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Owens Corning

Form 10-K

February 20, 2019

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2018

or

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission File Number: 1-33100

Owens Corning

(Exact name of registrant as specified in its charter)

Delaware

43-2109021

(State or other jurisdiction of
incorporation or organization)

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

One Owens Corning Parkway,
Toledo, OH

43659

(Address of principal executive offices) (Zip Code)

(419) 248-8000

(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, par value \$0.01 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 15(d) of the Act. Yes No

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted 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 such files). Yes No

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

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

Large accelerated filer Accelerated filer Non-accelerated filer Smaller reporting company Emerging growth company

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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 Act). Yes No

On June 29, 2018, the last business day of the registrant's most recently completed second fiscal quarter, the aggregate market value of \$0.01 par value common stock (the voting stock of the registrant) held by non-affiliates (assuming for purposes of this computation only that the registrant had no affiliates) was approximately \$7,029,117,335.

As of February 15, 2019, 109,579,002 shares of the registrant's common stock, par value \$0.01 per share, were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of Owens Corning's proxy statement to be delivered to stockholders in connection with the Annual Meeting of Stockholders to be held on or about April 18, 2019 (the "2019 Proxy Statement") are incorporated by reference into Part III hereof.

	Page
<u>PART I</u>	
ITEM 1. <u>Business</u>	<u>1</u>
<u>Overview</u>	<u>1</u>
<u>Segment overview</u>	<u>1</u>
<u>General</u>	<u>3</u>
<u>Availability of information</u>	<u>4</u>
ITEM 1A. <u>Risk factors</u>	<u>5</u>
ITEM 1B. <u>Unresolved staff comments</u>	<u>13</u>
ITEM 2. <u>Properties</u>	<u>14</u>
ITEM 3. <u>Legal proceedings</u>	<u>15</u>
ITEM 4. <u>Mine safety disclosures</u>	<u>15</u>
<u>Executive officers of Owens Corning</u>	<u>16</u>
<u>PART II</u>	
ITEM 5. <u>Market for Owens Corning's common equity, related stockholder matters and issuer purchases of equity securities</u>	<u>17</u>
ITEM 6. <u>Selected financial data</u>	<u>19</u>
ITEM 7. <u>Management's discussion and analysis of financial condition and results of operations</u>	<u>21</u>
ITEM 7A. <u>Quantitative and qualitative disclosures about market risk</u>	<u>38</u>
ITEM 8. <u>Financial statements and supplementary data</u>	<u>40</u>
ITEM 9. <u>Changes in and disagreements with accountants on accounting and financial disclosure</u>	<u>40</u>
ITEM 9A. <u>Controls and procedures</u>	<u>40</u>
ITEM 9B. <u>Other information</u>	<u>40</u>
<u>PART III</u>	
ITEM 10. <u>Directors, executive officers and corporate governance</u>	<u>41</u>
ITEM 11. <u>Executive compensation</u>	<u>41</u>
ITEM 12. <u>Security ownership of certain beneficial owners and management and related stockholder matters</u>	<u>41</u>
ITEM 13. <u>Certain relationships and related transactions, director independence</u>	<u>41</u>

ITEM 14. <u>Principal accountant fees and services</u>	<u>41</u>
<u>PART IV</u>	
ITEM 15. <u>Exhibits and financial statement schedules</u>	<u>42</u>
ITEM 16. <u>Form 10-K Summary</u>	<u>47</u>
<u>Signatures</u>	<u>48</u>
<u>Index to Consolidated Financial Statements</u>	<u>51</u>
<u>Management's Report on Internal Control Over Financial Reporting</u>	<u>52</u>
<u>Report of Independent Registered Public Accounting Firm</u>	<u>53</u>
<u>Consolidated Financial Statements</u>	<u>55</u>
<u>Notes to Consolidated Financial Statements</u>	<u>60</u>
<u>Index to Consolidated Financial Statement Schedule</u>	<u>104</u>
<u>Schedule II</u>	<u>105</u>

Table of Contents

-1-

PART I

ITEM 1. BUSINESS
OVERVIEW

Owens Corning is a global leader in insulation, roofing, and fiberglass composite materials. Its insulation products conserve energy and improve acoustics, fire resistance and air quality in the spaces where people live, work and play. Its roofing products and systems add to the curb appeal of people's homes and protect homes and commercial buildings alike. Its fiberglass composites make thousands of products lighter, stronger, and more durable. In short, the Company provides innovative products and solutions that deliver a material difference to its customers and, ultimately, make the world a better place.

The business is global in scope, with operations in 33 countries, and human in scale, with approximately 20,000 employees and longstanding, local relationships with its customers. Based in Toledo, Ohio, Owens Corning recorded net sales in 2018 of \$7.1 billion. Founded in 1938, it has been a Fortune 500[®] company for 64 consecutive years. Unless the context indicates otherwise, the terms "Owens Corning," "Company," "we" and "our" in this report refer to Owens Corning and its subsidiaries. References to a particular year mean the Company's year commencing on January 1 and ending on December 31 of that year.

SEGMENT OVERVIEW

The Company has three reportable segments: Composites, Insulation and Roofing. Our Composites, Insulation and Roofing reportable segments accounted for approximately 28%, 38% and 34% of our total reportable segment net sales, respectively, in 2018.

Composites

Owens Corning glass fiber materials can be found in over 40,000 end-use applications within five primary markets: building and construction, transportation, consumer, industrial, and power and energy. Such end-use applications include pipe, roofing shingles, sporting goods, consumer electronics, telecommunications cables, boats, aviation, automotive, industrial containers and wind-energy. Our products are manufactured and sold worldwide. We primarily sell our products directly to parts molders and fabricators. Within the building and construction market, our Composites segment sells glass fiber and/or glass mat directly to a small number of major shingle manufacturers, including our own Roofing segment.

Our Composites segment includes vertically integrated downstream activities. The Company manufactures, fabricates and sells glass reinforcements in the form of fiber. Glass reinforcement materials are also used downstream by the Composites segment to manufacture and sell glass fiber products in the form of fabrics, non-wovens and other specialized products.

Demand for composites is driven by general global economic activity and, more specifically, by the increasing replacement of traditional materials such as aluminum, wood and steel with composites that offer lighter weight, improved strength, lack of conductivity and corrosion resistance. We estimate that over the last 35 years, on average, annual global demand for composite materials grew at about 1.6 times global industrial production growth.

We compete with composite manufacturers worldwide. According to various industry reports and Company estimates, our Composites segment is a world leader in the production of glass fiber reinforcement materials. Primary methods of competition include innovation, quality, customer service and global geographic reach. Significant competitors to the Composites segment include China Jushi Group Co., Ltd., Chongqing Polycom International Corporation Ltd (CPIC), Johns Manville, Nippon Electric Glass Co. Ltd. (NEG) and Taishan Glass Fiber Co., Ltd.

Typically, our composites plants run continuously throughout the year, and we warehouse much of our production prior to sale since we operate primarily with short delivery cycles.

Insulation

Our insulating products help customers conserve energy, provide improved acoustical performance and offer convenience of installation and use. Our Insulation segment includes a diverse portfolio of high, mid and low-temperature products with a geographic mix of United States, Canada, Europe, Asia-Pacific and Latin America, a market mix of residential, commercial, industrial and other markets, and a channel mix of retail, contractor and distribution.

Our products in the residential channel include thermal and acoustical batts, loosefill insulation, foam sheathing and accessories, and are sold under well-recognized brand names and trademarks such as Owens Corning PINK[®] FIBERGLAS[™] Insulation. Our

Table of Contents

-2-

ITEM 1. BUSINESS (continued)

products in the commercial and industrial channel include glass fiber pipe insulation, energy efficient flexible duct media, bonded and granulated mineral wool insulation, cellular glass insulation and foam insulation used in above- and below-grade construction applications, and are sold under well-recognized brand names and trademarks such as Thermafiber®, FOAMGLAS® and Paroc®. We sell our insulation products primarily to insulation installers, home centers, lumberyards, retailers and distributors in the United States, Canada, Europe, Asia-Pacific and Latin America. Demand for Owens Corning's insulating products is driven by commercial and industrial construction activity, new residential construction, remodeling and repair activity, increasingly stringent building codes and the growing need for energy efficiency. Demand in the segment typically follows seasonal home improvement, remodeling and renovation and residential, commercial and industrial construction industry patterns. Demand for new residential construction in North America typically follows housing starts on a three-month lagged basis, although the new residential construction cycle can elongate due to labor availability and other factors beyond our control. The peak season for home construction and remodeling in our geographic markets generally corresponds with the second and third calendar quarters. Demand for commercial and industrial applications is more heavily tied to industrial production growth and overall economic conditions in the global markets we serve.

Our Insulation segment competes primarily with manufacturers in the United States, with a growing international presence due to our recent acquisitions of Pittsburgh Corning Corporation and Pittsburgh Corning Europe NV (collectively, "Pittsburgh Corning") in 2017 and Paroc Group Oy ("Paroc") in 2018. According to industry reports and Company estimates, Owens Corning is North America's largest producer of residential, commercial and industrial insulation. Principal methods of competition include innovation and product design, service, location, quality, price and compatibility of systems solutions. Significant competitors in this segment include CertainTeed Corporation, Dow Chemical, Johns Manville, Knauf Insulation and ROCKWOOL International.

Working capital practices for this segment historically have followed a seasonal cycle. Typically, our insulation plants run continuously throughout the year. This production plan, along with the seasonal nature of portions of the segment, generally results in higher finished goods inventory balances in the first half of the year. Since sales increase during the second half of the year, our accounts receivable balances are typically higher during this period.

Roofing

Our primary products in the Roofing segment are laminate and strip asphalt roofing shingles. Other products include roofing components, synthetic packaging materials and oxidized asphalt. We have been able to meet the growing demand for longer lasting, aesthetically attractive laminate products with modest capital investment.

We sell shingles and roofing components primarily through distributors, home centers, lumberyards, retailers and contractors in the United States. Our synthetic packaging materials are used primarily in the construction industry for lumber and metal packaging. Oxidized asphalt is a significant input used in the production of our asphalt roofing shingles. We are vertically integrated and have manufacturing facilities that process asphalt for use in our roofing shingles manufacturing process. In addition, we sell processed asphalt to other shingle manufacturers, to roofing contractors for built-up roofing asphalt systems and to manufacturers in a variety of other industries, including automotive, chemical, rubber and construction. Asphalt input costs and third-party asphalt sales prices are correlated to crude oil prices. As a result, third-party asphalt sales are largely a cost-plus business.

Demand for products in our Roofing segment is generally driven by both residential repair and remodeling activity and by new residential construction. Roofing damage from major storms can significantly increase demand in this segment. As a result, sales in this segment do not always follow seasonal home improvement, remodeling and new construction industry patterns as closely as our Insulation segment.

Our Roofing segment competes primarily with manufacturers in the United States. According to various industry reports and Company estimates, Owens Corning's Roofing segment is the second largest producer of asphalt roofing shingles in the United States. Principal methods of competition include innovation and product design, proximity to customers, quality and price. Significant competitors in the Roofing segment include CertainTeed Corporation, GAF and TAMKO.

Our manufacturing operations are generally continuous in nature, and we warehouse much of our production prior to sale since we operate with relatively short delivery cycles. One of the raw materials important to this segment is sourced from a sole supplier. We have a long-term supply contract for this material, and have no reason to believe that any availability issues will exist. If this supply was to become unavailable, our production could be interrupted until such time as the supplies again became available or the Company reformulated its products. Additionally, the supply of asphalt, another significant raw material in this segment, has been constricted at times. Although this has not caused an interruption of our production in the past, prolonged asphalt shortages would restrict our ability to produce products in this segment.

Table of Contents

-3-

ITEM 1. BUSINESS (continued)

GENERAL

Major Customers

No one customer accounted for more than 10% of our consolidated net sales for 2018, 2017 or 2016. A significant portion of the net sales in our Insulation and Roofing segments are generated from large United States home improvement retailers.

Intellectual Property

The Company relies on a combination of intellectual property laws, as well as confidentiality procedures and contractual provisions, to protect our intellectual property, proprietary technology and our brands. Through continuous and extensive use of the color PINK since 1956, Owens Corning became the first owner of a single color trademark registration. In addition to our Owens Corning and PINK brands, the Company has registered, and applied for the registration of, U.S. and international trademarks, service marks, and domain names. Additionally, the Company has filed U.S. and international patent applications, including numerous issued patents, covering certain of our proprietary technology resulting from research and development efforts. Over time, the Company has assembled a portfolio of intellectual property rights including patents, trademarks, service marks, copyrights, domain names, know-how and trade secrets covering our products, services and manufacturing processes. Our proprietary technology is not dependent on any single or group of intellectual property rights and the Company does not expect the expiration of existing intellectual property to have a material adverse affect on the business as a whole. The Company believes the duration of our patents is adequate relative to the expected lives of our products. Although the Company protects its intellectual property and proprietary technology, any significant impairment of, or third-party claim against, our intellectual property rights could harm our business or our ability to compete.

Backlog

Our customer volume commitments are generally short-term, and the Company does not have a significant backlog of orders.

Environmental Control

Owens Corning has established policies and procedures to ensure that its operations are conducted in compliance with all relevant laws and regulations and that enable the Company to meet its high standards for corporate sustainability and environmental stewardship. Our manufacturing facilities are subject to numerous foreign, federal, state and local laws and regulations relating to the presence of hazardous materials, pollution and protection of the environment, including emissions to air, discharges to water, management of hazardous materials, handling and disposal of solid wastes, and remediation of contaminated sites. All Company manufacturing facilities operate using an ISO 14001 or equivalent environmental management system. The Company's 2020 Sustainability Goals require significant global reductions in energy use, water consumption, waste to landfill, emissions of greenhouse gases, fine particulate matter and toxic air emissions. The Company is dedicated to continuous improvement in our environmental, health and safety performance and to achieving its 2020 Sustainability Goals.

The Company has not experienced a material adverse effect upon our capital expenditures or competitive position as a result of environmental control legislation and regulations. Operating costs associated with environmental compliance were approximately \$40 million in 2018. The Company continues to invest in equipment and process modifications to remain in compliance with applicable environmental laws and regulations worldwide.

Our manufacturing facilities are subject to numerous national, state and local environmental protection laws and regulations. Regulatory activities of particular importance to our operations include those addressing air pollution, water pollution, waste disposal and chemical control. It is possible that new laws and regulations will specifically address climate change, toxic air emissions, ozone forming emissions and fine particulate matter. New environmental

and chemical regulations could impact our ability to expand production or construct new facilities in every geographic region in which we operate. However, based on information known to the Company, including the nature of our manufacturing operations and associated air emissions, at this time we do not expect any of these new laws, regulations or activities to have a material adverse effect on our results of current operations, financial condition or long-term liquidity.

Owens Corning is involved in remedial response activities and is responsible for environmental remediation at a number of sites, including certain of its currently owned or formerly owned plants. These responsibilities arise under a number of laws, including, but not limited to, the Federal Resource Conservation and Recovery Act, and similar state or local laws pertaining to the management and remediation of hazardous materials and petroleum. The Company has also been named a potentially responsible party under the United States Federal Superfund law, or state equivalents, at a number of disposal sites. The Company became involved in these sites as a result of government action or in connection with business acquisitions. At the end of 2018, the Company was

Table of Contents

-4-

ITEM 1. BUSINESS (continued)

involved with a total of 22 sites worldwide, including 8 Superfund sites and 14 owned or formerly owned sites. None of the liabilities for these sites are individually significant to the Company.

Remediation activities generally involve a potential range of activities and costs related to soil and groundwater contamination. This can include pre-cleanup activities such as fact finding and investigation, risk assessment, feasibility studies, remedial action design and implementation (where actions may range from monitoring to removal of contaminants, to installation of longer-term remediation systems). A number of factors affect the cost of environmental remediation, including the number of parties involved in a particular site, the determination of the extent of contamination, the length of time the remediation may require, the complexity of environmental regulations, variability in clean-up standards, the need for legal action, and changes in remediation technology. Taking these factors into account, Owens Corning has predicted the costs of remediation reasonably estimated to be paid over a period of years. The Company accrues an amount on an undiscounted basis, consistent with the reasonable estimates of these costs when it is probable that a liability has been incurred. Actual cost may differ from these estimates for the reasons mentioned above.

At December 31, 2018, the Company had an accrual totaling \$16 million for its environmental liabilities, of which the current portion is \$8 million. Changes in required remediation procedures or timing of those procedures at existing legacy sites, or discovery of contamination at additional sites, could result in material increases to the Company's environmental obligations.

Number of Employees

As of December 31, 2018, Owens Corning had approximately 20,000 employees. Approximately 8,000 of such employees are subject to collective bargaining agreements. The Company believes that its relations with employees are good.

AVAILABILITY OF INFORMATION

Owens Corning makes available, free of charge, through its website, the Company's Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and all amendments to those reports as soon as reasonably practicable after such material is electronically filed with or furnished to the Securities and Exchange Commission. These documents are available through the Investor Relations page of the Company's website at www.owenscorning.com.

Table of Contents

-5-

ITEM 1A. RISK FACTORS

RISKS RELATED TO OUR BUSINESS AND OUR INDUSTRY

Low levels of residential, commercial or industrial construction activity can have a material adverse impact on our business and results of operations.

A large portion of our products are used in the markets for residential and commercial construction and repair and remodeling. Demand for certain of our products is affected in part by the level of new residential construction in the United States and elsewhere, although typically not until a number of months after the change in the level of construction. Lower demand in the regions and markets where our products are sold could result in lower revenues and lower profitability. Historically, construction activity has been cyclical and is influenced by prevailing economic conditions, including the level of interest rates and availability of financing, inflation, employment levels, consumer spending habits, consumer confidence and other macroeconomic factors outside our control.

Some of our products, particularly in our insulation business, are used in industrial applications. Lower levels of industrial production and other macroeconomic factors affecting industrial construction activity could lessen demand for those products and lead to lower revenues or profitability.

We face significant competition in the markets we serve and we may not be able to compete successfully.

