litigation

In May 1995, Dow Corning filed for bankruptcy protection to address pending and claimed liabilities arising from many thousands of breast implant product lawsuits. On June 1, 2004, Dow Corning emerged from Chapter 11 with a Plan of Reorganization (the “Plan”) which provided for the settlement or other resolution of implant claims. The Plan also includes releases for Corning and Dow as shareholders in exchange for contributions to the Plan.

Under the terms of the Plan, Dow Corning has established and is funding a Settlement Trust and a Litigation Facility to provide a means for tort claimants to settle or litigate their claims. Inclusive of insurance, Dow Corning has paid approximately \$ 1.8 billion to the Settlement Trust. As of May 31, 2016, Dow Corning had recorded a reserve for breast implant litigation of \$ 290 million. In the event Dow Corning’s total liability for these claims exceeds such amount, Corning may be required to indemnify Dow Corning for up to 50% of the excess liability.

14. Commitments, Contingencies and Guarantees (continued)

Dow Corning Bankruptcy Pendency Interest Claims

As a separate matter arising from the bankruptcy proceedings, Dow Corning is defending claims asserted by a number of commercial creditors who claim additional interest at default rates and enforcement costs, during the period from May 1995 through June 2004. As of December 31, 2017, Dow Corning has estimated the liability to commercial creditors to be within the range of \$77 million to \$260 million. As of May 31, 2016, Dow Corning had recorded a reserve for these claims of \$107 million. In the event Dow Corning's liability for these claims exceeds such amount, Corning may be required to indemnify Dow Corning for up to 50% of the excess liability, subject to certain conditions and limits.

Environmental Litigation

Corning has been named by the Environmental Protection Agency (the Agency) under the Superfund Act, or by state governments under similar state laws, as a potentially responsible party for 15 active hazardous waste sites. Under the Superfund Act, all parties who may have contributed any waste to a hazardous waste site, identified by the Agency, are jointly and severally liable for the cost of cleanup unless the Agency agrees otherwise. It is Corning's policy to accrue for its estimated liability related to Superfund sites and other environmental liabilities related to property owned by Corning based on expert analysis and continual monitoring by both internal and external consultants. At December 31, 2017 and December 31, 2016, Corning had accrued approximately \$38 million (undiscounted) and \$43 million (undiscounted), respectively, for the estimated liability for environmental cleanup and related litigation. Based upon the information developed to date, management believes that the accrued reserve is a reasonable estimate of the Company's liability and that the risk of an additional loss in an amount materially higher than that accrued is remote.

15. Hedging Activities

Corning is exposed to interest rate and foreign currency risks due to the movement of these rates.

The areas in which exchange rate fluctuations affect us include:

- Financial instruments and transactions denominated in foreign currencies, which impact earnings; and
- The translation of net assets in foreign subsidiaries for which the functional currency is not the U.S. dollar, which impacts our net equity.

Our most significant foreign currency exposures relate to the Japanese yen, South Korean won, New Taiwan dollar, Chinese yuan, and the euro. We seek to mitigate the impact of exchange rate movements in our income statement by using over-the-counter (OTC) derivative instruments including foreign exchange forward and option contracts. In general, these hedges expire coincident with the timing of the underlying foreign currency commitments and transactions.

15. Hedging Activities (continued)

We are exposed to potential losses in the event of non-performance by our counterparties to these derivative contracts. However, we minimize this risk by maintaining our portfolio with a diverse group of highly-rated major international financial institutions. We do not expect to record any losses as a result of such counterparty default. Neither we nor our counterparties are required to post collateral for these financial instruments. The Company qualified for and elected the end-user exception to the mandatory swap clearing requirement of the Dodd-Frank Act.

Cash Flow Hedges

Our cash flow hedging activities utilize OTC foreign exchange forward contracts and options to reduce the risk that movements in exchange rates will adversely affect the net cash flows resulting from the sale of products to foreign customers and purchases from foreign suppliers. Our cash flow hedging activity also uses interest rate swaps to reduce the risk of increases in benchmark interest rates on the probable issuance of debt and associated interest payments. In the fourth quarter of 2014, the Company entered into interest rate swap agreements to hedge against the variability in cash flows due to changes in the benchmark interest rate related to an anticipated issuance. The instruments were designated as cash flow hedges. In the first quarter of 2015, these interest rate swaps were settled prior to the issuance of the anticipated debt. Because the Company continued to anticipate that the debt issuance would occur, it entered into two interest rate swap agreements in the first quarter of 2015 to hedge against the variability in cash flows due to changes in the benchmark interest rate related to an anticipated issuance. The instruments were designated as cash flow hedges, and were settled on May 5, 2015. Concurrent with the settlement of the interest rate swap agreements, Corning issued \$375 million of 1.50% senior unsecured notes that mature on May 8, 2018 and \$375 million of 2.90% senior unsecured notes that mature on May 15, 2022.

Corning uses a regression analysis to monitor the effectiveness of its cash flow hedges both prospectively and retrospectively. Through December 31, 2017, the hedge ineffectiveness related to these instruments was not material. Corning defers net gains and losses related to effective portion of cash flow hedges into accumulated other comprehensive loss on the consolidated balance sheet until such time as the hedged item impacts earnings. At December 31, 2017, the amount expected to be reclassified into earnings within the next 12 months is a pre-tax net gain of \$20 million.

Fair Value Hedges

In October of 2012, we entered into two interest rate swaps that are designated as fair value hedges and economically exchange a notional amount of \$550 million of previously issued fixed rate long-term debt to floating rate debt. Under the terms of the swap agreements, we pay the counterparty a floating rate that is indexed to the one-month LIBOR rate.

Corning utilizes the long haul method for effectiveness analysis, both retrospectively and prospectively. The analysis excludes the impact of credit risk from the assessment of hedge effectiveness. The amount recorded in current period earnings in the other (expense) income, net component, relative to ineffectiveness, is nominal for the year ended December 31, 2017.

Net gains and losses from fair value hedges and the effects of the corresponding hedged item are recorded on the same line item in the Consolidated Statements of (Loss) Income.

Undesignated Hedges

Corning also uses OTC foreign exchange forward and option contracts that are not designated as hedging instruments for accounting purposes. The undesignated hedges limit exposures to foreign functional currency fluctuations related to certain subsidiaries' monetary assets, monetary liabilities and net earnings in foreign currencies.

A significant portion of the Company's non-U.S. revenues and expenses are denominated in Japanese yen, South Korean won, New Taiwan dollar, Chinese yuan and euro. When these revenues and expenses are translated back to U.S. dollars, the Company is exposed to foreign exchange rate movements. To protect translated earnings against movements in these currencies, the Company has entered into a series of average rate forwards and other derivative instruments.

The Company continued to extend its foreign exchange hedge program in 2017 and entered into a series of average rate forwards. These will hedge a significant portion of its projected yen exposure for the period of 2018-2022. As of December 31, 2017, the U.S. dollar net notional value of the yen average rate forwards program is \$12 billion. The average rate forward program was also expanded to partially hedge the impact of the South Korean won, New Taiwan dollar, Chinese yuan and euro translation on the Company's projected net income. As of December 31, 2017 these average rate forwards have a total notional value of \$1 billion. The entire average rate forward program will settle net without obligation to deliver Japanese yen, Korean won, New Taiwan dollar, Chinese yuan and euro.

15. Hedging Activities (continued)

The fair value of these derivative contracts are recorded as either assets (gain position) or liabilities (loss position) on the Consolidated Balance Sheet. Changes in the fair value of the derivative contracts are recorded currently in earnings in the Translated earnings contract (loss) gain, net line of the Consolidated Statement of Income.

The following table summarizes the notional amounts and respective fair values of Corning's derivative financial instruments on a gross basis for December 31, 2017 and December 31, 2016 (in millions):

	Notional amount		Asset derivatives				Liability derivatives			
			Balance sheet location	Fair value		Balance sheet location	Fair value			
	2017	2016		2017	2016		2017	2016		
Derivatives designated as hedging instruments										
Foreign exchange contracts (1)	\$ 294	\$ 458	Other current assets	\$ 20	\$ 1	Other accrued liabilities		\$ (29)		
			Other assets	1						
Interest rate contracts	550	550				Other liabilities	\$ (8)	(5)		
Derivatives not designated as hedging instruments										
Foreign exchange contracts, other	599	890	Other current assets	2	11	Other accrued liabilities	(7)	(7)		
Translated earnings contracts	14,275	16,711	Other current assets	176	423	Other accrued liabilities	(34)	(52)		
			Other assets	66	146	Other liabilities	(325)	(277)		
Total derivatives	\$ 15,718	\$ 18,609		\$ 265	\$ 581		\$ (374)	\$ (370)		

(1) Cash flow hedges with a typical duration of 24 months or less.

15. Hedging Activities (continued)

The following tables summarize the effect on the consolidated financial statements relating to Corning's derivative financial instruments (in millions):

Effect of derivative instruments on the consolidated financial statements for the years ended December 31							
Derivatives in hedging relationships	(Loss)/gain recognized in other comprehensive income (OCI)			Location of gain/(loss) reclassified from accumulated OCI into income effective/ineffective	Gain/(loss) reclassified from accumulated OCI into income ineffective/effective (1)		
	2017	2016	2015		2017	2016	2015
Cash flow hedges							
				Net sales	\$ 1	\$ 4	\$ 20
Interest rate hedge			\$ (7)	Cost of sales	(12)	(36)	6
Foreign exchange contracts	\$ 38	\$ (33)	(17)	Other (expense) income, net	(2)	(2)	
Total cash flow hedges	\$ 38	\$ (33)	\$ (24)		\$ (13)	\$ (34)	\$ 26

Undesignated derivatives	Location of gain/(loss) recognized in income	Gain (loss) recognized in income		
		2017	2016	2015
Foreign exchange contracts – balance sheet	Translated earnings contract gain (loss), net	\$ (11)	\$ 4	\$ 8
Foreign exchange contracts – loans	Translated earnings contract (loss) gain, net	(5)	(31)	(3)
Translated earnings contracts	Translated earnings contract (loss) gain, net	(121)	(448)	80
Total undesignated		\$ (137)	\$ (475)	\$ 85

(1) There were no material amounts of ineffectiveness for 2017, 2016 and 2015.

16. Fair Value Measurements

Fair value standards under U.S. GAAP define fair value, establish a framework for measuring fair value in applying generally accepted accounting principles, and require disclosures about fair value measurements. The standards also identify two kinds of inputs that are used to determine the fair value of assets and liabilities: observable and unobservable. Observable inputs are based on market data or independent sources while unobservable inputs are based on the Company's own market assumptions. Once inputs have been characterized, the inputs are prioritized into one of three broad levels (provided in the table below) used to measure fair value. Fair value standards apply whenever an entity is measuring fair value under other accounting pronouncements that require or permit fair value measurement and require the use of observable market data when available.

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16. Fair Value Measurements (continued)

The following tables provide fair value measurement information for the Company's major categories of financial assets and liabilities measured on a recurring basis:

(in millions)	December 31, 2017	Fair value measurements at reporting date using		
		Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Current assets:				
Other current assets (1)(2)	\$ 497		\$ 197	\$ 300
Non-current assets:				
Other assets (1)	\$ 68		\$ 68	
Current liabilities:				
Other accrued liabilities (1)(2)	\$ 44		\$ 42	\$ 2
Non-current liabilities:				
Other liabilities (1)(2)	\$ 353		\$ 333	\$ 20

(1) Derivative assets and liabilities include foreign exchange contracts which are measured using observable quoted prices for similar assets and liabilities.

(2) At December 31, 2017, other current assets, other accrued liabilities and other liabilities include contingent consideration that was measured using unobservable (level 3) inputs, in the amounts of \$300 million, \$2 million and \$22 million, respectively.

(in millions)	December 31, 2016	Fair value measurements at reporting date using		
		Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Current assets:				
Short-term investments				
Other current assets (1)	\$ 435		\$ 435	
Non-current assets:				
Other assets (1)(2)	\$ 464		\$ 175	\$ 289
Current liabilities:				
Other accrued liabilities (1)	\$ 88		\$ 88	
Non-current liabilities:				
Other liabilities (1)(2)	\$ 282		\$ 282	

(1) Derivative assets and liabilities include foreign exchange contracts which are measured using observable quoted prices for similar assets and liabilities.

(2) Other assets include asset-backed securities which are measured using observable quoted prices for similar assets and contingent consideration assets or liabilities which are measured by applying an option pricing model using projected future revenues.

(in millions)	Level 3 Roll-Forward – Other Assets	
	2017	2016
Beginning balance	\$ 289	\$ 246
Unrealized gains	11	43
Ending balance	\$ 300	\$ 289

16. Fair Value Measurements (continued)

As a result of the acquisition of Samsung Corning Precision Materials in January 2014, the Company has contingent consideration that was measured using unobservable (Level 3) inputs. This contingent consideration arrangement requires additional consideration to be paid between the parties in 2018: one based on projections of future revenues generated by the business of Corning Precision Materials for the period between the acquisition date and December 31, 2017, which is subject to a cap of \$665 million; and another based on the volumes of certain sales during the same period, which is subject to a separate cap of \$100 million. The fair value of the contingent consideration in 2018 in the amount of \$196 million recognized on the acquisition date was estimated by applying an option pricing model using the Company's projection of future revenues generated by Corning Precision Materials. Changes in the fair value of the contingent consideration in future periods are valued using an option pricing model and are recorded in Corning's results in the period of the change.

On December 29, 2015, Corning and Samsung Display entered into an agreement pursuant to which Corning exchanged the amount of contingent consideration in excess of \$300 million (net present fair value: \$246 million), as consideration for the incremental fair value associated with a number of commercial agreements, including the amendment of its long-term supply agreement with Samsung Display. As of December 29, 2015, the net present fair value of the contingent consideration receivable was \$458 million. The net present fair value of the commercial benefit associated with the amended long-term supply agreement exceeds the value exchanged by Corning pursuant to this agreement (net present fair value: \$212 million). Consequently, Corning reclassified this amount to the other asset line of the Consolidated Balance Sheet and will amortize the amount over the remaining term of the long-term supply agreement as a reduction in revenue.

As of December 31, 2017, the fair value of the contingent consideration in 2018 was \$300 million.

There were no significant financial assets and liabilities measured on a nonrecurring basis during the years ended December 31, 2017 and 2016.

17. Shareholders' Equity

Fixed Rate Cumulative Convertible Preferred Stock, Series A

On January 15, 2014, Corning designated a new series of its preferred stock as Fixed Rate Cumulative Convertible Preferred Stock, Series A, par value \$100 per share, and issued 1,900 shares of Preferred Stock at an issue price of \$1 million per share, for an aggregate issue price of \$1.9 billion, to Samsung Display in connection with the acquisition of its equity interests in Samsung Corning Precision Materials. Corning also issued to Samsung Display an additional amount of Preferred Stock at closing, for an aggregate issue price of \$400 million in cash.

Dividends on the Preferred Stock are cumulative and accrue at the annual rate of 4.25% on the per share issue price of \$1 million. The dividends are payable quarterly as and when declared by the Company's Board of Directors. The Preferred Stock ranks senior to our common stock with respect to payment of dividends and rights upon liquidation. The Preferred Stock is not redeemable except in the case of a certain deemed liquidation event, the occurrence of which is under the control of the Company. The Preferred Stock is convertible at the option of the holder and the Company upon certain events, at a conversion rate of 50,000 shares of Corning's common stock per one share of Preferred Stock, subject to certain anti-dilution provisions. As of December 31, 2017, the Preferred Stock has not been converted, and none of the anti-dilution provisions have been triggered. Following the seventh anniversary of the closing of the acquisition of Samsung Corning Precision Materials, the Preferred Stock will be convertible, in whole or in part, at the option of the holder. The Company has the right, at its option, to cause some or all of the shares of Preferred Stock to be converted into Common Stock, if, for 25 trading days (whether or not consecutive) within any period of 40 consecutive trading days, the closing price of Common Stock exceeds \$35 per share. If the aforementioned right becomes exercisable before the seventh anniversary of the closing, the Company must first obtain the written approval of the holders of a majority of the Preferred Stock before exercising its conversion right. The Preferred Stock does not have any voting rights except as may be required by law.

17. Shareholders' Equity (continued)

Share Repurchases

2015 Share Repurchases

On July 15, 2015, Corning's Board of Directors approved a \$2 billion share repurchase program (the "July 2015 Repurchase Program") and on October 26, 2015 the Board of Directors authorized an additional \$4 billion share repurchase program (together with the July 2015 Repurchase Program, the "2015 Repurchase Programs"). The 2015 Repurchase Programs permit Corning to effect repurchases from time to time through a combination of open market repurchases, privately negotiated transactions, advance repurchase agreements and/or other arrangements.

On October 28, 2015, Corning entered into an ASR to repurchase \$1.25 billion of Corning's common stock (the "2015 ASR agreement"). The 2015 ASR was executed under the July 2015 Repurchase Program. Under the 2015 ASR agreement, Corning made a \$1.25 billion payment on October 29, 2015 and received an initial delivery of approximately 53.1 million shares of Corning common stock on the same day. On January 19, 2016, the 2015 ASR agreement was completed. Corning received an additional 15.9 million shares on January 22, 2016 to settle the 2015 ASR agreement. In total, Corning purchased 69 million shares based on the average daily volume weighted-average price of Corning's common stock during the term of the 2015 ASR agreement, less a discount.

In addition to the shares repurchased through the 2015 ASR agreement, we repurchased 98 million shares of common stock on the open market for approximately \$2 billion, as part of the December 2014 Repurchase Program and the July 2015 Repurchase Program, resulting in a total of 167 million shares repurchased for \$3.25 billion during 2015.

2016 Share Repurchases

In July 2016, Corning entered into an accelerated share repurchase agreement (the "2016 ASR agreement") under the 2015 Repurchase Program to repurchase Corning's common stock. Under the 2016 ASR agreement, Corning made a \$2.0 billion payment in July and received an initial delivery of approximately 74.4 million shares of Corning common stock on the same day. The transaction was structured with two tranches resulting in a total of 12.3 million shares being delivered to Corning in the fourth quarter of 2016, for a total of 86.7 million shares repurchased under the 2016 ASR agreement.

In addition to the 2016 ASR agreement, during the year ended December 31, 2016, the Company repurchased 110 million shares of common stock on the open market for approximately \$2.2 billion as part of its 2015 Repurchase Programs, resulting in a total of 197.1 million shares repurchased for \$4.2 billion during 2016.

2017 Share Repurchases

In December 2016, Corning's Board of Directors approved a \$4 billion share repurchase program with no expiration (the "2016 Repurchase Program"). In the second quarter of 2017, Corning entered into and finalized an accelerated share repurchase agreement under which we paid \$500 million for a total of 17.1 million shares. In the third quarter of 2017, Corning entered into and finalized an additional accelerated share repurchase agreement under which we paid \$500 million for a total of 17.2 million shares. Collectively, these two agreements represent the "2017 ASR agreements".

In addition to the 2017 ASR agreements, during the year ended December 31, 2017, the Company repurchased 50.1 million shares of common stock on the open market for approximately \$1.4 billion, resulting in a total of 84.4 million shares repurchased for approximately \$2.4 billion during 2017.

17. Shareholders' Equity (continued)

The following table presents changes in capital stock for the period from January 1, 2015 to December 31, 2017 (in millions):

	Common stock		Treasury stock	
	Shares	Par value	Shares	Cost
Balance at December 31, 2014	1,672	\$ 836	(398)	\$ (6,727)
Shares issued to benefit plans and for option exercises	9	4		(1)
Shares purchased for treasury			(151)	(2,978)
Other, net			(2)	(19)
Balance at December 31, 2015	1,681	\$ 840	(551)	\$ (9,725)
Shares issued to benefit plans and for option exercises	10	6		(2)
Shares purchased for treasury			(214)	(4,409)
Other, net				(16)
Balance at December 31, 2016	1,691	\$ 846	(765)	\$ (14,152)
Shares issued to benefit plans and for option exercises	17	8		(2)
Shares purchased for treasury			(84)	(2,462)
Other, net			(1)	(17)
Balance at December 31, 2017	1,708	\$ 854	(850)	\$ (16,633)

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17. Shareholders' Equity (continued)

Accumulated Other Comprehensive Income (Loss)

A summary of changes in the components of accumulated other comprehensive income (loss), including our proportionate share of equity method investee's accumulated other comprehensive income (loss), is as follows (in millions) (1):

	Foreign currency translation adjustments and other	Unamortized actuarial gains (losses) and prior service (costs) credits	Net unrealized gains (losses) on investments	Net unrealized gains (losses) on designated hedges	Accumulated other comprehensive income (loss)
Balance at December 31, 2014	\$ (581)	\$ (709)	\$ (15)	\$ (2)	(1,307)
Other comprehensive (loss) income before reclassifications (4)	(487)	(59)		(18)	(564)
Amounts reclassified from accumulated other comprehensive income (loss) (2)		105	1	(20)	86
Equity method affiliates (3)	(103)	75		2	(26)
Net current-period other comprehensive (loss) income	(590)	121	1	(36)	(504)
Balance at December 31, 2015	\$ (1,171)	\$ (588)	\$ (14)	\$ (38)	(1,811)
Other comprehensive income before reclassifications (5)	(89)	(63)	(2)	(21)	(175)
Amounts reclassified from accumulated other comprehensive income (loss) (2)		40		22	62
Equity method affiliates (3)(7)	(15)	264	(1)		248
Net current-period other comprehensive (loss) income	(104)	241	(3)	1	135
Balance at December 31, 2016	\$ (1,275)	\$ (347)	\$ (17)	\$ (37)	(1,676)
Other comprehensive income before reclassifications (6)	711	13		33	757
Amounts reclassified from accumulated other comprehensive income (loss) (2)		17	14	11	42
Equity method affiliates (3)	35				35
Net current-period other comprehensive (loss) income	746	30	14	44	834
Balance at December 31, 2017	\$ (529)	\$ (317)	\$ (3)	\$ 7	(842)

- (1) All amounts are after tax. Amounts in parentheses indicate debits to accumulated other comprehensive income.
- (2) Tax effects of reclassifications are disclosed separately in this Note 17.
- (3) Tax effects related to equity method affiliates are not significant in the reported periods except for the tax expense of \$20 million related to the pension component in 2016.
- (4) Amounts are net of total tax benefit of \$86 million, including \$45 million related to the foreign currency translation adjustments, \$35 million related to the retirement plans component and \$6 million related to the hedges component.
- (5) Amounts are net of total tax benefit of \$52 million, including \$36 million related to the retirement plans component, \$12 million related to the hedges component, \$3 million related to the foreign currency translation adjustments and \$1 million related to the investments component.
- (6) Amounts are net of total tax expense of \$97 million, including \$88 million related to the foreign currency translation adjustments, \$5 million related to the hedges component and \$4 million related to the retirement plans component.
- (7) Most of the changes in equity method affiliate accumulated other comprehensive income components in 2016 relate to disposal transactions with amounts reclassified to the income statement.