All of the markets we serve are highly competitive. We compete with manufacturers and distributors, both within and outside the United States, in the sale of building products and composite products. Some of our competitors may have superior financial, technical, marketing and other resources than we do. In some cases, we face competition from manufacturers in countries able to produce similar products at lower costs. We also face competition from the introduction by competitors of new products or technologies that may address our customers' needs in a better manner, whether based on considerations of pricing, usability, effectiveness, sustainability, quality or other features or benefits. If we are not able to successfully commercialize our innovation efforts, we may lose market share. Price competition or overcapacity may limit our ability to raise prices for our products when necessary, may force us to reduce prices and may also result in reduced levels of demand for our products and cause us to lose market share. In addition, in order to effectively compete, we must continue to develop new products that meet changing consumer preferences and successfully develop, manufacture and market these new products. Our inability to effectively compete could result in the loss of customers and reduce the sales of our products, which could have a material adverse impact on our business, financial condition and results of operations.

Our sales may fall rapidly in response to declines in demand because we do not operate under long-term volume agreements to supply our customers and because of customer concentration in certain segments.

Many of our customer volume commitments are short-term; therefore, we do not have a significant manufacturing backlog. As a result, we do not benefit from the visibility provided by long-term volume contracts against downturns in customer demand and sales. Further, we are not able to immediately adjust our costs in response to declines in sales. In addition, although no single customer represents more than 10% of our annual sales, our ability to sell some of the products in Insulation and Roofing are dependent on a limited number of customers, who account for a significant portion of such sales. The loss of key customers for these products, a consolidation of key customers or a significant reduction in sales to those customers, could significantly reduce our revenues from these products. In addition, if key customers experience financial pressure or consolidate, they could attempt to demand more favorable contractual terms, which would place additional pressure on our margins and cash flows. Lower demand for our products, loss of key customers and material changes to contractual terms could materially and adversely impact our business, financial condition and results of operations. Furthermore, some of our sales are concentrated in certain geographic areas, and market growth that is skewed to other geographic areas may negatively impact our rate of growth or market share.

Worldwide economic conditions and credit tightening could have a material adverse impact on the Company.

The Company's business may be materially and adversely impacted by changes in United States or global economic conditions, including global industrial production rates, inflation, deflation, interest rates, availability of capital, consumer spending rates, energy availability and commodity prices, trade laws, and the effects of governmental initiatives to manage economic conditions. Changes in and/or new laws, regulations and policies that may be enacted in the United States or elsewhere could also materially impact economic conditions and the Company's business and results of operations. Volatility in financial markets and the

Table of Contents

-6-

ITEM 1A. RISK FACTORS (continued)

deterioration of national and global economic conditions could materially adversely impact the Company's operations, financial results and/or liquidity including as follows:

- the financial stability of our customers or suppliers may be compromised, which could result in reduced demand for our products, additional bad debts for the Company or non-performance by suppliers;
- one or more of the financial institutions syndicated under the credit agreement governing our revolving credit facility may cease to be able to fulfill their funding obligations, which could materially adversely impact our liquidity;
- it may become more costly or difficult to obtain financing or refinance the Company's debt in the future;
- the value of the Company's assets held in pension plans may decline; and/or
- the Company's assets may be impaired or subject to write-down or write-off.

Uncertainty about global economic conditions may cause consumers of our products to postpone spending in response to tighter credit, negative financial news and/or declines in income or asset values. This could have a material adverse impact on the demand for our products and on our financial condition and operating results. A deterioration of economic conditions would likely exacerbate these adverse effects and could result in a wide-ranging and prolonged impact on general business conditions, thereby negatively impacting our operations, financial results and/or liquidity. Our level of indebtedness could adversely impact our business, financial condition or results of operations.

Our debt level and degree of leverage could have important consequences, including the following:

- our ability to obtain additional debt or equity financing for working capital, capital expenditures, debt service requirements, acquisitions and general corporate or other purposes may be limited;
- a substantial portion of our cash flow from operations could be required for the payment of principal and interest on our indebtedness, and may not be available for other business purposes;
- certain of our borrowings are at variable rates of interest, exposing us to the risk of increased interest rates;
- if due to liquidity needs we must replace any indebtedness upon maturity, we would be exposed to the risk that we may not be able to refinance such indebtedness;
- our ability to adjust to changing market conditions may be limited and place us at a competitive disadvantage compared to our competitors that have less debt; and
- we may be vulnerable in a downturn in general economic conditions or in our business, or we may be unable to carry out important capital spending.

In addition, the credit agreement governing our senior credit facility, the indentures governing our senior notes, the receivables purchase agreement governing our receivables securitization facility and any term loan agreement in place contain various covenants that impose operating and financial restrictions on us and/or our subsidiaries. Additionally, instruments and agreements governing our future indebtedness may impose other restrictive conditions or covenants that could restrict our ability to conduct our business operations or pursue growth strategies.

Adverse weather conditions and the level of severe storms could have a material adverse impact on our results of operations.

Weather conditions and the level of severe storms can have a significant impact on the markets for residential and commercial construction, repair and improvement, which can, in turn, impact our business as follows:

- generally, any weather conditions that slow or limit residential or commercial construction activity can adversely impact demand for our products; and
- a portion of our annual product demand is attributable to the repair of damage caused by severe storms. In periods with below average levels of severe storms, demand for such products could be reduced.

Lower demand for our products as a result of either of these scenarios could adversely impact our business, financial condition and results of operations. Additionally, severely low temperatures may lead to significant and immediate spikes in costs of natural gas, electricity and other commodities that could negatively affect our results of operation.

Table of Contents

-7-

ITEM 1A. RISK FACTORS (continued)

Our operations require substantial capital, leading to high levels of fixed costs that will be incurred regardless of our level of business activity.

Our businesses are capital intensive, and regularly require capital expenditures to expand operations, maintain equipment, increase operating efficiency and comply with applicable laws and regulations, leading to high fixed costs, including depreciation expense. Also, increased regulatory focus could lead to additional or higher costs in the future. We are limited in our ability to reduce fixed costs quickly in response to reduced demand for our products and these fixed costs may not be fully absorbed, resulting in higher average unit costs and lower gross margins if we are not able to offset this higher unit cost with price increases. Alternatively, we may be limited in our ability to quickly respond to unanticipated increased demand for our products, which could result in an inability to satisfy demand for our products and loss of market share.

We may be exposed to cost increases or reduced availability of energy, materials or transportation, which could reduce our margins and have a material adverse impact on our business, financial condition and results of operations. Our business relies heavily on certain commodities and raw materials used in our manufacturing processes. Additionally, we spend a significant amount on inputs that are influenced by energy prices, such as asphalt, chemicals, resins, and transportation. Price increases for these inputs could raise costs and reduce our margins if we are not able to offset them by increasing the prices of our products, improving productivity or hedging where appropriate. In particular, energy prices could increase as a result of climate change legislation or other environmental mandates. Availability of certain of the raw materials we use has, from time to time, been limited, and our sourcing of some of these raw materials from a limited number of suppliers, and in some cases a sole supplier, increases the risk of unavailability. For example, if one of the raw materials important to our business is sourced from a sole supplier, our production could be interrupted regardless of whether we have a long-term supply contract for the material. Despite our contractual supply agreements with many of our suppliers, it is possible that we could experience a lack of certain raw materials which could limit our ability to produce our products, thereby materially and adversely impacting our business, financial condition and results of operations.

Our results of operations in a given period may be impacted by price volatility in certain wind-generated energy markets in the United States.

In connection with our sustainability goals to reduce greenhouse gas and toxic air emissions, we entered into contracts in the United States, pursuant to which we have agreed to purchase wind-generated electricity from third parties. Under these contracts, we do not take physical delivery of wind-generated electricity. The generated electricity is instead sold by our counterparties to local grid operators at the prevailing market price and we obtain the associated non-tax renewable energy credits. The prevailing market pricing for wind-generated electricity can be affected by factors beyond our control and is subject to significant period over period volatility. For example, wind-generated energy output fluctuates due to climactic and other factors beyond our control and can be constrained by available transmission capacity, thereby significantly impacting pricing. Due to this potential volatility, it is possible that these contracts could have an impact on our results of operations in a given reporting period.

We are subject to risks relating to our information technology systems, and any failure to adequately protect our critical information technology systems could materially affect our operations.

We rely on information technology systems across our operations, including for management, supply chain and financial information and various other processes and transactions. Our ability to effectively manage our business depends on the security, reliability and capacity of these systems. Information technology system failures, network disruptions or breaches of security could disrupt our operations, causing delays or cancellation of customer orders or impeding the manufacture or shipment of products, processing of transactions or reporting of financial results. An attack or other problem with our systems could also result in the disclosure of proprietary information about our business or confidential information concerning our customers or employees, which could result in significant damage to our business and our reputation.

We have put in place security measures designed to protect against the misappropriation or corruption of our systems, intentional or unintentional disclosure of confidential information, or disruption of our operations. However, advanced

cybersecurity threats, such as computer viruses, attempts to access information, and other security breaches, are persistent and continue to evolve, making them increasingly difficult to identify and prevent. Protecting against these threats may require significant resources, and we may not be able to implement measures that will protect against all of the significant risks to our information technology systems. In addition, we rely on a number of third party service providers to execute certain business processes and maintain certain information technology systems and infrastructure, and any breach of security on their part could impair our ability to effectively operate. Moreover, our operations in certain geographic locations may be particularly vulnerable to security attacks or other problems.

Table of Contents

-8-

ITEM 1A. RISK FACTORS (continued)

Any breach of our security measures could result in unauthorized access to and misappropriation of our information, corruption of data or disruption of operations or transactions, any of which could have a material adverse effect on our business.

We are subject to risks associated with our international operations.

We sell products and operate plants throughout the world. Our international sales and operations are subject to risks and uncertainties, including:

difficulties and costs associated with complying with a wide variety of complex and changing laws, including securities laws, tax laws, employment and pension-related laws, competition laws, U.S. and foreign export and trading laws, and laws governing improper business practices, treaties and regulations;

limitations on our ability to enforce legal rights and remedies;

adverse domestic or international economic and political conditions, business interruption, war and civil disturbance;

changes to tax, currency, or other laws or policies that may adversely impact our ability to repatriate cash from non-United States subsidiaries, make cross-border investments, or engage in other intercompany transactions;

future regulatory guidance and interpretations of the tax legislation commonly known as the U.S. Tax Cuts and Jobs Act of 2017 (the "Tax Act"), as well as assumptions that the Company makes related to the Tax Act;

changes to tariffs or other import or export restrictions or penalties, including modification or elimination of international agreements covering trade or investment;

costs and availability of shipping and transportation;

nationalization or forced relocation of properties by foreign governments;

currency exchange rate fluctuations between the United States dollar and foreign currencies; and

uncertainty with respect to any potential changes to laws, regulations and policies that could exacerbate the risks described above.

As we continue to expand our business globally, we may have difficulty anticipating and effectively managing these and other risks that our international operations may face, which may adversely impact our business, financial condition and results of operations.

In addition, we operate in many parts of the world that have experienced governmental corruption and we could be adversely affected by violations of the Foreign Corrupt Practices Act (FCPA) and similar worldwide anti-corruption laws. The FCPA and similar anti-corruption laws in other jurisdictions generally prohibit companies and their intermediaries from making improper payments to officials for the purpose of obtaining or retaining business.

Although we mandate compliance with these anti-corruption laws and maintain an anti-corruption compliance program, we cannot provide assurance that these measures will necessarily prevent violations of these laws by our employees or agents. If we were found to be liable for violations of anti-corruption laws, we could be liable for criminal or civil penalties or other sanctions, which could have a material adverse impact on our business, financial condition and results of operations.

The Company's income tax net operating loss and U.S. foreign tax credit carryforwards may be limited and our results of operations may be adversely impacted.

The Company has substantial deferred tax assets related to both U.S. federal and state net operating losses (NOLs) and U.S. foreign tax credits (FTCs) for income tax purposes, which the Company expects generally are available, with some exceptions, to offset future taxable income. However, the Company's ability to utilize or realize the current carrying value of the NOLs and FTCs may be impacted by certain events, such as changes in tax legislation or the interpretation thereof, or insufficient future taxable income prior to expiration of the NOLs and FTCs, or annual limits imposed under sections 382 and 383 of the Internal Revenue Code, or by state law, as a result of a change in control.

A change in control is generally defined as a cumulative change of more than 50% in the ownership positions of certain stockholders during a rolling three year period. Changes in the ownership positions of certain stockholders could occur as the result of stock transactions by such stockholders and/or by the issuance of stock by the Company. Such limitations may cause the Company to pay income taxes earlier and in greater amounts than would be the case if the NOLs and FTCs were not subject to such limitations. Additionally, uncertainty exists with respect to future

regulatory guidance and interpretations of the Tax Act, as well as assumptions that the Company makes related to the Tax Act, which could have an impact on the use of the Company's NOLs and FTCs.

Table of Contents

-9-

ITEM 1A. RISK FACTORS (continued)

Should the Company determine that it is likely that its recorded NOL and FTC benefits are not realizable, the Company would be required to reduce the NOL and FTC tax benefit reflected on its financial statements to the net realizable amount either by a direct adjustment to the NOL and FTC tax benefit or by establishing a valuation allowance and recording a corresponding charge to current earnings. The corresponding charge to current earnings would have an adverse effect on the Company's financial condition and results of operations in the period in which it is recorded. Conversely, if the Company is required to increase its NOL and FTC tax benefit either by a direct adjustment or reversing any portion of the accounting valuation allowance against its deferred tax assets related to its NOLs and FTCs, such credit to current earnings could have a positive effect on the Company's business, financial condition and results of operations in the period in which it is recorded. As of December 31, 2018, a valuation allowance was established on the unrealizable amount of FTCs.

Our intellectual property rights may not provide meaningful commercial protection for our products or brands and third parties may assert that we violate their intellectual property rights, which could adversely impact our business, financial condition and results of operations.

Owens Corning relies on its intellectual property, including numerous patents, registered trademarks, trade secrets, confidential information, as well as its licensed intellectual property. We monitor and protect against activities that might infringe, dilute, or otherwise harm our patents, trademarks and other intellectual property and rely on the patent, trademark and other laws of the United States and other countries. However, we may be unable to prevent third parties from using our intellectual property without our authorization. To the extent we cannot protect our intellectual property, unauthorized use and misuse of our intellectual property could harm our competitive position and have a material adverse impact on our business, financial condition and results of operations. In addition, the laws of some non-United States jurisdictions provide less protection for our proprietary rights than the laws of the United States and we therefore may not be able to effectively enforce our intellectual property rights in these jurisdictions. If we are unable to maintain certain exclusive licenses, our brand recognition and sales could be adversely impacted. Current employees, contractors and suppliers have, and former employees, contractors and suppliers may have, access to trade secrets and confidential information regarding our operations which could be disclosed improperly and in breach of contract to our competitors or otherwise used to harm us.

Third parties may also claim that we are infringing upon their intellectual property rights. If we are unable to successfully defend or license such alleged infringing intellectual property or if we are required to substitute similar technology from another source, our operations could be adversely affected. Even if we believe that such intellectual property claims are without merit, defending such claims can be costly, time consuming and require significant resources. Claims of intellectual property infringement also might require us to redesign affected products, pay costly damage awards, or face injunctions prohibiting us from manufacturing, importing, marketing or selling certain of our products. Even if we have agreements to indemnify us, indemnifying parties may be unable or unwilling to do so. Our hedging activities to address energy price fluctuations may not be successful in offsetting increases in those costs or may reduce or eliminate the benefits of any decreases in those costs.

In order to mitigate short-term variation in our operating results due to commodity price fluctuations in certain geographic markets, we may hedge a portion of our near-term exposure to the cost of energy, primarily natural gas. The results of our hedging practices could be positive, neutral or negative in any period depending on price changes of the hedged exposures.

Our hedging activities are not designed to mitigate long-term commodity price fluctuations and, therefore, will not protect us from long-term commodity price increases. In addition, in the future, our hedging positions may not correlate to our actual energy costs, which would cause acceleration in the recognition of unrealized gains and losses on our hedging positions in our operating results.

Downgrades of our credit ratings could adversely impact us.

Our credit ratings are important to our cost of capital. The major debt rating agencies routinely evaluate our debt based on a number of factors, which include financial strength and business risk as well as transparency with rating agencies and timeliness of financial reporting. A downgrade in our debt rating could result in increased interest and

other expenses on our existing variable interest rate debt, and could result in increased interest and other financing expenses on future borrowings. Downgrades in our debt rating could also restrict our access to capital markets and affect the value and marketability of our outstanding notes.

Table of Contents

-10-

ITEM 1A. RISK FACTORS (continued)

Increases in the cost of labor, union organizing activity, labor disputes and work stoppages at our facilities could delay or impede our production, reduce sales of our products and increase our costs.

The costs of labor are generally increasing, including the costs of employee benefit plans. We are subject to the risk that strikes or other types of conflicts with personnel may arise or that we may become the subject of union organizing activity at additional facilities. In particular, renewal of collective bargaining agreements typically involves negotiation, with the potential for work stoppages or increased costs at affected facilities.

We could face potential product liability and warranty claims, we may not accurately estimate costs related to such claims, and we may not have sufficient insurance coverage available to cover such claims.

Our products are used and have been used in a wide variety of residential, commercial and industrial applications. We face an inherent business risk of exposure to product liability or other claims in the event our products are alleged to be defective or that the use of our products is alleged to have resulted in harm to others or to property. We may, in the future, incur liability if product liability lawsuits against us are successful. Moreover, any such lawsuits, whether or not successful, could result in adverse publicity to us, which could cause our sales to decline.

In addition, consistent with industry practice, we provide warranties on many of our products and we may experience costs of warranty or breach of contract claims if our products have defects in manufacture or design or they do not meet contractual specifications. We estimate our future warranty costs based on historical trends and product sales, but we may fail to accurately estimate those costs and thereby fail to establish adequate warranty reserves for them.