17. Shareholders' Equity (continued)

(In millions)

Details about AOCI Components	Reclassifications Out of Accumulated Other Comprehensive Income (AOCI) by Component (1)			Affected line item in the consolidated statements of income
	Amount reclassified from AOCI			
	Years ended December 31,			
	2017	2016	2015	
Amortization of net actuarial loss	\$ (20)	\$ (62)	\$ (168)	(2)
Amortization of prior service (cost) credit	(2)	(1)	1	(2)
	(22)	(63)	(167)	Total before tax
	5	23	62	Tax benefit
	\$ (17)	\$ (40)	\$ (105)	Net of tax
Realized gains (losses) on investments	\$ (3)		\$ (1)	Other income (expense), net
	(11)			Tax expense
	\$ (14)		\$ (1)	Net of tax
Realized (losses) gains on designated hedges	\$ 1	\$ 4	\$ 20	Sales
	(12)	(36)	6	Cost of sales
	(2)	(2)		Other expense (income), net
	(13)	(34)	26	Total before tax
	2	12	(6)	Tax benefit (expense)
	\$ (11)	\$ (22)	\$ 20	Net of tax
Total reclassifications for the period	\$ (42)	\$ (62)	\$ (86)	Net of tax

(1) Amounts in parentheses indicate debits to the statement of income.

(2) These accumulated other comprehensive income components are included in net periodic pension cost. See Note 13 (Employee Retirement Plans) to the Consolidated Financial Statements for additional details.

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18. (Loss) Earnings Per Common Share

Basic (loss) earnings per common share are computed by dividing income attributable to common shareholders by the weighted-average number of common shares outstanding for the period. Diluted (loss) earnings per common share assumes the issuance of common shares for all potentially dilutive securities outstanding.

The reconciliation of the amounts used to compute basic and diluted (loss) earnings per common share from operations follows (in millions, except per share amounts):

	Years ended December 31,		
	2017	2016	2015
Net (loss) income attributable to Corning Incorporated	\$ (497)	\$ 3,695	\$ 1,339
Less: Series A convertible preferred stock dividend	98	98	98
Net (loss) income available to common stockholders - basic	(595)	3,597	1,241
Plus: Series A convertible preferred stock dividend		98	98
Net (loss) income available to common stockholders - diluted	\$ (595)	\$ 3,695	\$ 1,339
Weighted-average common shares outstanding - basic	895	1,020	1,219
Effect of dilutive securities:			
Stock options and other dilutive securities		9	9
Series A convertible preferred stock (1)		115	115
Weighted-average common shares outstanding - diluted	895	1,144	1,343
Basic (loss) earnings per common share	\$ (0.66)	\$ 3.53	\$ 1.02
Diluted (loss) earnings per common share	\$ (0.66)	\$ 3.23	\$ 1.00
Anti-dilutive potential shares excluded from diluted (loss) earnings per common share:			
Series A convertible preferred stock dividend (1)	115		
Employee stock options and awards	13	15	22
Accelerated share repurchase forward contract			15
Total	128	15	37

(1) For the year ended December 31, 2017, the Series A preferred stock was anti-dilutive and therefore excluded from the calculation of diluted (loss) earnings per share.

19. Share-based Compensation**Stock Compensation Plans**

Corning maintains long-term incentive plans (the "Plans") for key employees and non-employee members of our Board of Directors. The Plans allow us to grant equity-based compensation awards, including stock options, stock appreciation rights, performance share units, restricted stock units, restricted stock awards or a combination of awards (collectively, share-based awards). At December 31, 2017, there were approximately 65 million unissued common shares available for future grants under the Plans.

The Company measures and recognizes compensation cost for all share-based payment awards made to employees and directors based on estimated fair values.

The fair value of awards granted that are expected to ultimately vest is recognized as expense over the requisite service periods. The number of options expected to vest equals the total options granted less an estimation of the number of forfeitures expected to occur prior to vesting. The forfeiture rate is calculated based on 15 years of historical data and is adjusted if actual forfeitures differ significantly from the original estimates. The effect of any change in estimated forfeitures would be recognized through a cumulative adjustment that would be included in compensation cost in the period of the change in estimate.

Total share-based compensation cost of \$46 million, \$42 million and \$46 million was disclosed in operating activities on the Company's Consolidated Statements of Cash Flows for the years ended December 31, 2017, 2016 and 2015, respectively. The income tax benefit realized from share-based compensation was not significant for the years ended December 31, 2017, 2016 and 2015. Refer to Note 6 (Income Taxes).

19. Share-based Compensation (continued)**Stock Options**

Corning's stock option plans provide non-qualified and incentive stock options to purchase authorized but unissued shares, or treasury shares, at the market price on the grant date and generally become exercisable in installments from one to five years from the grant date. The maximum term of non-qualified and incentive stock options is 10 years from the grant date.

The following table summarizes information concerning stock options outstanding including the related transactions under the stock option plans for the year ended December 31, 2017:

	Number of shares (in thousands)	Weighted- average exercise price	Weighted- average remaining contractual term in years	Aggregate intrinsic value (in thousands)
Options Outstanding as of December 31, 2016	31,507	\$ 19.40		
Granted	1,507	27.01		
Exercised	(14,615)	21.13		
Forfeited and expired	(265)	23.22		
Options outstanding as of December 31, 2017	18,134	18.59	4.63	\$ 243,055
Options expected to vest as of December 31, 2017	18,098	18.58	4.62	242,773
Options exercisable as of December 31, 2017	13,487	17.14	3.38	200,246

The aggregate intrinsic value (market value of stock less option exercise price) in the preceding table represents the total pretax intrinsic value, based on the Company's closing stock price on December 29, 2017, which would have been received by the option holders had all option holders exercised their "in-the-money" options as of that date. The total number of "in-the-money" options exercisable on December 31, 2017, was approximately 13 million.

The weighted-average grant-date fair value for options granted for the years ended December 31, 2017, 2016 and 2015 was \$8.40, \$6.31 and \$7.99, respectively. The total fair value of options that vested during the years ended December 31, 2017, 2016 and 2015 was approximately \$13 million, \$22 million and \$36 million, respectively. Compensation cost related to stock options for the years ended December 31, 2017, 2016 and 2015, was approximately \$12 million, \$11 million and \$14 million, respectively.

As of December 31, 2017, there was approximately \$6 million of unrecognized compensation cost related to stock options granted under the Plans. The cost is expected to be recognized over a weighted-average period of 1.8 years.

Proceeds received from the exercise of stock options were \$309 million for the year ended December 31, 2017, which were included in financing activities on the Company's Consolidated Statements of Cash Flows. The total intrinsic value of options exercised for the years ended December 31, 2017, 2016 and 2015 was approximately \$103 million, \$53 million and \$48 million, respectively.

An award is considered vested when the employee's retention of the award is no longer contingent on providing subsequent service (the "non-substantive vesting period approach"). Awards to retirement eligible employees are fully vested at the date of grant, and the related compensation expense is recognized immediately upon grant or over the period from the grant date to the date of retirement eligibility for employees that become age 55 during the vesting period.

Corning uses a multiple-point Black-Scholes valuation model to estimate the fair value of stock option grants. Corning utilizes a blended approach for calculating the volatility assumption used in the multiple-point Black-Scholes valuation model defined as the weighted average of the short-term implied volatility, the most recent volatility for the period equal to the expected term, and the most recent 15-year historical volatility. The expected term assumption is the period of time the options are expected to be outstanding, and is calculated using a combination of historical exercise experience adjusted to reflect the current vesting period of options being valued, and partial life cycles of outstanding options. The risk-free rates used in the multiple-point Black-Scholes valuation model are the implied rates for a zero-coupon U.S. Treasury bond with a term equal to the option's expected term. The ranges given below reflect results from separate groups of employees exhibiting different exercise behavior.

19. Share-based Compensation (continued)

The following inputs were used for the valuation of option grants under our Stock Option Plans:

	2017		2016		2015	
Expected volatility	32.4	- 36.1 %	37.1	- 43.1 %	43.6	- 44.9 %
Weighted-average volatility	36.1%		41.0%		44.6%	
Expected dividends	1.98	- 2.28 %	2.28	- 2.94 %	1.92	- 2.68 %
Risk-free rate	2.1	- 2.3 %	1.4	- 2.1 %	1.9	- 2.1 %
Expected term (in years)	7.4	- 7.4	7.4	- 7.4	7.2	- 7.2
Pre-vesting departure rate	0.6	- 0.6 %	0.6	- 0.6 %	0.6	- 0.6 %

Incentive Stock Plans

The Corning Incentive Stock Plan permits restricted stock and restricted stock unit grants, either determined by specific performance goals or issued directly, in most instances, subject to the possibility of forfeiture and without cash consideration. Restricted stock and restricted stock units under the Incentive Stock Plan are granted at the closing market price on the grant date, contingently vest over a period of generally one to ten years, and generally have contractual lives of one to ten years. The fair value of each restricted stock grant or restricted stock unit awarded under the Incentive Stock Plan is based on the grant date closing price of the Company's stock.

Time-Based Restricted Stock and Restricted Stock Units:

Time-based restricted stock and restricted stock units are issued by the Company on a discretionary basis, and are payable in shares of the Company's common stock upon vesting. The fair value is based on the closing market price of the Company's stock on the grant date. Compensation cost is recognized over the requisite vesting period and adjusted for actual forfeitures before vesting.

The following table represents a summary of the status of the Company's non-vested time-based restricted stock and restricted stock units as of December 31, 2016, and changes which occurred during the year ended December 31, 2017:

	Shares (000's)	Weighted- average grant-date fair value
Non-vested shares and share units at December 31, 2016	4,640	\$ 20.15
Granted	1,859	28.16
Vested	(1,457)	20.48
Forfeited	(109)	22.72
Non-vested shares and share units at December 31, 2017	4,933	\$ 23.02

As of December 31, 2017, there was approximately \$41 million of unrecognized compensation cost related to non-vested time-based restricted stock and restricted stock units compensation arrangements granted under the Plan. The cost is expected to be recognized over a weighted-average period of 2.6 years. The total fair value of time-based restricted stock that vested during the years ended December 31, 2017, 2016 and 2015 was approximately \$30 million, \$27 million and \$32 million, respectively. Compensation cost related to time-based restricted stock and restricted stock units was approximately \$34 million, \$31 million and \$32 million for the years ended December 31, 2017, 2016 and 2015, respectively.

20. Reportable Segments

Our reportable segments are as follows:

- Display Technologies – manufactures glass substrates for flat panel liquid crystal displays.
- Optical Communications – manufactures carrier network and enterprise network components for the telecommunications industry .
- Environmental Technologies – manufactures ceramic substrates and filters for automotive and diesel applications.
- Specialty Materials – manufactures products that provide more than 150 material formulations for glass, glass ceramics and fluoride crystals to meet demand for unique customer needs.
- Life Sciences – manufactures glass and plastic labware, equipment, media and reagents to provide workflow solutions for scientific applications.

All other segments that do not meet the quantitative threshold for separate reporting have been grouped as “All Other.” This group is primarily comprised of the results of the pharmaceutical technologies business and new product lines and development projects, as well as certain corporate investments such as Eurokera and Keraglass equity affiliates.

We prepared the financial results for our reportable segments on a basis that is consistent with the manner in which we internally disaggregate financial information to assist in making internal operating decisions. We included the earnings of equity affiliates that are closely associated with our reportable segments in the respective segment’s net income. We have allocated certain common expenses among reportable segments differently than we would for stand-alone financial information. Segment net income may not be consistent with measures used by other companies. The accounting policies of our reportable segments are the same as those applied in the Consolidated Financial Statements.

20. Reportable Segments (continued)

The following provides historical segment information as described above:

Segment Information (in millions)

	Display Technologies	Optical Communications	Environmental Technologies	Specialty Materials	Life Sciences	All Other	Total
For the year ended December 31, 2017							
Net sales	\$ 2,997	\$ 3,545	\$ 1,106	\$ 1,403	\$ 879	\$ 186	\$ 10,116
Depreciation (1)	\$ 534	\$ 193	\$ 124	\$ 129	\$ 52	\$ 45	\$ 1,077
Amortization of purchased intangibles		\$ 48			\$ 22	\$ 5	\$ 75
Research, development and engineering expenses (2)	\$ 88	\$ 174	\$ 113	\$ 152	\$ 22	\$ 211	\$ 760
Income tax (provision) benefit	\$ (394)	\$ (188)	\$ (69)	\$ (124)	\$ (31)	\$ 114	\$ (692)
Net income (loss) (3)	\$ 831	\$ 341	\$ 127	\$ 249	\$ 64	\$ (229)	\$ 1,383
Investment in affiliated companies, at equity	\$ 134	\$ 2		\$ 3		\$ 140	\$ 279
Segment assets (4)	\$ 8,662	\$ 2,599	\$ 1,402	\$ 2,155	\$ 538	\$ 824	\$ 16,180
Capital expenditures	\$ 795	\$ 505	\$ 157	\$ 223	\$ 42	\$ 156	\$ 1,878
For the year ended December 31, 2016							
Net sales	\$ 3,238	\$ 3,005	\$ 1,032	\$ 1,124	\$ 839	\$ 152	\$ 9,390
Depreciation (1)	\$ 598	\$ 175	\$ 129	\$ 109	\$ 58	\$ 50	\$ 1,119
Amortization of purchased intangibles		\$ 35			\$ 20	\$ 8	\$ 63
Research, development and engineering expenses (2)	\$ 45	\$ 147	\$ 102	\$ 126	\$ 24	\$ 191	\$ 635
Income tax (provision) benefit	\$ (372)	\$ (129)	\$ (65)	\$ (85)	\$ (28)	\$ 114	\$ (565)
Net income (loss) (3)	\$ 935	\$ 245	\$ 133	\$ 174	\$ 58	\$ (240)	\$ 1,305
Investment in affiliated companies, at equity	\$ 41	\$ (1)	\$ 32			\$ 252	\$ 324
Segment assets (4)	\$ 8,032	\$ 2,010	\$ 1,267	\$ 1,604	\$ 504	\$ 750	\$ 14,167
Capital expenditures	\$ 464	\$ 245	\$ 97	\$ 120	\$ 39	\$ 56	\$ 1,021
For the year ended December 31, 2015							
Net sales	\$ 3,086	\$ 2,980	\$ 1,053	\$ 1,107	\$ 821	\$ 64	\$ 9,111
Depreciation (1)	\$ 605	\$ 163	\$ 125	\$ 112	\$ 60	\$ 43	\$ 1,108
Amortization of purchased intangibles		\$ 32			\$ 20	\$ 1	\$ 53
Research, development and engineering expenses (2)	\$ 105	\$ 138	\$ 93	\$ 113	\$ 23	\$ 186	\$ 658
Income tax (provision) benefit	\$ (499)	\$ (115)	\$ (78)	\$ (85)	\$ (30)	\$ 89	\$ (718)
Net income (loss) (3)	\$ 1,095	\$ 237	\$ 161	\$ 167	\$ 61	\$ (202)	\$ 1,519
Investment in affiliated companies, at equity	\$ 43	\$ 1	\$ 32			\$ 261	\$ 337
Segment assets (4)	\$ 8,344	\$ 1,783	\$ 1,288	\$ 1,407	\$ 514	\$ 738	\$ 14,074
Capital expenditures	\$ 594	\$ 171	\$ 117	\$ 88	\$ 32	\$ 57	\$ 1,059

(1) Depreciation expense for Corning's reportable segments includes an allocation of depreciation of corporate property not specifically identifiable to a segment.

(2) Research, development and engineering expenses include direct project spending that is identifiable to a segment.

(3) Many of Corning's administrative and staff functions are performed on a centralized basis. Where practicable, Corning charges these expenses to segments based upon the extent to which each business uses a centralized function. Other staff functions, such as corporate finance, human resources and legal are allocated to segments, primarily as a percentage of sales.

(4) Segment assets include inventory, accounts receivable, property, plant and equipment, net of accumulated depreciation, and associated equity companies and cost investments.

20. Reportable Segments (continued)

A reconciliation of reportable segment net income (loss) to consolidated net income follows (in millions):

	Years ended December 31,		
	2017	2016	2015
Net income of reportable segments	\$ 1,612	\$ 1,545	\$ 1,721
Net loss of All Other	(229)	(240)	(202)
Unallocated amounts:			
Net financing costs (1)	(110)	(107)	(111)
Share-based compensation expense	(46)	(42)	(46)
Exploratory research	(98)	(107)	(109)
Corporate contributions	(36)	(49)	(52)
Gain on realignment of equity investment		2,676	
Equity in earnings of affiliated companies, net of impairments (2)	353	292	291
Unrealized loss on translated earnings contracts	(391)	(649)	(573)
Resolution of Department of Justice investigation		(98)	
Income tax (provision) benefit	(1,462)	568	571
Other corporate items	(90)	(94)	(151)
Net (loss) income	\$ (497)	\$ 3,695	\$ 1,339

(1) Net financing costs include interest income, interest expense, and interest costs and investment gains and losses associated with benefit plans.

(2) Primarily represents the equity earnings of Hemlock Semiconductor Group in 2017 and 2016, and Dow Corning in 2015.

A reconciliation of reportable segment assets to consolidated total assets follows (in millions):

	December 31,		
	2017	2016	2015
Total assets of reportable segments	\$ 15,356	\$ 13,417	\$ 13,336
Non-reportable segments	824	750	738
Unallocated amounts:			
Current assets (1)	5,315	6,070	5,488
Investments (2)	61	12	1,638
Property, plant and equipment, net (3)	1,628	1,681	1,692
Other non-current assets (4)	4,310	5,969	5,635
Total assets	\$ 27,494	\$ 27,899	\$ 28,527

(1) Includes current corporate assets, primarily cash, short-term investments, current portion of long-term derivative assets and deferred taxes.

(2) Primarily represents corporate equity and cost basis investments in 2017 and 2016, and Dow Corning in 2015. Asset balance does not include equity method affiliate liability balance of \$105 and \$241 for Hemlock Semiconductor Group in 2017 2016, respectively.

(3) Represents corporate property not specifically identifiable to an operating segment.

(4) Includes non-current corporate assets, pension assets, long-term derivative assets and deferred taxes.

For the year ended December 31, 2017, the following number of customers, which individually accounted for 10% or more of each segment's sales, represented the following concentration of segment sales:

- In the Display Technologies segment, three customers accounted for 62% of total segment sales.
- In the Optical Communications segment, one customer accounted for 19% of total segment sales.
- In the Environmental Technologies segment, three customers accounted for 81% of total segment sales.
- In the Specialty Materials segment, three customers accounted for 58% of total segment sales.
- In the Life Sciences segment, two customers accounted for 47% of total segment sales.

20. Reportable Segments (continued)

Selected financial information concerning the Company's product lines and reportable segments follow (in millions):

Revenues from External Customers	Years Ended December 31,		
	2017	2016	2015
Display Technologies	\$ 2,997	\$ 3,238	\$ 3,086
Optical Communications			
Carrier network	2,720	2,274	2,194
Enterprise network	825	731	786
Total Optical Communications	3,545	3,005	2,980
Environmental Technologies			
Automotive and other	627	585	528
Diesel	479	447	525
Total Environmental Technologies	1,106	1,032	1,053
Specialty Materials			
Corning Gorilla Glass	1,044	807	810
Advanced optics and other specialty glass	359	317	297
Total Specialty Materials	1,403	1,124	1,107
Life Sciences			
Labware	524	512	512
Cell culture products	355	327	309
Total Life Science	879	839	821
All Other	186	152	64
	\$ 10,116	\$ 9,390	\$ 9,111

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20. Reportable Segments (continued)

Information concerning principal geographic areas was as follows (in millions):

	2017		2016		2015	
	Net sales (2)	Long-lived assets (1)	Net sales (2)	Long-lived assets (1)	Net sales (2)	Long-lived assets (1)
North America						
United States	\$ 3,146	\$ 6,402	\$ 2,625	\$ 6,473	\$ 2,719	\$ 8,241
Canada	287	138	282	142	244	144
Mexico	27	174	50	134	37	135
Total North America	3,460	6,714	2,957	6,749	3,000	8,520
Asia Pacific						
Japan	455	1,015	450	1,008	440	1,160
Taiwan	846	2,357	840	2,347	841	2,301
China	2,230	1,955	2,083	1,140	1,869	1,036
Korea	1,286	3,858	1,444	3,413	1,501	3,552
Other	378	160	363	167	331	98
Total Asia Pacific	5,195	9,345	5,180	8,075	4,982	8,147
Europe						
Germany	426	201	363	154	326	189
Other	701	1,548	617	1,354	565	1,297
Total Europe	1,127	1,749	980	1,508	891	1,486
All Other						
	334	46	273	44	238	36
Total	\$ 10,116	\$ 17,854	\$ 9,390	\$ 16,376	\$ 9,111	\$ 18,189

- (1) Long-lived assets primarily include investments, plant and equipment, goodwill and other intangible assets. In 2015, assets in the U.S. include the investment in Dow Corning.
(2) Net sales are attributed to countries based on location of customer.

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Corning Incorporated and Subsidiary Companies
Schedule II – Valuation Accounts and Reserves
(in millions)

	Balance at beginning of period	Additions	Net deductions and other	Balance at end of period
Year ended December 31, 2017				
Doubtful accounts and allowances	\$ 59	\$ 1		\$ 60
Deferred tax valuation allowance	\$ 270	\$ 241	\$ 55	\$ 456
Accumulated amortization of purchased intangible assets	\$ 325	\$ 75	\$ 3	\$ 397
Reserves for accrued costs of business restructuring	\$ 5		\$ 5	

	Balance at beginning of period	Additions	Net deductions and other	Balance at end of period
Year ended December 31, 2016				
Doubtful accounts and allowances	\$ 48	\$ 11		\$ 59
Deferred tax valuation allowance	\$ 238	\$ 55	\$ 23	\$ 270
Accumulated amortization of purchased intangible assets	\$ 265	\$ 64	\$ 4	\$ 325
Reserves for accrued costs of business restructuring	\$ 3	\$ 15	\$ 13	\$ 5

	Balance at beginning of period	Additions	Net deductions and other	Balance at end of period
Year ended December 31, 2015				
Doubtful accounts and allowances	\$ 47	\$ 1		\$ 48
Deferred tax valuation allowance	\$ 298	\$ 30	\$ 90	\$ 238
Accumulated amortization of purchased intangible assets	\$ 216	\$ 49		\$ 265
Reserves for accrued costs of business restructuring	\$ 44		\$ 41	\$ 3

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Quarterly Operating Results

(unaudited)

(In millions, except per share amounts)

2017	First quarter	Second quarter	Third quarter	Fourth quarter	Total year
Net sales	\$ 2,375	\$ 2,497	\$ 2,607	\$ 2,637	\$ 10,116
Gross margin	\$ 957	\$ 985	\$ 1,056	\$ 1,034	\$ 4,032
Equity in earnings of affiliated companies	\$ 80	\$ 37	\$ 31	\$ 213	\$ 361
Benefit (provision) for income taxes	\$ 66	\$ (153)	\$ (89)	\$ (1,978)	\$ (2,154)
Net income (loss) attributable to Corning Incorporated	\$ 86	\$ 439	\$ 390	\$ (1,412)	\$ (497)
Basic earnings (loss) per common share	\$ 0.07	\$ 0.46	\$ 0.41	\$ (1.66)	\$ (0.66)
Diluted earnings (loss) per common share	\$ 0.07	\$ 0.42	\$ 0.39	\$ (1.66)	\$ (0.66)
2016	First quarter	Second quarter	Third quarter	Fourth quarter	Total year
Net sales	\$ 2,047	\$ 2,360	\$ 2,507	\$ 2,476	\$ 9,390
Gross margin	\$ 764	\$ 951	\$ 1,041	\$ 990	\$ 3,746
Equity in earnings of affiliated companies	\$ 59	\$ 41	\$ 19	\$ 165	\$ 284
Benefit (provision) for income taxes	\$ 304	\$ 504	\$ 27	\$ (832)	\$ 3
Net income attributable to Corning Incorporated	\$ (368)	\$ 2,207	\$ 284	\$ 1,572	\$ 3,695
Basic (loss) earnings per common share	\$ (0.36)	\$ 2.06	\$ 0.27	\$ 1.64	\$ 3.53
Diluted (loss) earnings per common share	\$ (0.36)	\$ 1.87	\$ 0.26	\$ 1.47	\$ 3.23

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CORNING INCORPORATED
INCENTIVE STOCK RIGHTS AGREEMENT
(Time-Based Incentive Stock Right)
(Terms and Conditions)

Important Change: 100% of the awards offered under the executive long-term incentive plan for 2018 are contingent on Employee accepting the terms and conditions of a Non-Compete Agreement attached as Appendix A to this 2018 Restricted Stock Unit Agreement before May 31, 2018. Failure to accept these terms and conditions will result in the forfeiture and cancellation of 100% of the awards offered.