We maintain insurance coverage to protect us against product liability claims, but that coverage may not be adequate to cover all claims that may arise or we may not be able to maintain adequate insurance coverage in the future at an acceptable cost. Any liability not covered by insurance or that exceeds our established reserves could materially and adversely impact our business, financial condition and results of operations.

We may be subject to liability under and may make substantial future expenditures to comply with environmental laws and regulations.

Our manufacturing facilities are subject to numerous foreign, federal, state and local laws and regulations relating to the presence of hazardous materials, pollution and the protection of the environment, including those governing emissions to air, discharges to water, use, storage and transport of hazardous materials, storage, treatment and disposal of waste, remediation of contaminated sites and protection of worker health and safety.

Liability under these laws involves inherent uncertainties. Environmental liability estimates may be affected by changing determinations of what constitutes an environmental exposure or an acceptable level of cleanup. For example, remediation activities generally involve a potential range of activities and costs related to soil and groundwater contamination. This can include pre-cleanup activities such as fact finding and investigation, risk assessment, feasibility studies, remedial action design and implementation (where actions may range from monitoring to removal of contaminants, to installation of longer-term remediation systems). Please see "Item 1 - Business - Environmental Control" for information on costs and accruals related to environmental remediation. To the extent that the required remediation procedures or timing of those procedures change, additional contamination is identified, or the financial condition of other potentially responsible parties is adversely affected, the estimate of our environmental liabilities may change. Change in required remediation procedures or timing of those procedures at existing legacy sites, or discovery of contamination at additional sites, could result in increases to our environmental obligations.

Violations of environmental, health and safety laws are subject to civil, and, in some cases, criminal sanctions. As a result of these uncertainties, we may incur unexpected interruptions to operations, fines, penalties or other reductions in income which could adversely impact our business, financial condition and results of operations. It is possible that new laws and regulations will specifically address climate change, toxic air emissions, ozone forming emissions and fine particulate matter. New environmental and chemical regulations could impact our ability to expand production or construct new facilities in every geographic region in which we operate. Continued and increased government and public emphasis on environmental issues is expected to result in increased future investments for environmental controls at ongoing operations, which will be charged against income from future operations. Present and future environmental laws and regulations applicable to our operations, and changes in their interpretation, may require

substantial capital expenditures or may require or cause us to modify or curtail our operations, which may have a material adverse impact on our business, financial condition and results of operations.

Table of Contents

-11-

ITEM 1A. RISK FACTORS (continued)

We will not be insured against all potential losses and could be seriously harmed by natural disasters, catastrophes, theft or sabotage.

Many of our business activities globally involve substantial investments in manufacturing facilities and many products are produced at a limited number of locations. These facilities could be materially damaged by natural disasters such as floods, tornados, hurricanes and earthquakes or by theft or sabotage. We could incur uninsured losses and liabilities arising from such events, including damage to our reputation, and/or suffer material losses in operational capacity, which could have a material adverse impact on our business, financial condition and results of operations.

We depend on our senior management team and other skilled and experienced personnel to operate our business effectively, and the loss of any of these individuals or the failure to attract additional personnel could adversely impact our financial condition and results of operations.

We are highly dependent on the skills and experience of our senior management team and other skilled and experienced personnel. These individuals possess sales, marketing, manufacturing, logistical, financial, business strategy and administrative skills that are important to the operation of our business. We cannot assure that we will be able to retain all of our existing senior management personnel. The loss of any of these individuals or an inability to attract additional personnel could prevent us from implementing our business strategy and could adversely impact our business and our future financial condition or results of operations.

We are subject to various legal and regulatory proceedings, including litigation in the ordinary course of business, and uninsured judgments or a rise in insurance premiums may adversely impact our business, financial condition and results of operations.

In the ordinary course of business, we are subject to various legal and regulatory proceedings, which may include but are not limited to those involving antitrust, tax, environmental, intellectual property and other matters, including general commercial litigation. Any claims raised in legal and regulatory proceedings, whether with or without merit, could be time consuming and expensive to defend and could divert management's attention and resources.

Additionally, the outcome of legal and regulatory proceedings may differ from our expectations because the outcomes of these proceedings are often difficult to predict reliably. Various factors and developments can lead to changes in our estimates of liabilities and related insurance receivables, where applicable, or may require us to make additional estimates, including new or modified estimates that may be appropriate due to a judicial ruling or judgment, a settlement, regulatory developments or changes in applicable law. A future adverse ruling, settlement or unfavorable development could result in charges that could have a material adverse effect on our results of operations in any particular period.

In accordance with customary practice, we maintain insurance against some, but not all, of these potential claims. In the future, we may not be able to maintain insurance at commercially acceptable premium levels. In addition, the levels of insurance we maintain may not be adequate to fully cover any and all losses or liabilities. If any significant judgment or claim is not fully insured or indemnified against, it could have a material adverse impact on our business, financial condition and results of operations.

Our efforts in acquiring and integrating other businesses, establishing joint ventures, expanding our production capacity or divesting assets are subject to a number of risks.

We have historically grown or restructured our business through acquisitions, joint ventures and the expansion of our production capacity. Our ability to grow our business through these investments depends upon our ability to identify, negotiate and finance suitable arrangements. If we cannot successfully execute on our investments or receive any required regulatory approvals on a timely basis, we may be unable to generate desired returns, and our expectations of future results of operations, including cost savings and synergies, may not be achieved. Acquisitions, joint ventures, production capacity expansions and divestitures involve substantial risks, including:

- unforeseen difficulties in operations, technologies, products, services, accounting and personnel;
- increased cybersecurity risks;
- diversion of financial and management resources from existing operations;
-

unforeseen difficulties related to entering geographic regions, markets or product lines where we do not have prior experience;

Table of Contents

-12-

ITEM 1A. RISK FACTORS (continued)

risks relating to obtaining sufficient financing;
difficulty in integrating the acquired business' standards, processes, procedures and controls with our existing operations;
potential loss of key employees;
unanticipated competitive responses;
potential loss of customers; and
undisclosed or undiscovered liabilities or claims, or retention of unpredictable future liabilities.

Our failure to address these risks or other problems encountered in connection with our past or future acquisitions, investments and divestitures could cause us to fail to realize the anticipated benefits of such transactions, incur unanticipated liabilities, and harm our business generally. Future acquisitions and investments could also result in dilutive issuances of our equity securities, the incurrence of debt, contingent liabilities, or amortization expenses, or write-offs of goodwill, any of which could have a material adverse impact on our business, financial condition and results of operations. Also, the anticipated benefits of our investments may not materialize.

Our ongoing efforts to increase productivity and reduce costs may not result in anticipated savings in operating costs. Our cost reduction and productivity efforts, including those related to our existing operations, production capacity expansions, new manufacturing platforms, or other capital expenditures, may not produce anticipated results. Our ability to achieve cost savings and other benefits within expected time frames is subject to many estimates and assumptions. These estimates and assumptions are subject to significant economic, competitive, legal and other uncertainties, some of which are beyond our control. If these estimates and assumptions are incorrect, if we experience delays, or if other unforeseen events occur, our business, financial condition and results of operations could be adversely impacted.

Significant changes in the factors and assumptions used to measure our defined benefit plan obligations, actual investment returns on pension assets and other factors could have a negative impact on our financial condition or liquidity.

We have certain defined benefit pension plans and other post-employment benefit (OPEB) plans. Our future funding requirements for defined benefit pension and OPEB plans depend upon a number of factors and assumptions, including our actual experience against assumptions with regard to interest rates used to determine funding levels; return on plan assets; benefit levels; participant experience (e.g., mortality and retirement rates); health care cost trends; and applicable regulatory changes. To the extent actual results are less favorable than our assumptions, there could be a material adverse impact on our financial condition and results of operations.

Additional risks exist due to the nature and magnitude of our investments, including the implementation of or changes to the investment policy, insufficient market capacity to absorb a particular investment strategy or high volume transactions, and the inability to quickly rebalance illiquid and long-term investments.

If our cash flows and capital resources are insufficient to fund our pension or OPEB obligations, we could be forced to reduce or delay investments and capital expenditures, seek additional capital, or restructure or refinance our indebtedness.

If we were required to write down all or part of our goodwill or other indefinite-lived intangible assets, our results of operations or financial condition could be materially adversely affected in a particular period.

Declines in the Company's business may result in an impairment of the Company's tangible and intangible assets which could result in a material non-cash charge. A significant or prolonged decrease in the Company's market capitalization, including a decline in stock price, or a negative long-term performance outlook, could result in an impairment of its tangible and intangible assets which results when the carrying value of the Company's assets exceed their fair value. At least annually, the Company assesses goodwill and intangible assets for impairment. Since the Company utilizes a discounted cash flow methodology to calculate the fair value of its reporting units, weak demand for a specific product line or business could result in an impairment. Accordingly, any determination requiring the write-off of a significant portion of goodwill or intangible assets could negatively impact the Company's results of operations.

Table of Contents

-13-

ITEM 1A. RISK FACTORS (continued)

RISKS RELATED TO OWNERSHIP OF OUR COMMON STOCK

The market price of our common stock is subject to volatility.

The market price of our common stock could be subject to wide fluctuations in response to numerous factors, many of which are beyond our control. These factors include actual or anticipated variations in our operational results and cash flow, our earnings relative to our competition, changes in financial estimates by securities analysts, trading volume, sales by holders of large amounts of our common stock, short selling, market conditions within the industries in which we operate, seasonality of our business operations, the general state of the securities markets and the market for stocks of companies in our industry, governmental legislation or regulation and currency and exchange rate fluctuations, as well as general economic and market conditions, such as recessions.

We are a holding company with no operations of our own and depend on our subsidiaries for cash.

As a holding company, most of our assets are held by our direct and indirect subsidiaries and we will primarily rely on dividends and other payments or distributions from our subsidiaries to meet our debt service and other obligations and to enable us to pay dividends. The ability of our subsidiaries to pay dividends or make other payments or distributions to us will depend on their respective operating results and may be restricted by, among other things, the laws of their jurisdiction of organization (which may limit the amount of funds available for the payment of dividends or other payments), agreements of those subsidiaries, agreements with any co-investors in non-wholly-owned subsidiaries, the terms of our credit facility and senior notes and the covenants of any future indebtedness we or our subsidiaries may incur.

Provisions in our amended and restated certificate of incorporation and bylaws or Delaware law might discourage, delay or prevent a change in control of our company or changes in our management and therefore depress the trading price of our common stock.

Our amended and restated certificate of incorporation and bylaws contain provisions that could depress the trading price of our common stock through provisions that may discourage, delay or prevent a change in control of our Company or changes in our management that our stockholders may deem advantageous.

Additionally, we are subject to Section 203 of the Delaware General Corporation Law, which generally prohibits a Delaware corporation from engaging in any of a broad range of business combinations with any “interested” stockholder for a period of three years following the date on which the stockholder became an “interested” stockholder and which may discourage, delay or prevent a change in control of our company.

Dividends on our common stock are declared at the discretion of our Board of Directors.

Since February 2014, the Board has declared a quarterly dividend on our common stock. The payment of any future cash dividends to our stockholders is not guaranteed and will depend on decisions that will be made by our Board of Directors and will depend on then-existing conditions, including our operating results, financial conditions, contractual restrictions, corporate law restrictions, capital agreements, applicable laws of the State of Delaware and business prospects.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

Table of Contents

-14-

ITEM 2. PROPERTIES

Composites

Our Composites segment operates out of 28 manufacturing facilities. We are in the process of closing certain sub-scale manufacturing facilities as a result of our expansion in India. Principal manufacturing facilities for our Composites segment, all of which are owned by the Company, include the following:

Aiken, South Carolina	Jackson, Tennessee
Amarillo, Texas	Kimchon, Korea
Anderson, South Carolina	L'Ardoise, France
Apeldoorn, The Netherlands	Rio Claro, Brazil
Chambery, France	Taloja, India
Gastonia, North Carolina	Tlaxcala, Mexico
Gous, Russia	Yuhang, China

Insulation

Our Insulation segment operates out of 43 manufacturing facilities. Principal manufacturing facilities for our Insulation segment, all of which are owned by the Company, include the following:

Delmar, New York	Santa Clara, California
Edmonton, Alberta, Canada	Sedalia, Missouri
Fairburn, Georgia	Tallmadge, Ohio
Guangzhou, Guandong, China	Tessengerlo, Belgium
Joplin, Missouri	Toronto, Ontario, Canada
Kansas City, Kansas	Trzemeszno, Poland
Mexico City, Mexico	Vilnius, Lithuania
Newark, Ohio	Wabash, Indiana
Rockford, Illinois	Waxahachie, Texas

Roofing

Our Roofing segment operates out of 35 total manufacturing facilities. This number separately counts many roofing and asphalt manufacturing facilities that are located at the same site. Principal manufacturing facilities for our Roofing segment, all of which are owned by the Company, include the following:

Brookville, Indiana	Minneapolis, Minnesota
Denver, Colorado	Portland, Oregon
Irving, Texas	Qingdao, China
Kearny, New Jersey	Savannah, Georgia
Medina, Ohio	Silvassa, India
Memphis, Tennessee	Summit, Illinois

We believe that these properties are in good condition and well maintained, and are suitable and adequate to carry on our business. The capacity of each plant varies depending upon product mix.

Our principal executive offices are located in the Owens Corning World Headquarters, Toledo, Ohio, an owned facility of approximately 400,000 square feet. Our research and development activities are primarily conducted at our Science and Technology Center, located on approximately 500 acres of land owned by the Company outside of Granville, Ohio. It consists of approximately 20 structures totaling more than 650,000 square feet. In addition, we have application development and other product and market focused research and development centers in various locations.

Table of Contents

-15-

ITEM 3. LEGAL PROCEEDINGS

Environmental Legal Proceedings

None.

Litigation, Other Regulatory Proceedings and Environmental Matters

Additional information required by this item is incorporated by reference to Note 16, Contingent Liabilities and Other Matters.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

Table of Contents

-16-

EXECUTIVE OFFICERS OF OWENS CORNING

The name, age and business experience during the past five years of Owens Corning's executive officers as of January 1, 2019 are set forth below. Each executive officer holds office until his or her successor is elected and qualified or until his or her earlier resignation, retirement or removal. All those listed have been employees of Owens Corning during the past five years except as indicated.

Name and Age	Position*
Brian D. Chambers (52)**	President and Chief Operating Officer since August 2018; formerly President, Roofing (2014); formerly Vice President and General Manager, Roofing (2013)
Julian Francis (52)	President, Insulation since October 2014; formerly Vice President and General Manager, Residential Insulation (2012)
Ava Harter (49)	Senior Vice President, General Counsel and Secretary since May 2015; formerly General Counsel, Chief Compliance Officer and Corporate Secretary, Taleris America LLC (2012)
Michael C. McMurray (53)	Senior Vice President and Chief Financial Officer since August 2012
Marcio Sandri (55)	President, Composites since May 2018; formerly Vice President Global Strategy and Operations, Composites (2017); formerly Vice President and General Manager, Composites (2007)
Kelly J. Schmidt (53)	Vice President, Controller since April 2011
Daniel T. Smith (53)	Senior Vice President, Organization and Administration since November 2014; formerly Senior Vice President, Information Technology and Human Resources (2012)
Gunner Smith (45)	President, Roofing since August 2018, formerly Vice President of Distribution Sales for Roofing (2012)
Michael H. Thaman (54)**	Chief Executive Officer since December 2007 and Chairman of the Board since April 2002; Director since 2002

Information in parentheses indicates year during the past five years in which service in position began. The last * item listed for each individual represents the position held by such individual at the beginning of the five-year period.

On January 3, 2019, the Company announced that its Board of Directors elected Brian D. Chambers to succeed **Michael H. Thaman as Chief Executive Officer, effective April 18, 2019. Please refer to Exhibit 10.16 (filed herewith) for the transition agreement between Michael H. Thaman and the Company.

Table of Contents

-17-

Part II

ITEM 5. MARKET FOR OWENS CORNING'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market Information

Owens Corning's common stock trades on the New York Stock Exchange under the symbol "OC."

Holders of Common Stock

The number of stockholders of record of Owens Corning's common stock on February 15, 2019 was 413.

Cash Dividends

The payment of any future cash dividends to our stockholders will depend on decisions that will be made by our Board of Directors and will depend on then existing conditions, including our operating results, financial conditions, contractual restrictions, corporate law restrictions, capital agreements, applicable laws of the State of Delaware and business prospects.

Under the credit agreement applicable to our senior revolving credit facility, the Company may not declare a cash dividend if a default or event of default exists or would come to exist at the time of declaration or if a dividend declaration violates the provisions of our formation documents or other material agreements.

The Company's subsidiaries are subject to certain restrictions on their ability to pay dividends under the agreements governing our senior revolving credit facility and our receivables securitization facility.

Recent Sales of Unregistered Securities; Use of Proceeds from Registered Securities

None.

Issuer Purchases of Equity Securities

The following table provides information about Owens Corning's purchases of its common stock during the three months ended December 31, 2018:

Period	Total Number of Shares (or Units) Purchased*	Average Price Paid per Share (or Unit)	Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs**	Maximum Number of Shares (or Units) that May Yet Be Purchased Under the Plans or Programs**
October 1-31, 2018	2,026	\$ 50.85	—	4,581,726
November 1-30, 2018	—	—	—	4,581,726
December 1-31, 2018	628	56.60	—	4,581,726
Total	2,654	\$ 52.21	—	4,581,726

*The Company retained 2,654 shares surrendered to satisfy tax withholding obligations in connection with the vesting of restricted shares granted to our employees.

On October 24, 2016, the Board of Directors approved a share buy-back program under which the Company is authorized to repurchase up to 10 million shares of the Company's outstanding common stock (the "Repurchase Authorization"). The Repurchase Authorization enables the Company to repurchase shares through open market, **privately negotiated, or other transactions. The actual number of shares repurchased will depend on timing, market conditions and other factors and is at the Company's discretion. The Company did not repurchase any shares of its common stock during the three months ended December 31, 2018 under the Repurchase Authorization. As of December 31, 2018, approximately 4.6 million shares remain available for repurchase under the Repurchase Authorization.