This Incentive Stock Rights Agreement (“Agreement”) dated February 7, 2018 between Corning Incorporated (“Corning” or the “Corporation”) and the employee named below is subject in all respects to Corning’s 2012 Long-Term Incentive Plan as amended, a copy of which may be obtained from the Corporation’s Secretary at One Riverfront Plaza, Corning, New York 14831.

1. **Awards of Rights**. Corning hereby awards to the employee (the “Employee”) Incentive Stock Rights (the “Incentive Stock Rights”).

Each Incentive Stock Right shall entitle the Employee to receive from Corning one share of Corning’s common stock (“Common Stock”); provided that the Employee satisfies both service based vesting requirements set forth in Sections 3 and 4. Such shares, if any, shall be paid to the Employee at the time set forth in Section 5.
2. **Non-Transferability**. The Incentive Stock Rights may not be sold, assigned, transferred, pledged or otherwise encumbered by or on behalf of or for the benefit of the Employee.
3. **First Service Based Vesting Requirement**. Incentive Stock Rights are subject to two service - based vesting requirements, with the first one applicable in 2018 as follows :
 - (a) Under the first vesting requirement, the Employee shall “earn” a number of Incentive Stock Rights based upon the number of full calendar months he/she is employed by the Corporation in the 2018 fiscal year (“First Service Period”), provided further that the Employee must be employed for at least 3 full calendar months during the First Service Period for the Employee to be eligible to “earn” any award.
 - (b) If during the First Service Period the Employee’s employment with the Corporation is terminated for any reason (other than a termination as described in Section 4(b) or 4(f) below in which cases the Employee shall not be entitled to any Incentive Stock Rights), then the prorated number of “earned” Incentive Stock Rights shall be calculated as the total number of Incentive Stock Rights multiplied by a ratio in which the numerator is equal to the number of full calendar months that the employee was actively employed (provided that this number is no less than 3) during the First Service Period, and the denominator of which is 12. The number of Incentive Stock Rights that have not been “earned” in the First Service Period under the first vesting requirement shall be forfeited.
 - (c) An Employee shall not vest in his/her right to receive an Incentive Stock Right that has been “earned” in the First Service Period unless the Employee also satisfies the second service based vesting requirements set forth in Section 4.
4. **Second Service Based Vesting Requirement**. Subject to the exceptions set forth below, the Employee must remain in continuous employment with Corning until March 31, 2021, to satisfy the second service based vesting requirement. If the Employee’s employment with Corning terminates before March 31, 2021, any “earned” Incentive Stock Rights, as described in Section 3 above, as of the date of the Employee’s employment terminates shall be treated as follows:
 - (a) **Retirement at or After Age 55** – If the Employee terminates employment on account of normal or early retirement on or after age 55, provided that the Employee has at least five (5) years of active service with Corning, then the second service based vesting requirement shall be satisfied with respect to the “earned” Incentive Stock Rights as calculated in Section 3(b) above. If the Employee has less than five (5) years of active service with Corning, then the second service based vesting requirement shall be satisfied with respect to the “earned” Incentive Stock Rights as calculated in the same manner specified in Section 4(b) below.

- (b) **Involuntary Termination (not “for cause”)** – If the Employee’s employment is involuntarily terminated after the First Service Period but before March 31, 2021, and it is not “for cause,” then the second service based vesting requirement shall be satisfied as of the Employee’s termination date for the prorated number of “earned” Incentive Stock Rights, calculated as the total number of “earned” Incentive Stock Rights multiplied by a ratio with the numerator equal to the number of full calendar months (not to exceed 36) from the start of the First Service Period through the Employee’s termination date, and the denominator of which is 36. If the Employee’s employment is involuntarily terminated during the First Service Period the Employee shall not be entitled at any Incentive Stock Rights.

Provided further for this section 4(b), that in the event of an “Involuntary Termination (not “for cause”), Employee must also sign a Memorandum of Understanding (“MOU”) documenting the termination in a form offered by and acceptable to the Company to obtain any earned Incentive Stock Rights described in this section. Failure to sign a MOU in this event will result in forfeiture of all earned Incentive Stock Rights on terms similar to those outlined in section 4(f).

For purposes of this Agreement, “for cause” shall mean the Employee’s:

- conviction of a felony or conviction of a misdemeanor involving moral turpitude (from which no further appeals have been or can be taken);
 - a material breach of Corning’s Code of Conduct;
 - gross abdication of his duties as an employee of the Corporation (other than due to the Employee’s illness or personal family problems), which conduct remains uncured by the Employee for a period of at least 30 days following written notice thereof to the Employee by the Corporation, in each case as determined in good faith by the Corporation; or
 - misappropriation of Corning’s assets, personal dishonesty or business conduct which causes material or potentially material financial or reputational harm for the Corporation. For purposes of this Section 4(b), no act or failure to act on the Employee’s part shall be deemed to be a termination for cause if done, or omitted to be done, in good faith, and with the reasonable belief that the action or omission was in the best interests of the Corporation.
- (c) **Death** – If the Employee dies while employed, then the second service based vesting requirement shall be satisfied with respect to the “earned” Incentive Stock Rights as calculated in Section 3(b) above .
- (d) **Disability** – If the Employee’s employment is terminated as a result of a total and permanent disability (as that term is defined in the long-term disability plan(s) applicable to the Employee), then the second service based vesting requirement shall be satisfied with respect to the “earned” Incentive Stock Rights as calculated in Section 3(b) above .
- (e) **Divestiture, etc .** – If the Employee’s employment is terminated due to a reduction in force, divestiture or discontinuance of certain of the Corporation’s, then the second service based vesting requirement shall be satisfied with respect to the “earned” Incentive Stock Rights as calculated in Section 3(b) above .
- (f) **Voluntary Termination, Termination for Cause, Dereliction of Duties or Harmful Acts** – If the Employee voluntarily leaves the employ of the Corporation, or if the Employee’s employment shall be terminated “for cause”, or if the Employee causes the Corporation to suffer financial harm or damage to its reputation through (i) dishonesty, (ii) material violation of the Corporation's standards of ethics or conduct, or (iii) material deviation from the duties owed the Corporation by the Employee, then all of the Incentive Stock Rights shall be forfeited as of the Employee’s termination date.
- (g) **Change of Control** – In the event of a “change of control” of Corning Incorporated, the provisions of Sections 3 and 4 shall not be applicable and all nonforfeited Incentive Stock Rights shall be “earned” and fully vest.

For purposes of this Agreement, the term “change of control” shall mean an event that is “a change in the ownership or effective control of the Corporation, or in the ownership of a substantial portion of the assets of the Corporation” within the meaning of Section 409A of the Internal Revenue Code of 1986, as amended (the “Code”), and that also falls within one of the following circumstances:

- (i) an offerer (other than Corning) purchases shares of Corning Common Stock pursuant to a tender or exchange offer for such shares;

- (ii) any person (as such term is used in Sections 13(d) and 14(d) (2) of the Securities Exchange Act of 1934) is or becomes the beneficial owner, directly or indirectly, of Corning securities representing 50% or more of the combined voting power of Corning's then outstanding securities;
- (iii) the membership of Corning's Board of Directors changes as the result of a contested election or elections, such that a majority of the individuals who are Directors at any particular time were initially placed on the Board of Directors as a result of such a contested election or elections occurring within the previous two years; or
- (iv) the consummation of a merger in which the Corporation is not the surviving corporation, consolidation, sale or disposition of all or substantially all of Corning's assets or a plan of partial or complete liquidation approved by the Corporation's shareholders.

5. **Time of Payment.** "Earned" Incentive Stock Rights that have vested shall be paid as of the earliest of the following dates:

- (a) **Death or Separation from Service**– If the Employee dies or "separates from service" (within the meaning of Section 409A of the Code) from Corning, the Employee's Incentive Stock Rights that are "earned" and vested as of the date of the Employee's death or separation from service shall be paid, net of tax withholdings, as of the date of death or separation and distributed as net shares of Common Stock within 30 days after the date of death or separation from service.
- (b) **April 15, 2021.** If the Employee does not "separate from service" (within the meaning of Section 409A of the Code) from Corning on or before March 31, 2021, the Employee's "earned" Incentive Stock Rights shall be paid, net of tax withholdings, as of April 15, 2021 and distributed as net shares of Common Stock within 30 days following April 15, 2021.
- (c) **Change of Control** - In the event of a Change of Control, the Employee's Incentive Stock Rights that are vested as of the date of the Change of Control shall be paid/distributed as net shares of Common Stock, net of tax withholdings, as of /and within 30 days following the date of the Change of Control.
- (d) **Special Distributions to Pay Social Security, Medicare Taxes** - In the event that "earned" Incentive Stock Rights become subject to Social Security and / or Medicare taxes prior to a distribution event described in Sections 5(a)-(c) above (i.e., because the payment of the Incentive Stock Rights is no longer subject to a substantial risk of forfeiture) a partial distribution of the Incentive Stock Rights will be made to pay the Federal Insurance Contributions Act ("FICA") tax imposed under Code sections 3101, 3121(a), and 3121(v)(2) on the Employee's "earned" Incentive Stock Rights (the "FICA Amount"). Additionally, a partial distribution of the Incentive Stock Rights will be made to pay the income tax at source on wages imposed under section 3401 or the corresponding withholding provisions of applicable state, local, or foreign tax laws as a result of the payment of the FICA Amount, and to pay the additional income tax at source on wages attributable to the pyramiding section 3401 wages and taxes. However, the total payment under this provision must not exceed the aggregate of the FICA Amount, and the income tax withholding related to such FICA Amount. Any subsequent amount that is paid under this Agreement will be reduced by the amount paid under this Section 5(d).
- (e) **Special Rule for Specified Employees** - Notwithstanding the foregoing, if an amount becomes payable under the above rules due to the Employee incurring a "separation from service" within the meaning of Section 409A of the Code (for this purpose, payments on account of death are not considered payments made on account of separation from service), and the Employee is a "specified employee" (within the meaning of Section 409A of the Code) as of the date of separation from service, the Employee's "earned" Incentive Stock Rights that are vested as of the date of the Employee's separation from service shall be paid/distributed as net shares of Common Stock (net of tax withholdings) on or after the first day of the seventh month after the Employee's separation from service and before the 15th day of the seventh month following the date the Employee separates from service.
- (f) **Forfeiture** - All Incentive Stock Rights that have not vested as of the date any Incentive Stock Right is paid shall be forfeited; provided that any distributions under Section 5(d) shall not result in the forfeiture of any unpaid Incentive Stock Rights.

6. **Form of Payment.** At the time specified in Section 5, Corning shall make an appropriate book-entry, for the number of shares of Common Stock equal to the number of "earned" Incentive Stock Rights that are vested (net of tax withholdings). An Employee shall have no further rights with regard to the Incentive Stock Rights once the underlying shares of Common Stock have been delivered. The number of shares of Common Stock which Corning must deliver pursuant to this Agreement shall be reduced by the value of all taxes which the Corporation is required by law to withhold by reason of such delivery.

7. **Voting and Dividend Rights**. Because the Incentive Stock Rights do not constitute shares of Common Stock (but rather just the right to receive shares in the future upon satisfaction of the specified service based vesting conditions), the grant or vesting of Incentive Stock Rights shall not provide the Employee with any shareholder rights (such as voting or dividend rights) until the Incentive Stock Rights are converted to shares of Common Stock.
8. **Dividend Equivalents**. The Employee's earned and vested Incentive Stock Rights shall be credited with dividend equivalents in a manner that is consistent with the manner in which dividends are paid on shares of Common Stock. Dividend equivalents shall be accumulated over the vesting period and paid in cash at the same time that the Incentive Stock Rights are paid in Section 5. The Corporation shall establish rules and administrative processes that apply to dividend equivalents that shall be binding on the Employee. No dividend equivalents shall be paid on Incentive Stock Rights that have been forfeited or paid.
9. **Transfers**. If the Employee is transferred from Corning to a subsidiary (being a 50% or greater owned entity), or vice versa or from one subsidiary to another, the Employee's employment shall not be deemed to have terminated.
10. **Section 409A and Unfunded Plan**. This Agreement is intended to comply with the requirements of Section 409A of the Code and shall be interpreted and administered in accordance with that intent. If any provision of the agreement would otherwise conflict with or frustrate this intent, that provision will be interpreted and deemed amended so as to avoid the conflict. For purposes of this Agreement, "termination", "termination date" or similar term shall mean the date the employee "separates from service" from Corning within the meaning of Section 409A of the Internal Revenue Code. Under such definition, a period of time during which the Employee receives severance pay, but does not work, does not count as employment. This Agreement is an unfunded deferred compensation plan.
11. **Modification/Interpretation**. Any modification of the terms of this Agreement must be approved, and any dispute, disagreement or matter of interpretation which shall arise under this Agreement shall be finally determined by the Compensation Committee of the Corning Board of Directors in its absolute discretion.

IN WITNESS WHEREOF, this Agreement has been duly executed by Corning .

CORNING INCORPORATED

By: _____
John P. MacMahon
Senior Vice President, Global Compensation & Benefits
Corning Incorporated

Appendix A
Non-Compete Agreement

This Non-Compete Agreement effective as of the date acknowledged (“Effective Date”) by the employee (“Employee”) is between Corning Incorporated (“Corning”) and Employee who is employed in a leadership position at Corning or one of its affiliates (collectively “Company”) and receives a portion of his/her compensation under Corning’s Executive Long-Term Incentive Plan through the Company’s 2012 Long-Term Incentive Plan as amended from time to time (the “Plan”), a copy of which may be obtained from in Corning’s Secretary at One Riverfront Plaza, Corning, New York 1483. Capitalized terms not otherwise defined herein shall have the meaning ascribed thereto in the Plan.

If Employee fails to acknowledge this Non-Compete Agreement by May 31 of the year in which such Plan awards are made, in the manner specified by the Company, Employee understands that all Plan awards, including the Cash Performance Units, Incentive Stock Rights, and Stock Options, for that year will automatically be forfeited and canceled.

In consideration of the compensation to be provided to Employee pursuant to the Plan, which employee hereby acknowledges to be good and valuable consideration, Company and Employee hereby agree as follows:

1. Restrictive Covenants.

(a) Acknowledgment – Confidential Information.

The Employee understands that the nature of Employee's position gives the Employee access to and knowledge of Company Confidential Information (as defined below) and places the Employee in a position of trust and confidence with the Company. Employee acknowledges that Employee's exposure to Company Confidential Information, both of a technical and business nature, within Corning will be extensive, due to the open communication and teamwork required for the success of the Company, and especially due to the level of responsibility for the businesses that is required in the position held by Employee. For purposes of this Agreement, "Company Confidential Information" includes, but is not limited to, all information not generally known to the public, in spoken, printed, electronic or any other form or medium, of the Company, or of any other person or entity that has entrusted information to the Company in confidence. Company Confidential Information also includes other information that is marked or otherwise identified or treated as confidential or proprietary, or that would otherwise appear to a reasonable person to be confidential or proprietary in the context and circumstances in which the information is known or used. The Employee understands and agrees that Company Confidential Information includes information developed by the Employee in the course of the Employee's employment by the Company as if the Company furnished the same Company Confidential Information to the Employee in the first instance. Company Confidential Information shall not include information that is generally available to and known by the public at the time of disclosure to the Employee, provided that such disclosure is through no direct or indirect fault of the Employee or person(s) acting on the Employee's behalf.

(b) Acknowledgment – Leadership Role.

The Employee understands and acknowledges that the leadership, management and intellectual services the Employee provides to the Company are unique and special. The Employee further understands and acknowledges that the Company's ability to reserve these for the exclusive knowledge and use of the Company is of great competitive importance and commercial value to the Company, and that improper use or disclosure of such services or Company Confidential Information by the Employee is likely to result in unfair or unlawful competitive activity.

(c) Non-Competition and Non-Solicitation.

Because of Company's legitimate business interest as described herein and the good and valuable consideration offered to the Employee through the Plan, during the term of Employee's employment and for the term of two (2) years, to run consecutively, beginning on the last day of the Employee's employment with the Company, for any reason or no reason and whether employment is terminated at the option of the Employee or the Company, the Employee agrees and covenants not to engage in Prohibited Activity.

For purposes of this non-compete clause, " **Prohibited Activity** " is activity in which

- i) Employee contributes the Employee's knowledge, directly or indirectly, in whole or in part, as an employee, company, owner, operator, manager, advisor, consultant, agent, partner, director, stockholder, officer, volunteer, intern, or any other similar capacity to an entity engaged in the same or similar business as the Company. Prohibited Activity also includes activity that may require or inevitably require disclosure of Company trade secrets, proprietary information, or Confidential Information ; or
- ii) Employee recruits, solicits, or hires any employee, consultant, agent, director or officer of Company or contacts, recruits, solicits or induces, or attempts to contact, recruit, solicit or induce, any employee, consultant, agent, director or officer of Company to terminate his/her employment with, or otherwise adversely change, reduce, or cease any relationship with Company if the hiring of such individual would involve, or is likely to involve, the unauthorized use or disclosure of Company's Confidential Information; or
- iii) Employee contacts, solicits, diverts, takes away, or attempts to contact, solicit, divert or take away, any clients, customers or accounts, or prospective clients, customers or accounts, of Company, or any of Company's business with such clients, customers or accounts Company which were contacted, solicited or served by Employee, or were directly or indirectly under Employee's responsibility, while employed by Company, or the identity of which Employee became aware during the term of employment except as agreed upon in writing signed by a duly authorized officer of Company.

It is not a Prohibited Activity for Employee to purchase or own less than five percent (5%) of the publicly traded securities of any corporation, provided that such ownership represents a passive investment and that the Employee is not a controlling person of, or a member of a group that controls, such corporation.

(d) Non-Disparagement .

The Employee agrees and covenants that the Employee will not at any time make, publish, or communicate to any person or entity or in any public forum any defamatory or disparaging remarks, comments, or statements concerning the Company or its businesses, or any of its employees, officers and existing and prospective customers, suppliers, investors, and other associated third parties. This Section does not, in any way, restrict or impede the Employee from exercising protected rights to the extent that such rights cannot be waived by agreement, including but not limited to Employee's Section 7 of this Appendix A rights under the NLRA, or from complying with any applicable law or regulation or a valid order of a court of competent jurisdiction or an authorized government agency, provided that such compliance does not exceed that required by the law, regulation, or order.

2. Future Employment .

(a) Prior to commencing new employment immediately subsequent to Employee's employment with Company, Employee will provide to Company a full description of such new employment along with written assurance from such new employer that such new employment does not conflict with Employee's obligations under this Agreement or under the Employee Patent and Proprietary Information Agreement. Employee also agrees to notify Employee's new employer of the restrictions contained in this Agreement, and Corning reserves the right to do so in any event.

(b) If, for a period of six months following separation from employment with Company, Employee fails, after conscientious and diligent effort, to obtain an offer of employment which is consistent with Employee's education, training, occupational experience, general ability and reasonable salary expectations, and, he/she believes that such failure is due to the restrictions of this Agreement, Employee shall provide written notice thereof to Company's Sr. Vice President of Human Resources. Within thirty (30) days after receipt of such notice, Corning shall meet with Employee to discuss options for minimizing any detrimental effect on Employee due to this Agreement. Any Corning steps to minimize such detrimental effect shall be conditioned upon continued conscientious and diligent effort by Employee to secure new employment.

3. Remedies . Choice of Law .

(a) In the event of a breach or threatened breach by the Employee of any of the provisions of this Agreement, the Employee hereby consents and agrees that the Company shall be entitled to, in addition to other available remedies, a temporary or permanent injunction or other equitable relief against such breach or threatened breach from any court of competent jurisdiction, without the necessity of showing any actual damages or that money damages would not afford an adequate remedy, and without the necessity of posting any bond or other security. The aforementioned equitable relief shall be in addition to, not in lieu of, legal remedies, monetary damages, or other available forms of relief.

(b) The law governing this Agreement and any dispute arising out of, relating to or in connection with the Agreement shall be the laws of the State of New York, without regard to its principles of conflicts of law. In the event of litigation, any action shall be venued in either the Supreme Court of the State of New York, Steuben County or in the United States District Court for the Western District of New York.

4. Entire Agreement . No Conflict .

(a) Unless specifically provided herein, this Agreement contains all the understandings and representations between the Employee and Company pertaining to the subject matter hereof and supersedes all prior and contemporaneous understandings, agreements, representations, and warranties, both written and oral, with respect to such subject matter, including any prior versions of a Non-Compete Agreement attached as Appendix A to the Incentive Stock Rights Agreement or any business unit particular non-competee employee may have signed.

(b) Nothing in this Agreement shall be construed to in any way terminate, supersede, undermine, or otherwise modify the "at-will" status of the employment relationship between the Company and the Employee, pursuant to which either the Company or the Employee may terminate the employment relationship at any time, with or without cause, and with or without notice.

(c) Nothing in this Agreement shall be construed to in any way terminate, supersede, undermine, or otherwise modify the Employee Patent and Proprietary Information Agreement Employee signed with Company.

5. Severability . DTSA Immunity .

(a) Should any provision of this Agreement be held by the arbitral authority or a court of competent jurisdiction to be enforceable only if modified, or if any portion of this Agreement shall be held as unenforceable and thus stricken, such holding shall not affect the validity of the remainder of this Agreement, the balance of which shall continue to be binding on the Parties with any such modification to become a part hereof and treated as though originally set forth in this Agreement. The Parties further agree that any such arbitral authority or court is expressly authorized to modify any unenforceable provision of this Agreement in lieu of severing the unenforceable provision from this Agreement in its entirety, whether by rewriting the offending provision, deleting any or all of the offending provision, adding additional language to this Agreement, or by making any other modifications as it deems warranted to carry out the intent and agreement of the Parties as embodied herein to the maximum extent permitted by law. The Parties expressly agree that this Agreement as so modified by the arbitral authority or court shall be binding upon and enforceable against each of them. In any event, should one or more of the provisions of this Agreement be held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provisions hereof, and if such provision or provisions are not modified as provided above, this Agreement shall be construed as if such invalid, illegal, or unenforceable provisions had not been set forth herein.