Table of Contents

-18-

ITEM MARKET FOR OWENS CORNING'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND
5. ISSUER PURCHASES OF EQUITY SECURITIES (continued)

Performance Graph

The annual changes for the five-year period shown in the graph on this page are based on the assumption that \$100 had been invested in Owens Corning (OC) stock, the Standard & Poor's 500 Stock Index ("S&P 500") and the Dow Jones U.S. Building Materials & Fixtures Index ("DJ Bld. Mat.") on December 31, 2013, and that all quarterly dividends were reinvested. The total cumulative dollar returns shown on the graph represent the value that such investments would have had on December 31, 2018.

Performance Graph

	2013	2014	2015	2016	2017	2018
OC	\$100	\$90	\$119	\$133	\$240	\$116
S&P 500	\$100	\$114	\$115	\$129	\$157	\$150
DJ Bld. Mat.	\$100	\$111	\$126	\$150	\$177	\$140

Table of Contents

-19-

ITEM 6. SELECTED FINANCIAL DATA

	Twelve Months Ended December 31, 2018(a) 2017(b) 2016(c) 2015(d) 2014(e) (in millions, except per share amounts)				
Statement of Earnings Data					
Net sales	\$7,057	\$6,384	\$5,677	\$5,350	\$5,260
Gross margin	\$1,632	\$1,569	\$1,377	\$1,153	\$976
Marketing and administrative expenses	\$700	\$620	\$584	\$525	\$487
Earnings before interest and taxes	\$821	\$737	\$699	\$548	\$392
Interest expense, net	\$117	\$107	\$108	\$100	\$114
Loss (gain) on extinguishment of debt	\$—	\$71	\$1	\$(5)	\$46
Income tax expense	\$156	\$269	\$188	\$120	\$5
Net earnings	\$547	\$290	\$399	\$334	\$228
Net earnings attributable to Owens Corning	\$545	\$289	\$393	\$330	\$226
Earnings per common share attributable to Owens Corning common stockholders					
Basic	\$4.94	\$2.59	\$3.44	\$2.82	\$1.92
Diluted	\$4.89	\$2.55	\$3.41	\$2.79	\$1.91
Dividend	\$0.85	\$0.81	\$0.74	\$0.68	\$0.64
Weighted-average common shares					
Basic	110.4	111.5	114.4	117.2	117.5
Diluted	111.4	113.2	115.4	118.2	118.3
Balance Sheet Data					
Total assets	\$9,771	\$8,632	\$7,741	\$7,326	\$7,483
Long-term debt, net of current portion	\$3,362	\$2,405	\$2,099	\$1,702	\$1,978
Total equity	\$4,324	\$4,204	\$3,889	\$3,779	\$3,730

(a) During 2018, the Company recorded \$22 million of restructuring costs, comprised of \$4 million of severance, \$10 million of accelerated depreciation and \$8 million of other exit costs. In connection with our previously announced acquisitions, mainly Paroc, we recognized \$16 million of acquisition-related costs and a \$2 million charge related to inventory fair value step-up. Outside of earnings before interest and taxes, the Company also recorded a \$32 million gain related to the settlement of an uncertain tax position in Finland and a \$9 million non-cash income tax charge related to the Tax Act.

(b) During 2017, the Company recorded \$48 million of restructuring costs, comprised of \$27 million of severance, \$17 million of accelerated depreciation and \$4 million of other exit costs. In connection with our previously announced acquisitions, mainly Pittsburgh Corning, we recognized \$15 million of acquisition-related costs and a \$5 million charge related to inventory fair value step-up. Other significant items included \$64 million of pension settlement losses from risk mitigation actions, a \$15 million environmental liability charge for a closed U.S. site, partially offset by a \$29 million litigation settlement gain, net of legal fees. Outside of earnings before interest and taxes, the Company also recorded a \$71 million loss on debt extinguishment and an \$82 million non-cash income tax charge related to the Tax Act.

(c) During 2016, the Company recorded \$28 million of restructuring costs, comprised of \$19 million of accelerated depreciation, \$6 million of facility-related charges and \$3 million of personnel-related charges. In connection with our previously announced acquisitions, mainly InterWrap Holdings, Inc. ("InterWrap"), we recognized \$9 million of acquisition-related costs and a \$10 million charge related to inventory fair value step-up.

(d)

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During 2015, the Company recorded \$2 million of restructuring costs. This was comprised of a \$6 million benefit from changes in severance estimates and pension-related adjustments, offset by \$3 million in accelerated depreciation and \$5 million in other exit costs. The retrospective adoption requirements of ASU 2017-07 had a de minimis effect on 2015, and was not applied to the results shown above due to immateriality.

Table of Contents

-20-

ITEM 6. SELECTED FINANCIAL DATA (continued)

During 2014, the Company recorded \$36 million of restructuring costs, comprised of \$34 million of severance costs, \$3 million of contract termination costs, and partially offset by \$1 million of other related gains. There was also a gain of \$45 million related to the sale of the Hangzhou, China facility, a \$20 million loss related to the sale (e) of the European Stone Business, \$3 million related to the impairment loss on Alcala, Spain facility, and \$6 million related to Hurricane Sandy costs. Outside of earnings before interest and taxes, the Company recorded a \$46 million loss on debt extinguishment. The retrospective adoption requirements of ASU 2017-07 had a de minimis effect on 2014, and was not applied to the results shown above due to immateriality.

Table of Contents

-21-

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

This Management's Discussion and Analysis (MD&A) is intended to help investors understand Owens Corning, our operations and our present business environment. MD&A is provided as a supplement to, and should be read in conjunction with, our Consolidated Financial Statements and the accompanying Notes thereto contained in this report. Unless the context requires otherwise, the terms "Owens Corning," "Company," "we" and "our" in this report refer to Owens Corning and its subsidiaries.

GENERAL

Owens Corning is a leading global producer of glass fiber reinforcements and other materials for composites and of residential, commercial and industrial building materials. The Company has three reporting segments: Composites, Insulation and Roofing. Through these lines of business, the Company manufactures and sells products worldwide. We maintain leading market positions in many of our major product categories.

EXECUTIVE OVERVIEW

Net earnings attributable to Owens Corning were \$545 million in 2018 compared to \$289 million in 2017. The Company reported \$821 million in earnings before interest and taxes (EBIT) in 2018 compared to \$737 million in 2017. The Company generated \$861 million in adjusted earnings before interest and taxes ("Adjusted EBIT") in 2018 compared to \$855 million in 2017. See the Adjusted Earnings Before Interest and Taxes paragraph of MD&A for further information regarding EBIT and Adjusted EBIT, including the reconciliation to net earnings attributable to Owens Corning. Segment EBIT performance compared to 2017 increased \$113 million in our Insulation segment, decreased \$101 million in our Roofing segment and decreased \$40 million in our Composites segment. Within our Corporate, Other and Eliminations category, General corporate expenses and other decreased by \$34 million.

In our Insulation segment, EBIT in 2018 was \$290 million compared to \$177 million in 2017, primarily due to the impact of higher selling prices, as well as our acquisitions of Paroc and Pittsburgh Corning. In our Roofing segment, EBIT in 2018 was \$434 million compared to \$535 million in 2017, primarily due to lower sales volumes. In our Composites segment, EBIT in 2018 was \$251 million compared to \$291 million in 2017, primarily due to input cost inflation and higher transportation costs.

In 2018, the Company's operating activities provided \$803 million of cash flow, compared to \$1,016 million in 2017. The change was primarily driven by changes in operating assets and liabilities.

In January 2018, the Company issued \$400 million of 2048 senior notes with an annual interest rate of 4.40%. The proceeds from the senior notes, along with borrowings on a \$600 million term loan commitment and our Receivables Securitization Facility, were used to fund the purchase of Paroc in February 2018.

On February 5, 2018, the Company acquired all of the outstanding equity of Paroc, a leading producer of mineral wool insulation for building and technical applications in Europe, for \$1,121 million, net of cash acquired. The acquisition of Paroc expands the Company's mineral wool technology, grows its presence in the European insulation market, provides access to a variety of new end-use markets and increases the Insulation segment's geographic sales mix outside of the U.S. and Canada. Operating results of the acquisition and a purchase price allocation have been included in the Company's Insulation segment in the Consolidated Financial Statements.

In May 2018, the Company entered into a new credit agreement covering our Senior Revolving Credit Facility with a maturity in 2023. This new credit agreement, among other things, removed all subsidiaries of the Company as guarantors under our Senior Revolving Credit Facility, unless certain conditions precedent are met that do not exist at this time.

In 2018, the Company repurchased 2.9 million shares of the Company's common stock for \$203 million under a previously announced repurchase authorization. As of December 31, 2018, 4.6 million shares remain available for repurchase under the Repurchase Authorization.

Table of Contents

-22-

ITEM MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF
7. OPERATIONS (continued)

RESULTS OF OPERATIONS

Consolidated Results (in millions)

	Twelve Months Ended					
	December 31,					
	2018	2017	2016			
Net sales	\$7,057	\$6,384	\$5,677			
Gross margin	\$1,632	\$1,569	\$1,377			
% of net sales	23	% 25	% 24	%		
Marketing and administrative expenses	\$700	\$620	\$584			
Other expenses, net	\$36	\$67	\$14			
Non-operating (income) expense	\$(14)	\$60	\$(2)			
Earnings before interest and taxes	\$821	\$737	\$699			
Interest expense, net	\$117	\$107	\$108			
Loss (gain) on extinguishment of debt	\$—	\$71	\$1			
Income tax expense	\$156	\$269	\$188			
Net earnings attributable to Owens Corning	\$545	\$289	\$393			

The Consolidated Results discussion below provides a summary of our results and the trends affecting our business, and should be read in conjunction with the more detailed Segment Results discussion that follows.

NET SALES

2018 Compared to 2017: Net sales increased by \$673 million in 2018 as compared to 2017. The increase in net sales was driven by the acquisitions of Paroc and Pittsburgh Corning and higher selling prices in our Roofing and Insulation segments, partially offset by the impact of lower sales volumes in our Roofing segment.

2017 Compared to 2016: Net sales increased by \$707 million in 2017 as compared to 2016. The increase in net sales was driven by higher sales volumes in all three segments, as well as the acquisitions of Pittsburgh Corning into our Insulation segment and InterWrap into our Roofing segment.

GROSS MARGIN

2018 Compared to 2017: Gross margin increased \$63 million in 2018 as compared to 2017. The improvement was primarily driven by the contribution of our acquisitions of Paroc and Pittsburgh Corning and higher selling prices in Insulation and Roofing, partially offset by input cost inflation and higher transportation costs in all three segments.

2017 Compared to 2016: Gross margin as a percentage of net sales in 2017 was relatively flat compared to 2016. The \$192 million improvement was primarily driven by higher sales volumes in all three segments, the gross margin contribution from our acquisitions of InterWrap and Pittsburgh Corning and lower furnace rebuild and startup costs in our Composites segment.

MARKETING AND ADMINISTRATIVE EXPENSES

2018 Compared to 2017: Marketing and administrative expenses increased by \$80 million in 2018 compared to 2017. The increase was primarily due to higher selling, general and administrative expenses associated with our acquisitions of Paroc and Pittsburgh Corning, partially offset by lower performance-based compensation.

2017 Compared to 2016: Marketing and administrative expenses increased by \$36 million in 2017 compared to 2016. The increase was primarily due to higher selling, general and administrative expenses associated with our acquisitions of Pittsburgh Corning and InterWrap and higher performance-based compensation.

OTHER EXPENSES, NET

2018 Compared to 2017: Other expenses, net decreased \$31 million in 2018 compared to 2017. The improvement was primarily driven by \$23 million of lower restructuring costs reported in this line and \$11 million of higher foreign exchange gains.

Table of Contents

-23-

ITEM MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF
7. OPERATIONS (continued)

2017 Compared to 2016: Other expenses, net increased \$53 million in 2017 compared to 2016. The increase was primarily driven by \$25 million of higher restructuring costs reported in this line, \$15 million of environmental liability charges, a \$10 million charge for the allowance for doubtful accounts, higher acquisition-related costs and increased general corporate expenses. These costs were partially offset by a \$29 million litigation settlement gain, net of legal fees.

NON-OPERATING (INCOME) EXPENSE

2018 Compared to 2017: Non-operating (income) expense improved \$74 million compared to 2017, primarily due to the favorable year-over-year comparison to pension settlement losses recognized in 2017.

2017 Compared to 2016: Non-operating (income) expense deteriorated \$62 million compared to 2016, primarily due to pension settlement losses recognized in 2017.

INTEREST EXPENSE, NET

2018 Compared to 2017: Interest expense, net in 2018 increased \$10 million compared to 2017, primarily due to higher long-term debt balances in connection with our acquisitions.

2017 Compared to 2016: Interest expense, net in 2017 was flat to 2016, as the effect of higher long-term debt following the issuance of our 2047 senior notes was offset by the lower borrowing rate.

LOSS ON EXTINGUISHMENT OF DEBT

During 2018, there were no extinguishments of debt. For the year ended December 31, 2017, the Company recognized a \$71 million loss on extinguishment of debt in connection with the redemption of its 2019 senior notes and a portion of its 2036 senior notes. For the year ended December 31, 2016, the Company recorded a \$1 million loss on extinguishment of debt in connection with the redemption of its 2016 senior notes.

INCOME TAX EXPENSE

Income tax expense for 2018 was \$156 million compared to \$269 million in 2017.

The Company's effective tax rate for 2018 was 22% on pre-tax income of \$704 million. The difference between the 22% effective tax rate and the U.S. federal statutory tax rate of 21% is primarily attributable to the final adjustments for the Tax Act including an additional valuation allowance recorded against U.S. FTCs, U.S. federal tax expense on foreign earnings and U.S. state and local income tax expense, offset by the reversal of valuation allowances recorded on certain foreign deferred tax assets, changes in uncertain tax positions and excess tax benefits related to stock compensation.

In December 2017, the U.S. government enacted tax legislation commonly known as the Tax Act. The SEC issued Staff Accounting Bulletin No. 118, "Income Tax Accounting Implications of the Tax Cuts and Jobs Act ("SAB 118"), providing guidance on accounting for the Tax Act. SAB 118 provides a measurement period that should not extend beyond one year from the Tax Act enactment date to complete the accounting under Accounting Standards Codification (ASC) 740, "Income Taxes." In accordance with SAB 118, a provisional non-cash charge of \$82 million was recorded to tax expense in December 2017 based on reasonable estimates of certain effects of the Tax Act. During the measurement period, the Company completed the accounting for income tax effects of the Tax Act. The revised estimates resulted in an increase to the provisional charge of \$9 million. The increase to the provisional charge includes a non-cash benefit for the Transition Tax of \$5 million, a charge for U.S. state impacts and other deferred tax adjustments of \$5 million, a benefit for FTCs generated of \$1 million and a charge for an increase to the valuation allowance established against the FTC generated of \$10 million.

A new provision of the Tax Act effective January 1, 2018 for global intangible low taxed income (GILTI) earned by controlled foreign corporations (CFCs) resulted in a charge of \$13 million to tax expense.

On February 5, 2018, the Company acquired all the outstanding equity of Paroc, a leading producer of mineral wool insulation for building and technical applications in Europe. The acquisition included net uncertain tax position (UTP) liabilities related to a transfer pricing dispute and associated interest expense. On December 18, 2018, the Finnish Supreme Administrative Court (SAC) ruled in favor of Paroc Oy Ag ("Paroc Finland") regarding the transfer pricing

dispute for tax years 2006 to 2008. Based on the SAC decision, the Company reversed the UTP liability related to the transfer pricing dispute resulting in a benefit to tax expense of \$32 million.

Table of Contents

-24-

ITEM MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF
7. OPERATIONS (continued)

The realization of deferred tax assets depends on achieving a certain minimum level of future taxable income. Management currently believes that it is at least reasonably possible that the minimum level of taxable income will be met within the next 12 months to reduce the valuation allowances of certain foreign jurisdictions by a range of zero to \$1 million.

The Company's effective tax rate for 2017 was 48% on pre-tax income of \$559 million. The difference between the 48% effective tax rate and the U.S. federal statutory rate of 35% is primarily attributable to the provisional adjustments for the Tax Act, reversal of valuation allowances recorded against certain foreign deferred tax assets, changes in uncertain tax positions and lower foreign tax rates.

Restructuring and Acquisition-Related Costs

The Company has incurred restructuring, transaction and integration costs related to acquisitions, along with restructuring costs in connection with its global cost reduction and productivity initiatives. These costs are recorded in the Corporate, Other and Eliminations category. Please refer to Notes 8 and 12 of the Consolidated Financial Statements for further information on the nature of these costs.

The following table presents the impact and respective location of these income (expense) items on the Consolidated Statements of Earnings (in millions):

	Location	Twelve Months Ended December 31,		
		2018	2017	2016
Restructuring costs	Cost of sales	\$(17)	\$(20)	\$(25)
Restructuring costs	Other expenses, net	(5)	(28)	(3)
Acquisition-related costs	Marketing and administrative expenses	(7)	(6)	(6)
Acquisition-related costs	Other expenses, net	(9)	(9)	(3)
Recognition of acquisition inventory fair value step-up	Cost of sales	(2)	(5)	(10)
Total restructuring, acquisition and integration-related costs		\$(40)	\$(68)	\$(47)

Adjusted Earnings Before Interest and Taxes ("Adjusted EBIT")

Adjusted EBIT is a non-GAAP measure that excludes certain items that management does not allocate to our segment results because it believes they are not representative of the Company's ongoing operations. Adjusted EBIT is used internally by the Company for various purposes, including reporting results of operations to the Board of Directors of the Company, analysis of performance and related employee compensation measures. Although management believes that these adjustments result in a measure that provides a useful representation of our operational performance, the adjusted measure should not be considered in isolation or as a substitute for Net earnings attributable to Owens Corning as prepared in accordance with accounting principles generally accepted in the United States.