(b) Notice of Immunity Under the Economic Espionage Act of 1996, as amended by the Defense Trade Secrets Act of 2016 ("DTSA"). Notwithstanding any other provision of this Agreement:

(i) The Employee will not be held criminally or civilly liable under any federal or state trade secret law for any disclosure of a trade secret that:

(A) is made: (1) in confidence to a federal, state, or local government official, either directly or indirectly, or to an attorney; and (2) solely for the purpose of reporting or investigating a suspected violation of law; or

(B) is made in a complaint or other document that is filed under seal in a lawsuit or other proceeding.

(ii) if the Employee files a lawsuit for retaliation by the Employer for reporting a suspected violation of law, the Employee may disclose the Employer's trade secrets to the Employee's attorney and use the trade secret information in the court proceeding if the Employee:

(A) files any document containing the trade secret under seal; and

(B) does not disclose the trade secret, except pursuant to court order.

EMPLOYEE UNDERSTANDS THAT HE OR SHE HAD THE CHOICE AND OPPORTUNITY TO DISCUSS THIS AGREEMENT WITH LEGAL COUNSEL OF HIS OR HER CHOOSING, TO ACCEPT THIS AGREEMENT AND RECEIVE CONSIDERATION UNDER THE PLAN, OR TO NOT ACCEPT THIS AGREEMENT. EMPLOYEE ACKNOWLEDGES THAT THE RESTRICTIONS SET FORTH IN THIS AGREEMENT DO NOT PREVENT HIM/HER FROM EARNING A LIVELIHOOD NOR UNREASONABLY IMPOSE LIMITATIONS ON HIS/HER ABILITY TO EARN A LIVING. EMPLOYEE FURTHER UNDERSTANDS THAT HAD HE OR SHE NOT ACCEPTED THIS AGREEMENT, OR IF EMPLOYEE LATER SEEKS TO DENY, OPPOSE, OR TERMINATE THIS AGREEMENT, CORNING HAD AND CONTINUES TO RETAIN THE RIGHT TO LIMIT OR RESTRICT HIS OR HER WORK ACTIVITIES AS APPROPRIATE TO FULLY AND ADEQUATELY PROTECT ITS CONFIDENTIAL INFORMATION FROM HARM OR THREATENED HARM, AND FURTHER TO SEEK THE RETURN OF ANY SUCH CONSIDERATION PROVIDED TO EMPLOYEE AND OTHER DAMAGES THAT MAY ARISE FROM HIS OR HER NONCOMPLIANCE WITH OR REPUDIATION OF THIS AGREEMENT.

CORNING INCORPORATED
CASH PERFORMANCE UNIT AGREEMENT

(Terms and Conditions)

Important Change: 100% of the awards offered under the executive long-term incentive plan for 2018 are contingent on Employee accepting the terms and conditions of a Non-Compete Agreement attached as Appendix A to the 2018 Restricted Stock Unit Agreement before May 31, 2018. Failure to accept these terms and conditions will result in the forfeiture and cancellation of 100% of the awards offered.

This Cash Performance Unit Agreement (“Agreement”) dated February 7, 2018 between Corning Incorporated (the “Company”) and the employee (the “Employee”) is subject in all respects to the Company’s 2012 Long-Term Incentive Plan as amended from time to time (the “Plan”), a copy of which may be obtained from the Company’s Secretary at One Riverfront Plaza, Corning, New York 14831. Capitalized terms not otherwise defined herein shall have the meaning ascribed thereto in the Plan.

1. **Award of Units**. Each Cash Unit shall entitle the Employee to receive from the Company an amount equal to \$1 (one US Dollar). The Cash Units, if any, shall be paid to the Employee at the time set forth in Section 6 and in the manner set forth in Section 7 provided that both the “Performance-Based Vesting Requirement” set forth in Section 3 and the “Service Based Vesting Requirement” set forth in Section 4 are satisfied. Prior to vesting pursuant to Sections 3 and 4, the Cash Units shall not be earned and shall remain subject to forfeiture.
2. **Non-Transferability**. The Cash Units may not be sold, assigned, transferred, pledged or otherwise encumbered by or on behalf of or for the benefit of the Employee other than by last will and testament, by the laws of descent and distribution, pursuant to a domestic relations order or as otherwise permitted by the Committee pursuant to Section 12 of the Plan.
3. **Performance- Based Vesting Requirement**.
 - (a) Within ninety days following the beginning of each fiscal year ending on December 31st 2018, 2019 and 2020 (each such year, an “Annual Performance Period” and collectively, the “Performance Period”), the Compensation Committee of the Company’s Board of Directors (the “Committee”) shall determine performance targets (each a “Performance Target”) applicable to the current fiscal year. Such targets will be communicated annually to the Employee.

For purposes of determining the number of Cash Units that the Employee will earn at the end of the Performance Period, performance will be calculated as the simple average of the actual level of attainment of the Performance Targets for each Annual Performance Period as determined by the Committee. Any Cash Units that are not earned pursuant to Sections 3 and 4 at the end of the Performance Period shall be forfeited.

 - (b) Any Cash Units that are earned pursuant to Sections 3 and 4 (after taking into account the proration adjustments referenced in Section 4 (the “Proration Factor”), if applicable) shall be referred to as the “Earned Units,” provided, however, that if the numerator of the Proration Factor is less than 3, all Cash Units shall be forfeited upon a termination of employment for any reason.
4. **Service Based Vesting Requirement**. Subject to the exceptions set forth below, the Employee must remain in continuous employment with the Company Group until the expiration of the Performance Period in order to vest in the Earned Units. If the Employee’s employment with the Company Group terminates on or before the expiration of the Performance Period, any Earned Units shall be treated in the manner set forth in this Section 4, provided further that in the event of a “Termination without Cause” as indicated in Section 4(b), Employee must also sign a Memorandum of Understanding (“MOU”) documenting the termination in a form offered by and acceptable to the Company to obtain any Earned Units described in this section. Failure to sign a MOU in this event will result in forfeiture of all Earned Units on terms similar to those outlined in section 4(g).

Event	Termination Date Occurs in 1 st Annual Performance Period	Termination Date Occurs After 1 st Annual Performance Period	# of Earned Units Proration Factor (subject to the limitation in Section 3(b))
(a) Retirement at or after Age 55, <u>provided</u> that the Employee has at least five (5) years of active service with Corning	Employee vests in 100% of the Earned Units (after taking the Proration Factor into account) based on actual performance over the Performance Period	Employee vests in 100% of the Earned Units based on actual performance over the Performance Period	Prorated by a ratio the numerator of which is the number of full calendar months the Employee was actively employed during the first Annual Performance Period and the denominator of which is 12
(b) Termination without Cause or Retirement at or after Age 55 (where the Employee has <u>less than</u> five (5) years of active service with Corning)	Employee vests in 100% of the Earned Units (after taking the Proration Factor into account) based on actual performance over the Performance Period	Employee vests in 100% of the Earned Units (after taking the Proration Factor into account) based on actual performance over the Performance Period	Prorated by a ratio the numerator of which is the number of full calendar months the Employee was actively employed during the Performance Period through the Termination Date, and the denominator of which is 36
(c) Death, or (d) Disability, or (e) Reduction in Force, Divestiture or Discontinuance of Certain Company Group's Operations, or (f) Change of Control	Employee vests in 100% of the Earned Units (after taking the Proration Factor into account) and the Performance Targets shall be deemed attained based on actual performance for the first Annual Performance Period and 100% target performance for all other Annual Performance Periods	Employee vests in 100% of the Earned Units and the Performance Targets shall be deemed attained at actual performance for any completed Annual Performance Period and 100% target performance for all other Annual Performance Periods	Prorated by a ratio the numerator of which is the number of full calendar months the Employee was actively employed during the first Annual Performance Period and the denominator of which is 12.
(g) Voluntary Termination or Termination for Cause	Employee forfeits all of the Cash Units	Employee forfeits all of the Cash Units	None

5. **Definitions.** For purposes of this Agreement,

(a) "Termination Date" shall mean the last day on which the Employee provides services to the Company Group (notwithstanding any applicable severance periods).

(b) "Cause" shall mean the Employee's:

- (A) conviction of a felony or conviction of a misdemeanor involving moral turpitude (from which no further appeals have been or can be taken);
- (B) material breach of the Company Group's Code of Conduct;
- (C) gross abdication of duties as an employee of the Company Group, which conduct remains uncured by the Employee for a period of at least 30 days following written notice thereof to the Employee by the Company Group, in each case as determined in good faith by the Company; or
- (D) misappropriation of the Company Group's assets, personal dishonesty or business conduct which causes material or potentially material financial or reputational harm for the Company;

provided, however, that no act or failure to act on the Employee's part shall be deemed to be a termination for Cause if done, or omitted to be done, in good faith, and with the reasonable belief that the action or omission was in the best interests of the Company Group.

- (c) “Disability” shall mean the Employee’s termination of employment with the Company Group as a result of a total and permanent disability as that term is defined in the long-term disability plan applicable to the Employee .
- (d) “Change of Control” shall mean an event that is “a change in the ownership or effective control of the Company, or in the ownership of a substantial portion of the assets of the Company” within the meaning of Section 409A of the Internal Revenue Code of 1986, as amended and the regulations and guidance promulgated thereunder (the “Code”), and that also falls within one of the following circumstances:
 - (A) an offerer (other than the Company) purchases shares of the Company’s Common Stock pursuant to a tender or exchange offer for such shares;
 - (B) any person (as such term is used in Sections 13(d) and 14(d) (2) of the Securities Exchange Act of 1934) is or becomes the beneficial owner, directly or indirectly, of securities representing 50% or more of the combined voting power of the Company’s then outstanding securities;
 - (C) the membership the Company’s Board of Directors changes as the result of a contested election or elections, such that a majority of the individuals who are directors at any particular time were initially placed on the Board of Directors as a result of such a contested election or elections occurring within the previous two years; or
 - (D) the consummation of a merger in which the Company is not the surviving corporation, consolidation, sale or disposition of all or substantially all of the Company’s assets or a plan of partial or complete liquidation approved by the Company’s shareholders.

6. Time of Payment

- (a) Except as noted below, the Earned Units that have vested pursuant to Sections 3 and 4 shall be paid within 75 days following the expiration of the Performance Period .
- (b) In the event of a termination of employment due to Sections 4(c), 4(d) or 4(e), the Earned Units that vest shall be paid within 60 days following (i) the Termination Date , or (ii) the determination of results for the first Annual Performance Period, whichever date is later .
- (c) In the event of a Change of Control, the Earned Units that vest in accordance with Section 4 (f) shall be paid within 60 days following (i) the effective date of the Change of Control , or (ii) the determination of results for the first Annual Performance Period, whichever date is later .
- (d) The applicable date on which Cash Units are paid pursuant to this Section 6 is referred to as the “Payment Date.” All Cash Units that have not been earned and vested as of the Payment Date shall be forfeited .
- (e) In the event that the Earned Units become subject to Social Security and/or Medicare taxes prior to the applicable Payment Date, the Company shall withhold a number of Cash Units equal in value to (i) the applicable Federal Insurance Contributions Act (“FICA”) tax imposed under Code Sections 3101, 3121(a), and 3121(v)(2) on the Cash Units (the “FICA Amount”) and (ii) the applicable federal, state, local or foreign income taxes owed as a result of the withholding of the Cash Units to pay the FICA Amount. Any subsequent payment under this Agreement will be reduced by the amount withheld under this Section 6 (e).