Adjusting income (expense) items to EBIT are shown in the table below (in millions):

	Twelve Months Ended December 31,		
	2018	2017	2016
Restructuring costs	\$(22)	\$(48)	\$(28)
Acquisition-related costs	(16)	(15)	(9)
Recognition of acquisition inventory fair value step-up	(2)	(5)	(10)
Litigation settlement gain, net of legal fees	—	29	—
Pension settlement losses	—	(64)	—
Environmental liability charges	—	(15)	—

Total adjusting items

\$(40) \$(118) \$(47)

Table of Contents

-25-

ITEM MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF
7. OPERATIONS (continued)

The reconciliation from Net earnings attributable to Owens Corning to EBIT and Adjusted EBIT is shown in the table below (in millions):

	Twelve Months		
	Ended December 31,		
	2018	2017	2016
NET EARNINGS ATTRIBUTABLE TO OWENS CORNING	\$545	\$289	\$393
Net earnings attributable to noncontrolling interests	2	1	6
NET EARNINGS	547	290	399
Equity in loss of affiliates	(1)	—	(3)
Income tax expense	156	269	188
EARNINGS BEFORE TAXES	704	559	590
Interest expense, net	117	107	108
Loss on extinguishment of debt	—	71	1
EARNINGS BEFORE INTEREST AND TAXES	821	737	699
Adjusting items from above	(40)	(118)	(47)
ADJUSTED EBIT	\$861	\$855	\$746

Table of Contents

-26-

ITEM MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF
7. OPERATIONS (continued)

Segment Results

EBIT by segment consists of net sales less related costs and expenses and is presented on a basis that is used internally for evaluating segment performance. Certain items, such as general corporate expenses or income and certain other expense or income items, are excluded from the internal evaluation of segment performance. Accordingly, these items are not reflected in EBIT for our reportable segments and are included in the Corporate, Other and Eliminations category, which is presented following the discussion of our reportable segments.

Composites

The table below provides a summary of net sales, EBIT and depreciation and amortization expense for the Composites segment (in millions):

	Twelve Months Ended			
	December 31,			
	2018	2017	2016	
Net sales	\$2,041	\$2,068	\$1,952	
% change from prior year	-1	% 6	% 3	%
EBIT	\$251	\$291	\$264	
EBIT as a % of net sales	12	% 14	% 14	%
Depreciation and amortization expense	\$147	\$144	\$138	

NET SALES

2018 Compared to 2017: Net sales in our Composites segment were \$27 million lower in 2018 than in 2017, primarily driven by lower sales volumes of approximately 2%. The favorable impact of product mix (mainly related to lower sales volumes into the roofing market) and translating sales denominated in foreign currencies into United States dollars partially offset the decrease from lower sales volumes.

2017 Compared to 2016: Net sales in our Composites segment were \$116 million higher in 2017 than in 2016, primarily driven by higher sales volumes of approximately 6%. Volume performance benefited from broad-based market strength, particularly the roofing market and other glass non-wovens applications. The favorable impact of translating sales denominated in foreign currencies into United States dollars was largely offset by \$18 million of lower selling prices. The remaining change was driven by \$10 million of unfavorable product mix (mainly related to higher sales volumes into the roofing market).

EBIT

2018 Compared to 2017: EBIT in our Composites segment was \$40 million lower in 2018 than in 2017. The decrease was primarily driven by higher input cost and transportation inflation of \$43 million. Higher rebuild and start-up costs of \$17 million were more than offset by \$16 million in improved manufacturing performance and the \$10 million favorable variance from comparison against the prior year bad debt charge. The negative impact of lower sales volumes primarily accounted for the remainder of the variance.

2017 Compared to 2016: EBIT in our Composites segment was \$27 million higher in 2017 than in 2016. The increase was primarily driven by lower furnace rebuild and startup costs of \$39 million. The EBIT improvement driven by higher sales volumes was slightly more than offset by lower selling prices and the negative impact of input cost inflation. The remaining change was due to a \$10 million charge in the third quarter of 2017 for the allowance for doubtful accounts, primarily due to an estimated uncollectible receivable from a Brazilian customer now in financial reorganization.

OUTLOOK

Global glass reinforcements market demand has historically grown on average as a function of global industrial production and we believe this relationship will continue. In 2019, the Company expects continued global industrial production growth.

Table of Contents

-27-

ITEM MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF
7. OPERATIONS (continued)

Insulation

The table below provides a summary of net sales, EBIT and depreciation and amortization expense for the Insulation segment (in millions):

	Twelve Months Ended			
	December 31,			
	2018	2017	2016	
Net sales	\$2,720	\$2,001	\$1,748	
% change from prior year	36	% 14	% -6	%
EBIT	\$290	\$177	\$126	
EBIT as a % of net sales	11	% 9	% 7	%
Depreciation and amortization expense	\$186	\$124	\$106	

NET SALES

2018 Compared to 2017: In our Insulation segment, 2018 net sales were \$719 million higher than in 2017. The increase was primarily driven by the \$590 million impact of our acquisitions of Paroc and Pittsburgh Corning (which was included in the other categories following the one-year post-acquisition period) and higher selling prices of \$128 million. The impact of lower sales volumes of about 1% was offset by the favorable impact of customer and product mix.

2017 Compared to 2016: In our Insulation segment, 2017 net sales were \$253 million higher than in 2016. The increase was primarily driven by the \$133 million impact of our second quarter 2017 acquisition of Pittsburgh Corning and higher sales volumes of about 6%. The remaining change was driven by higher selling prices of \$19 million. The slightly favorable impact of translating sales denominated in foreign currencies into United States dollars was offset by unfavorable channel mix associated with growth in new construction.

EBIT

2018 Compared to 2017: In our Insulation segment, EBIT increased \$113 million in 2018 compared to 2017, primarily driven by higher selling prices of \$128 million. The \$56 million favorable impact from our acquisitions of Paroc and Pittsburgh Corning (which was included in the other categories following the one-year post-acquisition period) was more than offset by \$52 million of combined input cost inflation and higher transportation costs and the \$16 million of higher year-over-year rebuild and start-up costs.

2017 Compared to 2016: In our Insulation segment, EBIT increased \$51 million in 2017 compared to 2016. Substantially all of the increase was driven by higher sales volumes and higher selling prices. Our second quarter 2017 acquisition of Pittsburgh Corning contributed \$15 million of EBIT. Favorable manufacturing performance of \$27 million was more than offset (about equally) by \$19 million of startup costs for our new mineral wool insulation plant and input cost inflation.

DEPRECIATION AND AMORTIZATION

2018 Compared to 2017: In our Insulation segment, depreciation and amortization expense increased by \$62 million in 2018 compared to 2017. The acquisitions of Paroc and Pittsburgh Corning contributed \$47 million of depreciation expense and \$24 million of amortization expense in 2018.

2017 Compared to 2016: In our Insulation segment, depreciation and amortization expense increased \$18 million in 2017 compared to 2016. The change was primarily due to a half-year of depreciation and amortization related to our acquisition of Pittsburgh Corning in 2017, including \$10 million of depreciation related to property, plant and equipment and \$4 million related to amortization of intangible assets.

OUTLOOK

The outlook for Insulation demand is driven by new residential construction, remodeling and repair activity (primarily in the United States and Canada), commercial construction and industrial construction activity in the United States,

Canada, Europe and Asia-Pacific. Demand for commercial and industrial insulation is most closely correlated to industrial production growth in the global markets we serve. Demand for residential insulation is most closely correlated to U.S. housing starts. During the fourth quarter of 2018, the average Seasonally Adjusted Annual Rate (SAAR) of U.S. housing starts was approximately 1.237 million starts, which was down from 1.259 million starts in the fourth quarter of 2017. While the trend in U.S. housing starts has generally been positive

Table of Contents

-28-

ITEM MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF
7. OPERATIONS (continued)

over the past few years, the timing and pace of growth of the United States housing market remains uncertain. We believe that the geographic, product and channel mix of our portfolio will continue to moderate the impact of any demand-driven variability associated with U.S. new construction.

Roofing

The table below provides a summary of net sales, EBIT and depreciation and amortization expense for the Roofing segment (in millions):

	Twelve Months Ended		
	December 31,		
	2018	2017	2016
Net sales	\$2,492	\$2,553	\$2,194
% change from prior year	-2	% 16	% 24
EBIT	\$434	\$535	\$486
EBIT as a % of net sales	17	% 21	% 22
Depreciation and amortization expense	\$51	\$50	\$46

NET SALES

2018 Compared to 2017: In our Roofing segment, net sales were \$61 million lower in 2018 than in 2017. The decrease was primarily driven by lower sales volumes of approximately 9% on lower shingle volumes, primarily due to lower storm demand in 2018, partially offset by \$127 million of higher selling prices, \$17 million of favorable product mix and \$27 million of higher third-party asphalt sales (driven by higher commodity prices).

2017 Compared to 2016: In our Roofing segment, net sales were \$359 million higher in 2017 than in 2016. Sales volumes increased by approximately 9%, due to higher asphalt shingle volumes, from growth across all our key demand drivers, and growth in roofing components. Our early-second quarter 2016 acquisition of InterWrap contributed \$86 million of net sales (and was included in the other comparison categories following the one-year post-acquisition period). The remaining increase was driven by higher selling prices of \$47 million and favorable customer and product mix. Third-party asphalt sales were up \$10 million year-over-year.

EBIT

2018 Compared to 2017: In our Roofing segment, EBIT was \$101 million lower in 2018 than in 2017. Higher selling prices of \$127 million more than offset \$70 million of asphalt inflation and higher transportation costs of \$28 million. The impact of lower sales volumes and other input cost inflation contributed to the year-over-year decrease.

2017 Compared to 2016: In our Roofing segment, EBIT was \$49 million higher in 2017 than in 2016. The increase was primarily driven by higher sales volumes and higher selling prices. Our early-second quarter 2016 acquisition of InterWrap contributed \$20 million of EBIT (and was included in the other comparison categories following the one-year post-acquisition period). These benefits were partially offset by \$55 million of input cost inflation (about two-thirds of which was related to asphalt), \$14 million of higher logistics costs, \$8 million of lower EBIT on third-party asphalt sales (resulting from a lag in the timing of input cost inflation and price increases) and slightly higher marketing costs.

OUTLOOK

In our Roofing business, we expect the factors that have driven margins in recent years, such as growth from new construction and reroof demand, along with higher sales of roofing components, to continue to deliver profitability. Uncertainties that may impact our Roofing margins include demand from storm and other weather events, competitive pricing pressure and the cost and availability of raw materials, particularly asphalt.

Table of Contents

-29-

ITEM MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF
7. OPERATIONS (continued)

Corporate, Other and Eliminations

The table below provides a summary of EBIT and depreciation and amortization expense for the Corporate, Other and Eliminations category (in millions):

	Twelve Months Ended		
	December 31,		
	2018	2017	2016
Restructuring costs	\$(22)	\$(48)	\$(28)
Acquisition-related costs	(16)	(15)	(9)
Recognition of acquisition inventory fair value step-up	(2)	(5)	(10)
Litigation settlement gain, net of legal fees	—	29	—
Pension settlement losses	—	(64)	—
Environmental liability charges	—	(15)	—
General corporate expense and other	(114)	(148)	(130)
EBIT	\$(154)	\$(266)	\$(177)
Depreciation and amortization	\$49	\$53	\$53
EBIT			

2018 Compared to 2017: In Corporate, Other and Eliminations, EBIT losses in 2018 were \$112 million lower compared to 2017, primarily due to the comparison against pension settlement losses, environmental liability charges, and higher restructuring costs in 2017, and lower general corporate expenses in 2018. Costs related to our acquisitions (including the inventory fair value step-up recognition) were relatively flat to the prior year. See details of these costs in the table above and further explained in the Restructuring and Acquisition-Related Costs paragraph of MD&A. General corporate expense and other in 2018 was \$34 million lower than in 2017, primarily driven by \$23 million of lower performance-based compensation and higher foreign exchange gains.

2017 Compared to 2016: In Corporate, Other and Eliminations, EBIT losses in 2017 were \$89 million higher compared to 2016, primarily due to pension settlement losses and environmental liability charges in 2017, higher restructuring costs and higher general corporate expenses, which were partially offset by a litigation settlement gain in 2017. Costs related to our acquisitions (including the inventory fair value step-up recognition) were relatively flat to the prior year. See details of these costs in the table above and further explained in the Restructuring and Acquisition-Related Costs paragraph of MD&A.

General corporate expense and other in 2017 was \$18 million higher than in 2016, primarily driven by increased general corporate expenses and slightly higher performance-based compensation. The year-over-year comparison was further negatively impacted by the \$6 million pension-related gain that was recognized in 2016.

OUTLOOK

In 2019, we expect general corporate expenses to range between \$140 million and \$150 million due to the reset of performance-based compensation.

SAFETY

Working safely is a condition of employment at Owens Corning. We believe this organization-wide expectation provides for a safer work environment for employees, improves our manufacturing processes, reduces our costs and enhances our reputation. Furthermore, striving to be a world-class leader in safety provides a platform for all employees to understand and apply the resolve necessary to be a high-performing, global organization. We measure our progress on safety based on Recordable Incidence Rate ("RIR") as defined by the United States Department of Labor, Bureau of Labor Statistics. For the year ended December 31, 2018, our RIR was 0.52, which was similar to the

rate from a year ago.

Table of Contents

-30-

ITEM MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF
7. OPERATIONS (continued)

LIQUIDITY, CAPITAL RESOURCES AND OTHER RELATED MATTERS

Liquidity

The Company's primary external sources of liquidity are its Senior Revolving Credit Facility and its Receivables Securitization Facility.

The Company has an \$800 million senior revolving credit facility (the "Senior Revolving Credit Facility") with a maturity date in May 2023. In May 2018, the Company entered into a new credit agreement to extend its maturity to May 2023 and remove the \$600 million of uncommitted incremental loans permitted under the facility. The new agreement also removed all subsidiaries of the Company as guarantors under the Senior Revolving Credit Facility, unless certain conditions precedent are met that do not exist at this time.

The Company has a \$280 million securitization facility (the "Receivables Securitization Facility") that has been amended from time to time, which matures in May 2020. The facility was most recently amended in April 2018 to increase the borrowing limit from \$250 million to \$280 million. No other significant terms impacting liquidity were amended.

The following table shows how the Company utilized its primary sources of liquidity (in millions):

	As of December 31, 2018	
	Senior Revolving Credit Facility	Receivables Securitization Facility
Facility size	\$800	\$ 280
Collateral capacity limitation on availability	n/a	—
Outstanding borrowings	—	75
Outstanding letters of credit	9	3
Availability on facility	\$791	\$ 202

The Company issued \$400 million of 2048 senior notes on January 25, 2018. Interest on these notes is payable semiannually in arrears on January 30 and July 30 each year, beginning on July 30, 2018. The proceeds from the 2048 senior notes, along with borrowings on a \$600 million term loan commitment and the Receivables Securitization Facility, were used to fund the purchase of Paroc in the first quarter of 2018.

The Company obtained two term loan commitments on October 27, 2017 for \$300 million and \$600 million, respectively, (collectively, the "Term Loan Commitments"). The Company entered into the Term Loan Commitments, in part, to pay a portion of the purchase price of the Paroc acquisition. The \$600 million term loan borrowing (the "Term Loan") requires minimum quarterly principal repayments and full repayment by February 2021. On February 12, 2018, the Company voluntarily reduced the entire \$300 million term loan commitment, thus eliminating the availability of credit under the facility.

The Receivables Securitization Facility and Senior Revolving Credit Facility mature in 2020 and 2023, respectively. The Company also has a Term Loan, which, as discussed in the paragraph above, requires minimum quarterly principal repayments and full repayment by February 2021. As of December 31, 2018, the Term Loan had \$500 million outstanding. The Company has no significant debt maturities of senior notes before 2022. As of December 31, 2018, the Company had \$3.4 billion of total debt and cash and cash equivalents of \$78 million.

Cash and cash equivalents held by foreign subsidiaries may be subject to foreign withholding taxes upon repatriation to the U.S. As of December 31, 2018 and December 31, 2017, the Company had \$67 million and \$101 million, respectively, in cash and cash equivalents in certain of its foreign subsidiaries. The Company continues to assert indefinite reinvestment in accordance with ASC 740 based on the laws as of enactment of the Tax Act and do not

provide for foreign withholding taxes on the undistributed earnings of our foreign subsidiaries.

As a holding company, we have no operations of our own and most of our assets are held by our direct and indirect subsidiaries. Dividends and other payments or distributions from our subsidiaries will be used to meet our debt service and other obligations and to enable us to pay dividends to our stockholders. Please refer to the Risk Factors disclosed in Item 1A of this Form 10-K for details on the factors that could inhibit our subsidiaries' abilities to pay dividends or make other distributions to the parent company.

Table of Contents

-31-

ITEM MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF
7. OPERATIONS (continued)

We expect that our cash on hand, coupled with future cash flows from operations and other available sources of liquidity, including our Senior Revolving Credit Facility and Receivables Securitization Facility, will provide ample liquidity to enable us to meet our cash requirements. Our anticipated uses of cash include capital expenditures, working capital needs, pension contributions, meeting financial obligations, payments of quarterly dividends as authorized by our Board of Directors, acquisitions and reducing outstanding amounts under the Senior Revolving Credit Facility and Receivables Securitization Facility.

We have outstanding share repurchase authorizations and will evaluate and consider repurchasing shares of our common stock, as well as strategic acquisitions, divestitures, joint ventures and other transactions to create stockholder value and enhance financial performance. Such transactions may require cash expenditures beyond current sources of liquidity or generate proceeds.

The credit agreements applicable to our Senior Revolving Credit Facility, Receivables Securitization Facility, and Term Loan contain various covenants that we believe are usual and customary. These covenants include a maximum allowed leverage ratio and a minimum required interest expense coverage ratio. We were in compliance with these covenants as of December 31, 2018.

Cash flows

The following table presents a summary of our cash balance, cash flows, and availability on credit facilities (in millions):

	Twelve Months Ended		
	December 31,		
	2018	2017	2016
Cash and cash equivalents	\$78	\$246	\$112
Cash provided by operating activities	\$803	\$1,016	\$943
Cash used for investing activities	\$(1,589)	\$(901)	\$(815)
Cash provided by (used for) financing activities	\$647	\$3	\$(88)
Availability on the Senior Revolving Credit Facility	\$791	\$791	\$791
Availability on the Receivables Securitization Facility	\$202	\$221	\$248

Cash and cash equivalents: In 2018, the balance of cash and cash equivalents decreased by \$168 million compared to 2017. The December 31, 2017 cash balance was high primarily due to cash that was retained to complete our Composites expansion in India in 2018 and prepare for our 2018 acquisition of Paroc.

Operating activities: In 2018, the Company generated \$803 million of cash from operating activities compared to \$1,016 million in 2017. The change in cash provided by operating activities was primarily due to an increase in operating assets and liabilities (mainly inventories) in 2018 compared to 2017.

Investing activities: The \$688 million increase in cash used for investing activities in 2018 compared to 2017 was primarily driven by higher spending on acquisitions year-over-year.

Financing activities: Net cash provided by financing activities in 2018 was \$647 million compared to \$3 million in 2017. The change year-over-year was primarily due to higher long-term debt inflows to fund the purchase of Paroc in 2018.

2019 Investments

Capital Expenditures: The Company will continue a balanced approach to the use of its cash flows. Operational cash flow will be used to fund the Company's growth and innovation. Capital expenditures in 2019 are expected to be approximately \$500 million.

Tax Net Operating Losses and U.S. Foreign Tax Credits

Upon emergence from bankruptcy and subsequent to the distribution of contingent stock and cash in January 2007, we generated a significant United States federal tax NOL of approximately \$3.0 billion. As of December 31, 2018 and

2017, our federal tax net operating losses remaining were \$0.4 billion and \$0.9 billion, respectively. The decrease in U.S. federal tax NOLs is primarily due to the impact of 2018 estimated taxable income. The company generated a significant U.S. FTC in 2017 of approximately \$161 million as a result of changes from the Tax Act. Our NOL and FTC carryforwards are subject to the limitations imposed under sections 382 and 383 of the Internal Revenue Code. These limits are triggered when a change in control occurs, and are computed based upon several variable factors including the share price of the Company's common stock on the date of the change in control. A change in control is generally defined as a cumulative change of more than 50% in the ownership positions of certain stockholders during a rolling three year period.

Table of Contents

-32-

ITEM MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF
7. OPERATIONS (continued)

In addition to the United States federal tax NOLs described above, we have NOLs in various state and foreign jurisdictions which totaled \$1.6 billion and \$0.4 billion as of December 31, 2018, respectively, and \$1.8 billion and \$0.5 billion as of December 31, 2017, respectively. The state and foreign NOL decreased from prior year based on our estimate of 2018 taxable income. The evaluation of the amount of NOLs and FTCs expected to be realized necessarily involves forecasting the amount of taxable income that will be generated in future years. In assessing the realizability of our deferred tax assets, we have not relied on any material future tax planning strategies. We have forecasted future results in accordance with the recently enacted Tax Act using estimates management believes to be reasonable, which are based on independent evidence such as expected trends resulting from certain leading economic indicators, such as global industrial production and new U.S. residential housing starts. In order to utilize our NOLs and U.S. FTCs, we estimate that the Company will need to generate future federal, state and foreign earnings before taxes of approximately \$1.3 billion, \$1.9 billion and \$0.4 billion, respectively. Management believes the Company will generate sufficient future taxable income within the statutory limitations in order to fully realize the carrying value of its U.S. federal NOLs. As of December 31, 2018, a valuation allowance was established for U.S. FTC carryforwards and certain state and foreign jurisdictions' NOL carryforwards.

The realization of deferred income tax assets is dependent on future events. Actual results inevitably will vary from management's forecasts. Should we determine that it is likely that our deferred income tax assets are not realizable, we would be required to reduce our deferred tax assets reflected on our Consolidated Financial Statements to the net realizable amount by establishing an accounting valuation allowance and recording a corresponding charge to current earnings. Such adjustments could be material to the financial statements. To date, we have recorded valuation allowances against certain of these deferred tax assets totaling \$78 million as of December 31, 2018.

Pension contributions

Please refer to Note 14 of the Consolidated Financial Statements. The Company has several defined benefit pension plans. The Company made cash contributions of \$40 million and \$72 million to the plans during the twelve months ended December 31, 2018 and 2017, respectively. The Company expects to contribute \$39 million in cash to its pension plans during 2019. Actual contributions to the plans may change as a result of several factors, including changes in laws that impact funding requirements. The ultimate cash flow impact to the Company, if any, of the pension plan liability and the timing of any such impact will depend on numerous variables, including future changes in actuarial assumptions, legislative changes to pension funding laws, and market conditions.

Derivatives

Please refer to Note 5 of the Consolidated Financial Statements.

Fair Value Measurement

Please refer to Notes 1, 5, and 13 of the Consolidated Financial Statements.

OFF-BALANCE-SHEET ARRANGEMENTS

The Company has entered into limited off-balance-sheet arrangements, as defined under Securities and Exchange Commission rules, in the ordinary course of business. The Company does not believe these arrangements will have a material effect on the Company's financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources.

Table of Contents

-33-

ITEM MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF
7. OPERATIONS (continued)

CONTRACTUAL OBLIGATIONS

In the ordinary course of business, the Company enters into contractual obligations to make cash payments to third parties. The Company's known contractual obligations as of December 31, 2018 are as follows (in millions):

	Payments due by period						Total
	2019	2020	2021	2022	2023	2024 and Beyond	
Long-term debt obligations	\$5	\$135	\$435	\$600	\$—	\$ 2,210	\$3,385
Interest on variable rate debt (1), fixed rate debt, capital lease payments	152	149	132	129	103	1,482	2,147
Capital lease obligations	4	5	5	4	3	6	27
Operating lease obligations	83	64	47	31	18	27	270
Purchase obligations (2)	246	77	73	63	58	77	594
Deferred acquisition payments	2	1	3	—	—	—	6
Pension contributions (3)	39	—	—	—	—	—	39
Total (4)	\$531	\$431	\$695	\$827	\$182	\$ 3,802	\$6,468

(1) Interest on variable rate debt is calculated using LIBOR rates as of December 31, 2018 plus a facility credit spread for all future periods.

Purchase obligations are commitments to suppliers to purchase goods or services, and include take-or-pay arrangements, capital expenditures, and contractual commitments to purchase equipment. The Company did not (2) include ordinary course of business purchase orders in this amount as the majority of such purchase orders may be canceled and are reflected in historical operating cash flow trends. The Company does not believe such purchase orders will adversely affect our liquidity position.

Pension contributions include estimated contributions for our defined benefit pension plans. The Company is not (3) presenting estimated payments in the table above beyond 2019 as funding can vary significantly from year to year based upon changes in the fair value of plan assets, funding regulations and actuarial assumptions.

The Company has not included its accounting for uncertainty in income taxes liability in the contractual obligation (4) table as the timing of payment, if any, cannot be reasonably estimated. The balance of this liability at December 31, 2018 was \$29 million.

CRITICAL ACCOUNTING ESTIMATES

Our discussion and analysis of our financial condition and results of operations is based upon our Consolidated Financial Statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. On an ongoing basis, management evaluates its estimates and judgments related to these assets, liabilities, revenues and expenses. We believe these estimates to be reasonable under the circumstances. Management bases its estimates and judgments on historical experience, expected future outcomes, and on various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

The Company believes that the following accounting estimates are critical to our financial results:

Tax Estimates. The determination of our tax provision is complex due to operations in several tax jurisdictions outside the United States. We apply a more-likely-than-not recognition threshold for all tax uncertainties. Such uncertainties

include any claims by the Internal Revenue Service for income taxes, interest, and penalties attributable to audits of open tax years.

In addition, we record a valuation allowance to reduce our deferred tax assets to the amount that we believe is more likely than not to be realized. We estimate future taxable income and the effect of tax planning strategies in our consideration of whether deferred tax assets will more likely than not be realized. In the event we were to determine that we would not be able to realize all or part of our net deferred tax assets in the future, an adjustment to reduce the net deferred tax assets would be charged to

Table of Contents

-34-

ITEM MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF
7. OPERATIONS (continued)

earnings in the period such determination was made. Conversely, if we were to determine that we would be able to realize our net deferred tax assets in the future in excess of their currently recorded amount, an adjustment to increase the net deferred tax assets would be credited to earnings in the period such determination was made.

Impairment of Assets. The Company exercises judgment in evaluating assets for impairment. Goodwill and other indefinite-lived intangible assets are tested for impairment annually, or when circumstances arise which indicate there may be an impairment. Long-lived assets are tested for impairment when economic conditions or management decisions indicate an impairment may exist. These tests require comparing recorded values to estimated fair values for the assets under review.

The Company has recorded its goodwill and conducted testing for potential goodwill impairment at a reporting unit level. Our reporting units represent a business for which discrete financial information is available and segment management regularly reviews the operating results. The Company has three reporting units: Composites, Insulation and Roofing. The following table summarizes the segment allocation of recorded goodwill on our Consolidated Balance Sheet (in millions):

Segment	December 31, 2018	Percent of Total
Composites	\$ 57	3 %
Insulation	1,495	77 %
Roofing	397	20 %
Total goodwill	\$ 1,949	100 %

Goodwill is an intangible asset that is not subject to amortization; however, annual tests are required to be performed to determine whether impairment exists. Prior to performing the two-step impairment process described in ASC 350-20, the guidance permits companies to assess qualitative factors to determine if it is more likely than not that a reporting unit's fair value is less than its carrying value. If, based on the review of the qualitative factors, we determine it is not more likely than not that the fair value of a reporting unit is less than its carrying value, we would bypass the two-step impairment test. Events and circumstances we consider in performing the qualitative assessment include macro-economic conditions, market and industry conditions, internal cost factors, and the operational stability and the overall financial performance of the reporting units. If it is more likely than not that a reporting unit's fair value is greater than its carrying value, then no additional testing is required. If it is more likely than not that a reporting unit's fair value is less than or close to its carrying value, then step one of the impairment test must be performed to determine if impairment is required.

In 2018, the Company has elected to perform the qualitative approach on its Roofing and Composites reporting units, and proceeded in performing a step one analysis for the Insulation reporting unit. After evaluating and weighing all relevant events and circumstances, we concluded that it is not more likely than not that the fair value of the Roofing and Composites reporting units was less their carrying amounts. Consequently, we did not perform a step one quantitative analysis for the Roofing and Composites reporting units and determined goodwill was not impaired for 2018.

As part of our quantitative testing process for goodwill of the Insulation reporting unit, we estimated fair values using a discounted cash flow approach from the perspective of a market participant. Significant estimates in the discounted cash flow approach are cash flow forecasts of the reporting unit, the discount rate, the terminal business value and the projected income tax rate. The cash flow forecasts of the reporting unit are based upon management's long-term view of our markets and are the forecasts that are used by senior management and the Board of Directors to evaluate operating performance. The discount rate utilized is management's estimate of what the market's weighted average cost of capital is for a company with a similar debt rating and stock volatility, as measured by beta. The projected income tax rates utilized are the statutory tax rates for the countries where the reporting unit operates. The terminal business

value is determined by applying a business growth factor to the latest year for which a forecast exists. As part of our goodwill quantitative testing process, the Company evaluates whether there are reasonably likely changes to management's estimates that would have a material impact on the results of the goodwill impairment testing.

Our annual test of goodwill for impairment was conducted as of October 1, 2018. The fair value of the Insulation reporting unit was significantly in excess of its carrying value and, thus, no impairment exists.

Other indefinite-lived intangible assets are the Company's trademarks. Fair values used in testing for potential impairment of our trademarks are calculated by applying an estimated market value royalty rate to the forecasted revenues of the businesses that utilize those assets. The assumed cash flows from this calculation are discounted using the Company's weighted average cost of capital. Our annual test of indefinite-lived intangibles was conducted as of October 1, 2018. The fair value of each of our indefinite-

Table of Contents

-35-

ITEM MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF
7. OPERATIONS (continued)

lived intangible assets was in excess of its carrying value and thus, no impairment exists. The fair value of these assets substantially exceeded the carrying value as of the date of our assessment.

Fair values for long-lived asset testing are calculated by estimating the undiscounted cash flows from the use and ultimate disposition of the asset or by estimating the amount that a willing third party would pay. For impairment testing, long-lived assets are grouped at the lowest level for which identifiable cash flows are largely independent of the cash flows of other groups of assets and liabilities. The Company groups long-lived assets based on manufacturing facilities that produce similar products either globally or within a geographic region. Management tests asset groups for potential impairment whenever events or changes in circumstances indicate that the carrying value may not be recoverable. Current market conditions have caused the Company to have idle capacity. We consider such temporary idled capacity to be unimpaired because there has not been a significant change in the forecasted long-term cash flows at the asset group level to indicate that the carrying values may not be recoverable. While management's current strategy is to utilize this capacity to meet expected future demand, any significant decrease in this expectation or change in management's strategy could result in future impairment charges related to this excess capacity. We evaluated and concluded that there are not any reasonably likely changes to management's estimates that would indicate that the carrying value of our long-lived assets is unrecoverable.

In addition, changes in management intentions, market conditions, operating performance and other similar circumstances could affect the assumptions used in these impairment tests. Changes in the assumptions could result in impairment charges that could be material to our Consolidated Financial Statements in any given period.

Pensions and Other Postretirement Benefits. Accounting for pensions and other postretirement benefits involves estimating the cost of benefits to be provided well into the future and attributing that cost over the time period each employee works. To accomplish this, extensive use is made of assumptions about investment returns, discount rates, inflation, mortality, turnover, and medical costs. Changes in assumptions used could result in a material impact to our Consolidated Financial Statements in any given period.

Two key assumptions that could have a significant impact on the measurement of pension liabilities and pension expense are the discount rate and the expected return on plan assets. For our largest plan, the United States plan, the discount rate used for the December 31, 2018 measurement date was derived by matching projected benefit payments to bond yields obtained from the Towers Watson proprietary United States RATE:Link 40-90 pension discount curve developed as of the measurement date. The Towers Watson United States RATE:Link 40-90 pension discount curve is based on certain corporate bonds rated AA whose weighted average yields lie within the 40th to 90th percentiles of the bonds considered. Corporate bonds are considered to be AA graded if they receive an AA (or equivalent) rating from either or both of the two primary rating agencies in a given geography. For this purpose, we reference the two agencies with the highest ratings coverage for bonds in each region. Those two agencies are Standard and Poor's and Moody's.

The result supported a discount rate of 4.25% at December 31, 2018 compared to 3.55% at December 31, 2017. A 25 basis point increase (decrease) in the discount rate would decrease (increase) the December 31, 2018 projected benefit obligation for the United States pension plan by approximately \$23 million. A 25 basis point increase (decrease) in the discount rate would decrease (increase) 2019 net periodic pension cost by less than \$1 million.

The expected return on plan assets in the United States was derived by taking into consideration the target plan asset allocation, historical rates of return on those assets, projected future asset class returns and net outperformance of the market by active investment managers and plan related and investment related expenses paid from the plan trust. The Company uses the target plan asset allocation because we rebalance our portfolio to target on a quarterly basis. An asset return model was used to develop an expected range of returns on plan investments over a 20 year period, with the expected rate of return selected from a best estimate range within the total range of projected results. This process resulted in the selection of an expected return of 6.75% at the December 31, 2018 measurement date, which is used to determine net periodic pension cost for the year 2019. This assumption is consistent with the 6.75% return selected at

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the December 31, 2017 measurement date. A 25 basis point increase (decrease) in return on plan assets assumption would result in a respective decrease (increase) of 2019 net periodic pension cost by approximately \$2 million.

The discount rate for our United States postretirement plan was selected using the same method as described for the pension plan. The result supported a discount rate of 4.15% at December 31, 2018 compared to 3.45% at December 31, 2017. A 25 basis point increase (decrease) in the discount rate would decrease (increase) the United States postretirement benefit obligation by approximately \$4 million and decrease (increase) 2019 net periodic postretirement benefit cost by less than \$1 million.

The methods corresponding to those described above are used to determine the discount rate and expected return on assets for non-U.S. pension and postretirement plans, to the extent applicable.

Table of Contents

-36-

ITEM MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF
7. OPERATIONS (continued)

RECENT ACCOUNTING PRONOUNCEMENTS

Please refer to Note 1 of the Consolidated Financial Statements.

ENVIRONMENTAL MATTERS

Please refer to Note 16 of the Consolidated Financial Statements.