7. Form of Payment

- (a) Unless otherwise specified by the Committee at the Payment Date pursuant to Section 7 (b), Earned Units shall be paid in cash.
- (b) On or prior to the Payment Date, the Committee may elect, to pay any Earned Units in shares of the Company’s common stock, par value \$0.50 per share (“Common Stock”). If paid in Common Stock , the Company shall make an appropriate book-entry, for the number of whole shares of Common Stock equal in value to the number of Earned Units that are vested as of the business day preceding the Payment Date , with any resulting fractional shares being delivered to the Employee in cash.

- (c) The Employee shall have no further rights with regard to the Cash Units once the cash or shares of Common Stock have been delivered pursuant to this Section 7 .
- (d) All payments made pursuant to this Agreement shall be reduced by the amount of all tax withholdings and other permitted deductions . To the extent the Cash Units are paid in shares of Common Stock, the Company may withhold shares of Common Stock to satisfy any tax withholdings and permitted deductions .
8. **Voting and Dividend Rights** . The Cash Units do not entitle the Employee to any of the rights of a shareholder of the Company (such as voting or dividend rights).
9. **Recoupment /Claw-back** . Notwithstanding anything in this Agreement to the contrary, the Cash Units and any payments made pursuant to this Agreement shall be subject to claw-back or recoupment as mandated by applicable law, rules, regulations or Company policy as enacted, adopted or modified from time to time.
10. **Transfers** . If the Employee is transferred from the Company to a Subsidiary , from a Subsidiary to the Company or from one Subsidiary to another, the Employee's employment with the Company Group shall not be deemed to have terminated ; provided, however, that the Subsidiary is owned 50% or greater by the Company Group .
11. **Section 409A** .
- (a) The Cash Units are intended to comply with or be exempt from Section 409A of the Code and shall be administered and interpreted in accordance with that intent . If any provision of the Plan or this Agreement would, in the reasonable good faith judgment of the Committee, result or likely result in the imposition on the Employee of a penalty tax under Section 409A, the Committee may modify the terms of the Plan or this Agreement, without the consent of the Employee, in the manner that the Committee may reasonably and in good faith determine to be necessary or advisable to avoid the imposition of such penalty tax. This Section 11 does not create an obligation on the part of the Company to modify the Plan or this Agreement and does not guarantee that the Cash Units will not be subject to taxes, interest and penalties under Section 409A.
- (b) Notwithstanding anything to the contrary in the Plan or this Agreement, to the extent that the Cash Units constitute deferred compensation for purposes of Section 409A and the Employee is a "Specified Employee" (within the meaning of the Committee's established methodology for determining "Specified Employees" for purposes of Section 409A), no payment or distribution of any amounts with respect to the Cash Units that are subject to Section 409A may be made before the 15th day of the seventh month following the Employee's "Separation from Service" from the Company (as defined in Section 409A) or, if earlier, the date of the Employee's death.
- (c) The actual Payment Date pursuant to Section 6 shall be within the sole discretion of the Company. In no event may the Employee be permitted to control the year in which settlement occurs.
12. **Modification/Interpretation** . The Committee shall have the power to alter, amend, modify or terminate the Plan or this Agreement at any time; provided, however, that no such termination, amendment or modification may adversely affect, in any material respect, the Employee's rights under this Agreement without the Employee's consent. Notwithstanding the foregoing, the Company shall have broad authority to amend this Agreement without the consent of the Employee to the extent it deems necessary or desirable (a) to comply with or take into account changes in or interpretations of, applicable tax laws, securities laws, employment laws, accounting rules and other applicable laws, rules and regulations, (b) to take into account unusual or nonrecurring events or market conditions, or (c) to take into account significant acquisitions or dispositions of assets or other property by the Company. Any amendment, modification or termination shall, upon adoption, become and be binding on all persons affected thereby without requirement for consent or other action with respect thereto by any such person. The Committee shall give written notice to the Employee of any such amendment, modification or termination as promptly as practicable after the adoption thereof. The foregoing shall not restrict the ability of the Employee and the Company by mutual consent to alter or amend the terms of the Cash Units in any manner that is consistent with the Plan and approved by the Committee.
13. **Headings** . The headings of sections and subsections are included solely for convenience of reference and shall not affect the meaning of the provisions of this Agreement.

14. **Counterparts.** This Agreement may be executed in two or more counterparts, each of which shall be deemed to be an original but all of which together will constitute one and the same instrument.
15. **Entire Agreement.** This Agreement and the Plan constitute the entire agreement between the parties hereto with regard to the subject matter hereof. They supersede all other agreements, representations or understandings (whether oral or written and whether express or implied) that relate to the subject matter hereof.
16. **Governing Law.** Except as to matters of federal law, this Agreement and all actions taken thereunder shall be governed by and construed in accordance with the laws of the State of New York (other than its conflict of law rules).

IN WITNESS WHEREOF, this Agreement has been duly executed by Corning.

CORNING INCORPORATED

By: John P. MacMahon
Senior Vice President, Global Compensation & Benefits
Corning Incorporated

Corning Incorporated and Subsidiary Companies
Computation of Ratio of Earnings to Fixed Charges and Ratio of Earnings to Combined Fixed Charges and Preferred Stock Dividends
(In millions, except ratios)

	Years ended December 31,				
	2017	2016	2015	2014	2013
Income from operations before taxes on income	1,657	3,692	1,486	3,568	2,473
Adjustments:					
Equity in earnings of equity affiliates	(361)	(284)	(299)	(266)	(547)
Distributed income of equity affiliates (1)	201	85	143	1,704	629
Net income attributable to noncontrolling interest	18	10	10	3	
Fixed charges net of capitalized interest	199	195	171	159	148
Earnings before taxes and fixed charges as adjusted	1,714	3,698	1,511	5,168	2,703
Fixed charges:					
Interest incurred	187	179	172	160	153
Portion of rent expense which represents an appropriate interest factor (2)	44	35	31	36	28
Amortization of debt costs	4	4	3	3	2
Total fixed charges	235	218	206	199	183
Preferred stock dividends grossed up to a pre-tax basis	156	98	109	136	-
Combined fixed charges and preferred stock dividends	391	316	315	335	183
Ratio of earnings to fixed charges	7.3x	17.0x	7.3x	26.0x	14.8x
Ratio of earnings to combined fixed charges and preferred stock dividends	4.4x	11.7x	4.8x	15.4x	14.8x

(1) In 2014, includes a \$1.6 billion dividend received from Samsung Corning Precision Materials related to the acquisition of Samsung Corning Precision Materials.

(2) One-third of net rent expense is the portion deemed representative of the interest factor.

Corning Incorporated and Subsidiary Companies

Subsidiaries of the Registrant as of December 31, 2017 are listed below:

Alliance Fiber Optic Products, Inc.	Delaware
Axygen BioScience, Inc.	Delaware
Axygen Holdings Corporation	Delaware
Axygen, Inc.	California
CCS Holdings, Inc.	Delaware
Corning B.V.	Netherlands
Corning China (Shanghai) Regional Headquarter	China
Corning Display Technologies (China) Co., Ltd.	China
Corning Display Technologies (Chongqing) Co., Ltd.	China
Corning Display Technologies (Hefei) Co., Ltd.	China
Corning Display Technologies Taiwan Co., Ltd.	Taiwan
Corning Finance B.V.	Netherlands
Corning Finance Luxembourg S.à.r.l.	Luxembourg
Corning GmbH	Germany
Corning (Hainan) Optical Communications Co., Ltd.	China
Corning Holding GmbH	Germany
Corning Hungary Data Services Limited Liability Company	Hungary
Corning International Corporation	Delaware
Corning International Luxembourg S.à.r.l.	Luxembourg
Corning International Netherlands B.V.	Netherlands
Corning Japan K. K.	Japan
Corning Luxembourg S.à.r.l.	Luxembourg
Corning NetOptix, Inc.	Delaware
Corning Oak Holdings LLC	Delaware
Corning Optical Communications Holding Co., Inc.	Delaware
Corning Optical Communications LLC	North Carolina
Corning Optical Communications Polska Sp.z o.o.	Poland
Corning Optical Communications RF LLC	Delaware
Corning Pharmaceutical Glass, LLC	Delaware
Corning Precision Materials Co., Ltd.	Korea
Corning Property Management Corporation	Delaware
Corning Research & Development Corporation	Delaware
Corning SAS	France
Corning (Shanghai) Co., Ltd.	China
Corning Singapore Holdings Private Limited	Singapore
Corning SK Luxembourg S.a r.l.	Luxembourg
Corning Specialty Materials, Inc.	Delaware
Corning Technologies (H.K.) Limited	Hong Kong
Corning Technologies India Private Limited	India
Corning Technologies SARL	Luxembourg
Corning Telecommunications Luxembourg S.à.r.l.	Luxembourg
Corning Treasury Services Limited	Ireland
Corning Tropel Corporation	Delaware
Corning Ventures France SAS	France
Corning Ventures S.à.r.l.	Luxembourg
Discovery Labware, Inc.	Delaware
iBwave Solutions Inc.	Canada
Mediatech, Inc.	Virginia
TR Manufacturing, LLC	Delaware
US Conec Ltd.	Delaware

Companies accounted for under the equity method as of December 31, 2017 are listed below:

DC HSC Holdings LLC	Delaware
Eurokera Guangzhou Co., Ltd.	China
Eurokera North America, Inc.	Delaware
Eurokera S.N.C.	France
Eurokera (Thailand) Limited	Thailand
Hemlock Semiconductor, L . L . C .	Delaware
Keraglass S.N.C.	France
Samsung Corning Advanced Glass LLC	South Korea

Summary financial information on Corning's equity basis companies is included in Note 7 (Investments) to the Consolidated Financial Statements in this Annual Report on Form 10-K. Certain subsidiaries, which considered in the aggregate as a single subsidiary, that would not constitute a significant subsidiary, per Regulation S-X, Article 1, as of December 31, 2017, have been omitted from this exhibit.

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 333-2 22158) and Form S-8 (Nos. 333-211880, 333-181075, 333-26049, 333-26151, 333-91879, 333-60480, 333-82926, 333-106265, 333-134690, 333-124882, 333-109405, 333-166642, and 333-166641) of Corning Incorporated of our report dated February 14 , 201 8 , relating to the financial statements, financial statement schedule, and the effectiveness of internal contr ol over financial reporting o f Corning Incorporated, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
New York, New York
February 14 , 201 8

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CERTIFICATION OF CHIEF EXECUTIVE OFFICER PURSUANT TO SECTION 302(a) OF THE
SARBANES-OXLEY ACT OF 2002

I, Wendell P. Weeks, certify that:

1. I have reviewed this Annual Report on Form 10-K of Corning Incorporated;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 15, 2018

/s/ Wendell P. Weeks

Wendell P. Weeks
Chairman, Chief Executive Officer and President
(Principal Executive Officer)

CERTIFICATION OF CHIEF FINANCIAL OFFICER PURSUANT TO SECTION 302(a) OF THE
SARBANES-OXLEY ACT OF 2002

I, R. Tony Tripeny, certify that:

1. I have reviewed this annual report on Form 10-K of Corning Incorporated;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 15, 2018

/s/ R. Tony Tripeny

R. Tony Tripeny
Senior Vice President and Chief Financial Officer
(Principal Financial Officer)

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

The undersigned, Wendell P. Weeks, Chairman, Chief Executive Officer and President of Corning Incorporated (the "Company") and R. Tony Tripeny, Senior Vice President and Chief Financial Officer, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

- (1) the Annual Report of the Company on Form 10-K for the annual period ended December 31, 2017 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) that information contained in such Form 10-K fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 15, 2018

/s/ Wendell P. Weeks

Wendell P. Weeks
Chairman, Chief Executive Officer and President

/s/ R. Tony Tripeny

R. Tony Tripeny
Senior Vice President and Chief Financial Officer