Table of Contents

-37-

ITEM MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF
7. OPERATIONS (continued)

CAUTIONARY STATEMENT CONCERNING FORWARD-LOOKING STATEMENTS

Our disclosures and analysis in this report, including Management’s Discussion and Analysis of Financial Condition and Results of Operations, contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934 (the "Exchange Act"). Forward-looking statements present our current forecasts and estimates of future events. These statements do not strictly relate to historical or current results and can be identified by words such as “anticipate,” “appear,” “assume,” “believe,” “estimate,” “expect,” “forecast,” “intend,” “likely,” “may,” “plan,” “project,” “seek,” “should,” “strategy,” “will” and other terms of similar meaning or import in connection with any discussion of future operating, financial or other performance. These forward-looking statements are subject to risks, uncertainties and other factors and actual results may differ materially from those results projected in the statements. These risks, uncertainties and other factors include, without limitation:

- levels of residential and commercial construction activity;
- relationships with key customers and customer concentration in certain areas;
- competitive and pricing factors;
- levels of global industrial production;
- demand for our products;
- industry and economic conditions that affect the market and operating conditions of our customers, suppliers or lenders;
- domestic and international economic and political conditions, policies or other governmental actions, legislation and related regulations or interpretations, in the United States or elsewhere;
- changes to tariff, trade or investment policies or laws;
- foreign exchange and commodity price fluctuations;
- our level of indebtedness;
- weather conditions;
- issues involving implementation and protection of information technology systems;
- availability and cost of credit;
- the level of fixed costs required to run our business;
- availability and cost of energy and raw materials;
- labor disputes or shortages, or loss of key employees;
- environmental, product-related or other legal and regulatory liabilities, proceedings or, actions;
- our ability to utilize our net operating loss carryforwards;
- research and development activities and intellectual property protection;
- interest rate movements;
- uninsured losses;
- issues related to acquisitions, divestitures and joint ventures;
- achievement of expected synergies, cost reductions and/or productivity improvements;
- levels of goodwill or other indefinite-lived intangible assets;
- defined benefit plan funding obligations; and
- price volatility in certain wind energy markets in the U.S;

All forward-looking statements in this report should be considered in the context of the risks and other factors described in the Risk Factors outlined in Item 1A above, and as detailed from time to time in the Company’s filings with the U.S. Securities and Exchange Commission. Any forward-looking statements speak only as of the date the statement is made and we undertake no

Table of Contents

-38-

ITEM MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF
7. OPERATIONS (continued)

obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise except as required by federal securities laws. It is not possible to identify all of the risks, uncertainties and other factors that may affect future results. In light of these risks and uncertainties, the forward-looking events and circumstances discussed in this report may not occur and actual results may differ materially from those anticipated or implied in the forward-looking statements. Accordingly, users of this report are cautioned not to place undue reliance on the forward-looking statements.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The Company is exposed to the impact of changes in foreign currency exchange rates, interest rates and the prices of various commodities used in the normal course of business. To mitigate some of the near-term volatility in our earnings and cash flows, the Company manages certain of our exposures through the use of financial contracts, contracts for physical delivery of a particular commodity, and derivative financial instruments. The Company's objective with these instruments is to reduce exposure to near-term fluctuations in earnings and cash flows. The Company's policy enables the use of foreign currency, interest rate and commodity derivative financial instruments only to the extent necessary to manage exposures as described above. The Company does not enter into such transactions for trading purposes.

A discussion of the Company's accounting policies for derivative financial instruments, as well as the Company's exposure to market risk, is included in Notes 1 and 5 to the Consolidated Financial Statements. Please refer to Note 5 for details of the fair values of derivative financial instruments and their classification on the Consolidated Balance Sheets.

For purposes of disclosing the market risk inherent in its derivative financial instruments the Company uses sensitivity analysis disclosures that express the potential loss in fair values of market rate sensitive instruments resulting from changes in interest rates, foreign currency exchange rates, and commodity prices that assume instantaneous, parallel shifts in exchange rates, interest rate yield curves, and commodity prices. The following analysis provides such quantitative information regarding market risk. There are certain shortcomings inherent in the sensitivity analysis presented, primarily due to the assumption that exchange rates change instantaneously and that interest rates change in a parallel fashion. In addition, the analyses are unable to reflect the complex market reactions that normally would arise from the market shifts modeled.

Foreign Exchange Rate Risk

The Company has transactional foreign currency exposures related to buying, selling, and financing in currencies other than the local currencies in which it operates. The Company enters into various forward contracts, which change in value as foreign currency exchange rates change, to preserve the carrying amount of foreign currency-denominated assets, liabilities, commitments, and certain anticipated foreign currency transactions. Exposures are related to the United States Dollar primarily relative to the Brazilian Real, Chinese Yuan, European Euro, Indian Rupee, Japanese Yen, and South Korean Won exchange rates. Also, there are additional exposures related to the European Euro primarily versus the Russian Ruble, Swedish Krona, and Swiss Franc. These transactional risks are mitigated through the use of derivative financial instruments and balancing of cash deposits and loans. The net fair value of derivative financial instruments used to limit exposure to foreign currency risk was less than \$8 million and less than \$1 million as of December 31, 2018 and 2017, respectively. As of December 31, 2018, the potential change in fair value for such financial instruments from an increase (decrease) of 10% in the quoted foreign currency exchange rates would be a (decrease) increase of approximately \$45 million and \$44 million, respectively. As of December 31, 2017, the potential change in fair value for such financial instruments from an increase (decrease) of 10% in the quoted foreign currency exchange rates would be a (decrease) increase of less than \$1 million. The increased exposure from the prior year is due to the forwards the Company entered into due to the Paroc acquisition.

We have translation exposure resulting from translating the financial statements of foreign subsidiaries into United States dollars. Our most significant translation exposures are the Canadian Dollar, Chinese Yuan, European Euro,

Indian Rupee, and Polish Zloty in relation to the United States Dollar. The Company has hedged a portion of the net investment in foreign subsidiaries against fluctuations in the European Euro through derivative financial instruments. The net fair value of these instruments was \$8 million and \$31 million as of December 31, 2018 and 2017, respectively. As of December 31, 2018 and 2017, the potential change in fair value for such financial instruments from an increase (decrease) of 10% in the quoted foreign currency exchange rates would be a (decrease) increase of approximately \$56 million and \$60 million, respectively.

Table of Contents

-39-

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK (continued)

Interest Rate Risk

The Company is subject to market risk from exposure to changes in interest rates due to its financing, investing, and cash management activities. The Company has a Senior Revolving Credit Facility, Receivables Securitization Facility, Term Loan, other floating rate debt and cash and cash equivalents which are exposed to floating interest rates and may impact cash flow. As of December 31, 2018, the Company had no borrowings on its Senior Revolving Credit Facility, \$75 million outstanding on its Receivables Securitization Facility, and \$500 million outstanding on its Term Loan, with the balance of other floating rate debt of \$16 million. As of December 31, 2017, the Company had no borrowings on its Senior Revolving Credit Facility or its Receivables Securitization Facility, with the balance of other floating rate debt of less than \$1 million. Cash and cash equivalents were \$78 million and \$246 million at December 31, 2018 and 2017, respectively. A one percentage point increase (decrease) in interest rates at December 31, 2018 and 2017 would increase (decrease) our annual net interest expense by \$6 million and less than \$1 million, respectively. The fair market value of the Company's senior notes are subject to interest rate risk. The following table shows how a one percentage point increase / decrease in interest rates would impact the fair market value of the senior notes:

	Senior Notes Maturity Year					
As of December 31, 2018:	2022	2024	2026	2036	2047	2048
Increase in interest rates						
Decrease in fair value	4%	5%	6%	10%	13%	13%
Decrease in interest rates						
Increase in fair value	4%	6%	7%	12%	16%	16%

	Senior Notes Maturity Year					
As of December 31, 2017:	2022	2024	2026	2036	2047	2048
Increase in interest rates						
Decrease in fair value	4%	6%	7%	11%	15%	n/a
Decrease in interest rates						
Increase in fair value	5%	6%	8%	13%	19%	n/a

Commodity Price Risk

The Company is exposed to changes in prices of commodities used in its operations, primarily associated with energy, such as natural gas, and raw materials, such as asphalt and polystyrene. The Company enters into cash-settled natural gas swap contracts in certain markets to protect against changes in natural gas prices that mature within 15 months; however, no financial instruments are currently used to protect against changes in raw material costs. At December 31, 2018 and 2017, the net fair value of such swap contracts was less than \$1 million. The potential change in fair value at December 31, 2018 and 2017 resulting from an increase (decrease) of 10% change in the underlying commodity prices would be an increase (decrease) of approximately \$1 million and \$2 million, respectively. This amount excludes the offsetting impact of the price risk inherent in the physical purchase of the underlying commodities.

Table of Contents

-40-

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Pages 51 through 103 of this filing are incorporated herein by reference.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

The Company maintains (a) disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act), and (b) internal control over financial reporting (as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act).

The Company's management, with the participation of the Company's Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the Company's disclosure controls and procedures as of the end of the period covered by this report. Based on such evaluation, the Company's Chief Executive Officer and Chief Financial Officer have concluded that, as of the end of such period, the Company's disclosure controls and procedures are effective.

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

On February 5, 2018, the Company completed its acquisition of Paroc. As a result, the Company's management excluded the operations of Paroc from its assessment of internal control over financial reporting as of December 31, 2018. Paroc represented 4% of the Company's consolidated Total assets as of December 31, 2018 and 7% of the Company's consolidated Net sales for the year ended December 31, 2018. SEC guidelines permit companies to omit an acquired entity's internal control over financial reporting from its management assessment during the first year of the acquisition. We plan to fully integrate Paroc into our internal control over financial reporting in 2019.

A report of the Company's management on the Company's internal control over financial reporting is contained on page 52 hereof and is incorporated here by reference. PricewaterhouseCoopers LLP's report on the effectiveness of internal control over financial reporting is included in the Report of Independent Registered Public Accounting Firm beginning on page 53 hereof.

ITEM 9B. OTHER INFORMATION

None.

Table of Contents

-41-

Part III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Information with respect to directors and corporate governance will be presented in the 2019 Proxy Statement in the sections titled "Information Concerning Directors," "Governance Information" and "Section 16(a) Beneficial Ownership Reporting Compliance," and such information is incorporated herein by reference.

Information with respect to executive officers is included herein under Part I, "Executive Officers of Owens Corning." Code of Ethics for Senior Financial Officers

Owens Corning has adopted an Ethics Policy for Chief Executive and Senior Financial Officers that applies to our Chief Executive Officer, Chief Financial Officer and Controller. This policy is available on our website (www.owenscorning.com) under "Corporate Governance" located in the "Investing in Owens Corning" section and print copies will be made available free of charge upon request to the Secretary of the Company. To the extent required by applicable SEC rules or New York Stock Exchange listing standards, the Company intends to post any amendments or waivers to the above referenced codes of ethics to our website, under the tab entitled "Corporate Governance".

ITEM 11. EXECUTIVE COMPENSATION

Information regarding executive officer and director compensation will be presented in the 2019 Proxy Statement under the section titled "Executive Compensation," exclusive of the subsection titled "Compensation Committee Report," and the section titled "2018 Non-Management Director Compensation," and such information is incorporated herein by reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Information regarding security ownership of certain beneficial owners and management and related stockholder matters, as well as equity compensation plan information, will be presented in the 2019 Proxy Statement under the sections titled "Security Ownership of Certain Beneficial Owners and Management" and "Securities Authorized for Issuance Under Equity Compensation Plans," and such information is incorporated herein by reference.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, DIRECTOR INDEPENDENCE

Information regarding certain relationships and related transactions and director independence will be presented in the 2019 Proxy Statement under the sections titled "Review of Transactions with Related Persons," "Director Qualifications Standards" and "Director Independence," and such information is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

Information regarding principal accounting fees and services will be presented in the 2019 Proxy Statement under the sections titled "Principal Accountant Fees and Services," and such information is incorporated herein by reference.

Table of Contents

-42-

Part IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) DOCUMENTS FILED AS PART OF THIS REPORT

1. See Index to Consolidated Financial Statements on page 51 hereof.

2. See Index to Financial Statement Schedules on page 104 hereof.

EXHIBIT INDEX

Pursuant to the rules and regulations of the SEC, the Company has filed or incorporated by reference certain agreements as exhibits to this Annual Report on Form 10-K. These agreements may contain representations and warranties by the parties. These representations and warranties have been made solely for the benefit of the other party or parties to such agreements and (i) may have been qualified by disclosures made to such other party or parties, (ii) were made only as of the date of such agreements or such other date(s) as may be specified in such agreements and are subject to more recent developments, which may not be fully reflected in the Company's public disclosure, (iii) may reflect the allocation of risk among the parties to such agreements and (iv) may apply materiality standards different from what may be viewed as material to investors. Accordingly, these representations and warranties may not describe the Company's actual state of affairs at the date hereof and should not be relied upon.

Exhibit
Number

Description

- | | |
|-----|---|
| 2.1 | <u>Purchase Agreement, dated as of October 27, 2017, by and among Owens Corning Finland Oy, Parry Investment S.A. and the individuals party thereto (incorporated by reference to Exhibit 2.1 to Owens Corning's Current Report on Form 8-K (File No. 1-33100), filed February 5, 2018).</u> |
| 2.2 | <u>Amendment Agreement, dated February 2, 2018 related to the Purchase Agreement, dated October 27, 2017, by and among Owens Corning Finland Oy, Parry Investment S.A. and the individuals party thereto (incorporated by reference to Exhibit 2.1 to Owens Corning's Quarterly Report of Form 10-Q (File No. 1-33100) for the quarter ended March 31, 2018).</u> |
| 3.1 | <u>Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 of Owens Corning's Quarterly Report on Form 10-Q (File No. 1-33100), for the quarter ended March 31, 2016).</u> |
| 3.2 | <u>Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 to Owens Corning's Quarterly Report on Form 10-Q (File 1-33100), for the quarter ended March 31, 2016).</u> |
| 4.1 | <u>Indenture, dated as of October 31, 2006, by and among Owens Corning, each of the guarantors named therein and LaSalle Bank, National Association, as trustee (incorporated by reference to Exhibit 4.1 to Owens Corning's Current Report on Form 8-K (File No. 1-33100), filed November 2, 2006).</u> |
| 4.2 | <u>First Supplemental Indenture, dated as of April 13, 2007, by and among Owens Corning, each of the guarantors named therein and LaSalle Bank National Association, as trustee (incorporated by reference to Exhibit 4.1 to Owens Corning's Current Report on Form 8-K (File No. 1-33100), filed April 13, 2007).</u> |
| 4.3 | <u>Second Supplemental Indenture, dated as of December 12, 2007, by and among Owens Corning, each of the guarantors named therein and LaSalle Bank National Association, as trustee (incorporated by reference to Exhibit 4.3 to Owens Corning's Annual Report on Form 10-K (File No. 1-33100) for the year ended December 31, 2007).</u> |

4.4 Third Supplemental Indenture, dated as of April 24, 2008, by and among Owens Corning, each of the guarantors named therein and LaSalle Bank National Association, as trustee (incorporated by reference to Exhibit 4.1 to Owens Corning's Quarterly Report on Form 10-Q (File No. 1-33100) for the quarter ended June 30, 2008).

4.5 Fourth Supplemental Indenture, dated as of May 26, 2010, by and among Owens Corning, each of the guarantors named therein and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.1 to Owens Corning's Current Report on Form 8-K (File No. 1-33100), filed May 28, 2010).

4.6 Fifth Supplemental Indenture, dated as of October 3, 2016, by and among Owens Corning, each of the guarantors named therein and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.7 to Owens Corning's Annual Report on Form 10-K (File No. 1-33100) for the year ended December 31, 2017).

Table of Contents

-43-

- 4.7 Sixth Supplemental Indenture, dated as of February 27, 2017, by and among Owens Corning, each of the guarantors named therein and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.8 to Owens Corning's Annual Report n Form 10-K (File No. 1-33100) for the year ended December 31, 2017).
- 4.8 Seventh Supplemental Indenture, dated as of August 23, 2017, by and among Owens Corning, the guarantor named therein and Wells Fargo Bank, National Association, as successor trustee (incorporated by reference to Exhibit 4.5 to Owens Corning's Quarterly Report on Form 10-Q (File No. 1-33100), for the quarter ended September 30, 2017).
- 4.9 Indenture, dated as of June 2, 2009, between Owens Corning, certain of Owens Corning's subsidiaries and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.1 to Owens Corning's Registration Statement on Form S-3 (File No. 333-159689), filed June 3, 2009).
- 4.10 Second Supplemental Indenture, dated as of May 26, 2010, by and among Owens Corning, certain subsidiaries, and Wells Fargo Bank, National Association, as Trustee (incorporated by reference to Exhibit 4.2 to Owens Corning's Current Report on Form 8-K (File No. 1-33100), filed May 28, 2010).
- 4.11 Third Supplemental Indenture, dated as of October 22, 2012, by and among Owens Corning, certain subsidiaries, and Wells Fargo Bank, National Association, as successor Trustee (incorporated by reference to Exhibit 4.1 to Owens Corning's Current Form 8-K (File No. 1-33100), filed October 22, 2012).
- 4.12 Form of 4.200% Senior Notes due 2022 (incorporated by reference to Exhibit 4.1 to Owens Corning's Current Report on Form 8-K (File No. 1-33100), filed October 22, 2012).
- 4.13 Fourth Supplemental Indenture, dated as of November 12, 2014, by and among Owens Corning, the guarantors named therein and Wells Fargo Bank, National Association, as Trustee (incorporated by reference to Exhibit 4.1 to Owens Corning's Current Report on Form 8-K (File No. 1-33100) filed November12, 2014).
- 4.14 Form of 4.200% Senior Notes due 2024 (incorporated by reference to Exhibit 4.1 to Owens Corning's Current Report on Form 8-K (File No. 1-33100), filed November 12, 2014).
- 4.15 Fifth Supplemental Indenture, dated as of August 8, 2016, by and among the Company, the guarantors party thereto and Wells Fargo Bank, National Association, as Trustee (incorporated by reference to Exhibit 4.1 to Owens Corning's Current Report on Form 8-K (File No. 1-33100) filed August 8, 2016).
- 4.16 Form of 3.400% Senior Notes due 2026 (incorporated by reference to Exhibit 4.1 to Owens Corning's Current Report on Form 8-K (File No. 1-33100) filed August 8, 2016).
- 4.17 Sixth Supplemental Indenture, dated as of October 3, 2016, by and among Owens Corning, the guarantors party thereto and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.9 to Post-Effective Amendment No. 1 to Owens Corning's Registration Statement on Form S-3 (Registration No. 333-202011), filed June 21, 2017).

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- 4.18 Seventh Supplemental Indenture, dated as of February 27, 2017, by and among Owens Corning, the guarantors party thereto and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.10 to Post-Effective Amendment No. 1 to Owens Corning's Registration Statement on Form S-3 (Registration No. 333-202011), filed June 21, 2017).
- 4.19 Eighth Supplemental Indenture, dated as of June 26, 2017, by and among Owens Corning, the guarantors party thereto and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.1 to Owens Corning's Current Report on Form 8-K (File No. 1-33100), filed June 26, 2017).
- 4.20 Form of 4.300% Senior Notes due 2047 (incorporated by reference to Exhibit 4.2 to Owens Corning's Current Report on Form 8-K (File No. 1-33100), filed June 26, 2017).
- 4.21 Ninth Supplemental Indenture, dated as of August 23, 2017, by and among Owens Corning, the guarantor named therein and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.6 to Owens Corning's Quarterly Report on Form 10-Q (File No. 1-33100), for the quarter ended September 30, 2017).
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Table of Contents

-44-

- 4.22 Tenth Supplemental Indenture, dated as of January 25, 2018, by and among Owens Corning, the guarantors party thereto and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.1 to Owens Corning's Current Report on Form 8-K (File No. 1-33100), filed January 25, 2018).
- 4.23 Form of 4.400% Senior Notes due 2048 (incorporated by reference to Exhibit 4.2 to Owens Corning's Current Report on Form 8-K (File No. 1-33100), filed January 25, 2018).
- 10.1 First Amendment, dated April 12, 2018 related to the Second Amended and Restated Receivables Purchase Agreement, dated as of May 5, 2017 (incorporated by reference to Exhibit 10.1 to Owens Corning's Quarterly Report on Form 10-Q (File No. 1-33100) for the quarter ended March 31, 2018).
- 10.2 Credit Agreement, dated as of May 4, 2018, by and among the Company, the lenders signatory thereto and Wells Fargo Bank, National Association, as administrative agent (incorporated by reference to Exhibit 10.1 to Owens Corning's Current Report on Form 8-K (File No. 1-33100), filed May 4, 2018).
- 10.3 First Amendment to Term Loan Agreement, dated as of May 4, 2018, by and among the Company, the lenders signatory thereto and JPMorgan Chase Bank, N.A., as administrative agent (incorporated by reference to Exhibit 10.2 to Owens Corning's Current Report on Form 8-K (File No. 1-33100), filed May 4, 2018).
- 10.4 Amended and Restated Receivables Purchase Agreement dated as of December 16, 2011 (incorporated by reference to Exhibit 10.1 to Owens Corning's Current Report on Form 8-K (File No. 1-33100), filed December 19, 2011).
- 10.5 Second Amendment to Amended and Restated Receivables Purchase Agreement dated as of July 26, 2013 (incorporated by reference to Exhibit 10.1 to Owens Corning Current Report on Form 8-K (File No. 1-33100), filed July 29, 2013).
- 10.6 Sixth Amendment to the Amended and Restated Receivables Purchase Agreement, dated as of March 24, 2017 (incorporated by reference to Exhibit 10.36 to Owens Corning's Quarterly Report on Form 10-Q (File No. 1-33100), for the quarter ended March 31, 2017).
- 10.7 Second Amended and Restated Receivables Purchase Agreement, dated as of May 5, 2017 (incorporated by reference to Exhibit 10.1 to Owens Corning's Current Report on Form 8-K (File No. 1-33100), filed May 9, 2017).
- 10.8 First Amendment to Purchase and Sale Agreement, dated as of May 5, 2017, by and between Owens Corning Sales, LLC and Owens Corning Receivables LLC (incorporated by reference to Exhibit 10.2 to Owens Corning's Quarterly Report on Form 10-Q (File No. 1-33100), for the quarter ended June 30, 2017).
- 10.9 Amended and Restated Performance Guaranty, dated as of May 5, 2017 (incorporated by reference to Exhibit 10.3 to Owens Corning's Quarterly Report on Form 10-Q (File No. 1-33100), for the quarter ended June 30, 2017).

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10.10 Term Loan Agreement, dated as of June 8, 2017, by and among Owens Corning, the lenders referred to therein and Wells Fargo Bank, National Association, as administrative agent (incorporated by reference to Exhibit 10.4 to Owens Corning's Quarterly Report on Form 10-Q (File No. 1-33100), for the quarter ended June 30, 2017).

10.11 Term Loan Agreement, dated as of October 27, 2017, by and among Owens Corning, the lenders signatory thereto and JPMorgan Chase Bank, N.A., as administrative agent (incorporated by reference to Exhibit 10.13 to Owens Corning's Annual Report on Form 10-K (File No. 1-33100) for the year ended December 31, 2017).

10.12 364-Day Term Loan Agreement, dated as of October 27, 2017, by and among Owens Corning, the lenders signatory thereto and JPMorgan Chase Bank, N.A., as administrative agent (incorporated by reference to Exhibit 10.14 to the Owens Corning Annual Report on Form 10 – K (File No. 1-33100) for the year ended December 31, 2017).

10.13 Form of Key Management Severance Agreement for Executive Officers* (incorporated by reference to Exhibit 10.10 to Owens Corning's Annual Report on Form 10-K (File No. 1-33100) for the year ended December 31, 2013).*

10.14 Amended and Restated Key Management Severance Agreement with Michael H. Thaman (incorporated by reference to Exhibit 10 to Owens Corning Sales, LLC's Annual Report on Form 10-K (File No. 1-3660) for the year ended December 31, 2005).*

Table of Contents

-45-

- 10.15 Amendment, dated April 16, 2015, to Key Management Severance Agreement with Michael H. Thaman (incorporated by reference to Exhibit 10.31 to Owens Corning's Quarterly Report on Form 10-Q (File 1-33100), for the quarter ended March 31, 2015).*
- 10.16 Transition Agreement with Michael H. Thaman, dated January 3, 2019 (filed herewith).
- 10.17 Form of Directors' Indemnification Agreement (incorporated by reference to Exhibit 10.2 of Owens Corning's Current Report on Form 8-K (File No. 1-33100), filed November 2, 2006).
- 10.18 Owens Corning Long-Term Incentive Plan (incorporated by reference to Exhibit 10 to Owens Corning Sales, LLC's Quarterly Report on Form 10-Q (File No. 1-3660) for the quarter ended June 30, 2003).*
- 10.19 Owens Corning Executive Supplemental Benefit Plan, 2009 Restatement (incorporated by reference to Exhibit 10.28 to Owens Corning's annual report on Form 10-K (File No. 1-33100) for the year ended December 31, 2008).*
- 10.20 Owens Corning Supplemental Executive Retirement Plan, as amended and restated, effective as of January 1, 2009 (incorporated by reference to Exhibit 10.30 to Owens Corning's annual report on Form 10-K (File No. 1-33100) for the year ended December 31, 2008).*
- 10.21 Corporate Incentive Plan Terms Applicable to Key Employees Other Than Certain Executive Officers (incorporated by reference to Exhibit 10 to Owens Corning Sales, LLC's Quarterly Report on Form 10-Q (File No. 1-3660) for the quarter ended June 30, 1999).*
- 10.22 Corporate Incentive Plan Terms Applicable to Certain Executive Officers (As Amended and Restated as of January 1, 2016) (incorporated by reference to Exhibit 10.38 to Owens Corning's Quarterly Report on Form 10-Q (File No. 1-33100) for the quarter ended March 31, 2016).*
- 10.23 Owens Corning Deferred Compensation Plan, effective as of January 1, 2007 (incorporated by reference to Exhibit 10.5 to Owens Corning's Quarterly Report on Form 10-Q (File No. 1-33100) for the quarter ended March 31, 2007).*
- 10.24 First Amendment to the Owens Corning Deferred Compensation Plan, effective as of January 1, 2008 (incorporated by reference to Exhibit 10.33 to Owens Corning's annual report on Form 10-K (File No. 1-33100) for the year ended December 31, 2008).*
- 10.25 Owens Corning Amended and Restated Deferred Compensation Plan, effective as of January 1, 2014 (incorporated by reference to Exhibit 10.22 to Owens Corning's Annual Report on Form 10-K (File No. 1-33100) for the year ended December 31, 2013).*
- 10.26 Owens Corning 2010 Stock Plan (incorporated by reference to Exhibit 10.1 to Owens Corning's Current Report on Form 8-K (File No. 1-33100), filed April 23, 2010).*
- 10.27 Owens Corning 2013 Stock Plan (incorporated by reference to Annex C to Owens Corning's Proxy Statement (File No 1-33100), filed March 14, 2013).*

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- 10.28 Owens Corning 2016 Stock Plan (incorporated by reference to Exhibit 10.39 to Owens Corning's Quarterly Report on Form 10-Q (File No. 1-33100) for the quarter ended March 31, 2016).*
- 10.29 Owens Corning Employee Stock Purchase Plan, effective as of April 18, 2013, (incorporated by reference to Annex B to Owens Corning's Proxy Statement (File No. 1-33100), filed March 14, 2013).*
- 10.30 Form of Owens Corning 2013 Long Term Incentive Program Award Agreement for Option Award (incorporated by reference to Exhibit 10.27 to Owens Corning's Annual Report on Form 10-K (File No. 1-33100) for the year ended December 31, 2013).*
- 10.31 Form of Owens Corning 2013 Long Term Incentive Program Award Agreement for Performance Share Unit (incorporated by reference to Exhibit 10.28 to Owens Corning's Annual Report on Form 10-K (File No. 1-33100) for the year ended December 31, 2013).*
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Table of Contents

-46-

- 10.32 Form of Owens Corning 2016 Long Term Incentive Program Award Agreement for Performance Share Unit (incorporated by reference to Exhibit 10.29 to Owens Corning's Annual Report on Form 10-K (File No. 1-33100) for the year ended December 31, 2016).*
- 10.33 Form of Owens Corning 2018 Long Term Incentive Program Award Agreement for Performance Share Units (incorporated by reference to Exhibit 10.2 to Owens Corning's Quarterly Report on Form 10-Q (File No. 1-33100) for the quarter ended March 31, 2018).
- 10.34 Form of Owens Corning 2013 Long Term Incentive Program Award Agreement for Restricted Stock Unit (incorporated by reference to Exhibit 10.29 to Owens Corning's Annual Report on Form 10-K (File No. 1-33100) for the year ended December 31, 2013).*
- 10.35 Form of Owens Corning 2013 Long Term Incentive Program Award Agreement for Restricted Stock (incorporated by reference to Exhibit 10.30 to Owens Corning's Annual Report on Form 10-K (File No. 1-33100) for the year ended December 31, 2013).*
- 10.36 Form of Owens Corning 2018 Long Term Incentive Program Award Agreement for Restricted Stock (incorporated by reference to Exhibit 10.3 to Owens Corning's Quarterly Report on Form 10-Q (File No. 1-33100) for the quarter ended March 31, 2018).
- 10.37 Form of Deferred Stock Unit Award Agreement for Directors (incorporated by reference to Exhibit 10.32 to Owens Corning's Quarterly Report on Form 10-Q (File 1-33100), for the quarter ended June 30, 2015).*
- 10.38 Form of Long Term Incentive Program Award Agreement for Restricted Stock Unit (incorporated by reference to Exhibit 10.33 to Owens Corning's Quarterly Report on Form 10-Q (File 1-33100), for the quarter ended June 30, 2015).*
- 10.39 Form of Long Term Incentive Program Award Agreement for Performance Share Unit (incorporated by reference to Exhibit 10.34 to Owens Corning's Quarterly Report on Form 10-Q (File 1-33100), for the quarter ended June 30, 2015).*
- 10.40 Form of Long Term Incentive Program Award Agreement for Restricted Stock (incorporated by reference to Exhibit 10.35 to Owens Corning's Quarterly Report on Form 10-Q (File 1-33100), for the quarter ended June 30, 2015).*
- 21.1 Subsidiaries of Owens Corning (filed herewith).
- 23.1 Consent of PricewaterhouseCoopers LLP (filed herewith).
- 31.1 Certification of Chief Executive Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a) (filed herewith).
- 31.2 Certification of Chief Financial Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a) (filed herewith).

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32.1 [Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350.](#)

32.2 [Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350.](#)

101.INS XBRL Taxonomy Extension Schema

101.SCH XBRL Taxonomy Extension Schema

101.CAL XBRL Taxonomy Extension Calculation Linkbase

101.LAB XBRL Taxonomy Extension Label Linkbase

101.PRE XBRL Taxonomy Extension Presentation Linkbase

Table of Contents

-47-

Schedules have been omitted pursuant to Item 601(b)(2) of Regulation S-K. Owens Corning agrees to furnish
+ supplementally to the Securities and Exchange Commission a copy of any omitted schedule upon request.
Denotes management contract or compensatory plan or
*arrangement required to be filed as an exhibit pursuant to Form 10-K.

Owens Corning agrees to furnish to the U.S. Securities and Exchange Commission, upon request, copies of all instruments defining the rights of holders of long-term debt of Owens Corning where the total amount of securities authorized under each issue does not exceed 10% of the total assets of Owens Corning and its subsidiaries on a consolidated basis.

ITEM 16. FORM 10-K SUMMARY

None.

Table of Contents

-48-

SIGNATURES

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

OWENS CORNING

By /s/ Michael H. Thaman

February 20, 2019

Michael H. Thaman,

Chairman of the Board and Chief Executive Officer (Principal Executive Officer)

Table of Contents

-49-

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

/s/ Michael H. Thaman February 20, 2019
Michael H. Thaman,
Chairman of the Board
Chief Executive Officer and Director

/s/ Michael C. McMurray February 20, 2019
Michael C. McMurray,
Senior Vice President and
Chief Financial Officer

/s/ Kelly J. Schmidt February 20, 2019
Kelly J. Schmidt,
Vice President and Controller

/s/ Cesar Conde February 20, 2019
Cesar Conde,
Director

/s/ Adrienne Elsner February 20, 2019
Adrienne Elsner,
Director

/s/ J. Brian Ferguson February 20, 2019
J. Brian Ferguson,
Director

/s/ Ralph F. Hake February 20, 2019
Ralph F. Hake,
Director

/s/ Edward F. Lonergan February 20, 2019
Edward F. Lonergan,
Director

Table of Contents

-50-

/s/ Maryann T. Mannen February 20, 2019
Maryann T. Mannen,
Director

/s/ W. Howard Morris February 20, 2019
W. Howard Morris,
Director

/s/ Suzanne P. Nimocks February 20, 2019
Suzanne P. Nimocks,
Director

/s/ John D. Williams February 20, 2019
John D. Williams,
Director

Table of Contents

-51-

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

ITEM	PAGE
<u>Management's Report on Internal Control Over Financial Reporting</u>	<u>52</u>
<u>Report of Independent Registered Public Accounting Firm</u>	<u>53</u>
<u>Consolidated Statements of Earnings</u>	<u>55</u>
<u>Consolidated Statements of Comprehensive Earnings</u>	<u>56</u>
<u>Consolidated Balance Sheets</u>	<u>57</u>
<u>Consolidated Statements of Stockholders' Equity</u>	<u>58</u>
<u>Consolidated Statements of Cash Flows</u>	<u>59</u>
<u>Notes to Consolidated Financial Statements</u>	<u>60</u>
<u>1. Business and summary of significant accounting policies</u>	<u>60</u>
<u>2. Segment information</u>	<u>67</u>
<u>3. Revenue</u>	<u>69</u>
<u>4. Inventories</u>	<u>70</u>
<u>5. Derivative financial instruments</u>	<u>71</u>
<u>6. Goodwill and other intangible assets</u>	<u>74</u>
<u>7. Property, plant and equipment</u>	<u>75</u>
<u>8. Acquisitions</u>	<u>76</u>
<u>9. Operating leases</u>	<u>77</u>
<u>10. Total current liabilities</u>	<u>77</u>
<u>11. Warranties</u>	<u>78</u>
<u>12. Restructuring and acquisition-related costs</u>	<u>78</u>
<u>13. Debt</u>	<u>80</u>
<u>14. Pension plans</u>	<u>83</u>
<u>15. Postemployment and postretirement benefits other than pensions</u>	<u>89</u>
<u>16. Contingent liabilities and other matters</u>	<u>92</u>
<u>17. Stock compensation</u>	<u>93</u>
<u>18. Changes in accumulated other comprehensive deficit</u>	<u>97</u>
<u>19. Earnings per share</u>	<u>98</u>
<u>20. Income taxes</u>	<u>99</u>
<u>21. Quarterly financial information (unaudited)</u>	<u>103</u>

Table of Contents

-52-

Management's Report on Internal Control Over Financial Reporting

Management of the Company is responsible for establishing and maintaining adequate internal control over financial reporting as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934.

Management has assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2018 based on criteria established in the Internal Control-Integrated Framework in 2013 issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

On February 5, 2018, the Company completed its acquisition of Paroc. As a result, the Company's management excluded the operations of Paroc from its assessment of internal control over financial reporting as of December 31, 2018. Paroc represented 4% of the Company's consolidated Total assets as of December 31, 2018 and 7% of the Company's consolidated Net sales for the year ended December 31, 2018. SEC guidelines permit companies to omit an acquired entity's internal control over financial reporting from its management assessment during the first year of the acquisition. We plan to fully integrate Paroc into our internal control over financial reporting in 2019.

PricewaterhouseCoopers LLP has audited the effectiveness of the internal controls over financial reporting as of December 31, 2018 as stated in their Report of Independent Registered Public Accounting Firm on page 53 hereof. Based on our assessment, management determined that, as of December 31, 2018, the Company's internal control over financial reporting was effective.

/s/ Michael H. Thaman
Michael H. Thaman,
Chairman of the Board and Chief Executive Officer

February 20, 2019

/s/ Michael C. McMurray
Michael C. McMurray,
Senior Vice President and Chief Financial Officer

February 20, 2019

Table of Contents

-53-

Report of Independent Registered Public Accounting Firm
To the Board of Directors and Stockholders of Owens Corning:

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Owens Corning and its subsidiaries (the “Company”) as of December 31, 2018 and 2017, and the related consolidated statements of earnings, comprehensive earnings, stockholders’ equity, and cash flows for each of the three years in the period ended December 31, 2018, including the related notes and financial statement schedule of valuation and qualifying accounts and reserves appearing in the Index to Condensed Financial Statement Schedule (collectively referred to as the “consolidated financial statements”). We also have audited the Company's internal control over financial reporting as of December 31, 2018, 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, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018 in conformity with 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, 2018, 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 the accompanying Management's Report on Internal Control over Financial Reporting. 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.

As described in Management's Report on Internal Control over Financial Reporting, management has excluded Paroc (as defined in Note 8) from its assessment of internal control over financial reporting as of December 31, 2018 because it was acquired by the Company in a purchase business combination during 2018. We have also excluded Paroc from our audit of internal control over financial reporting. Paroc is a wholly-owned subsidiary whose total assets and total net sales excluded from management's assessment and our audit of internal control over financial reporting represent approximately 4% and 7%, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2018.

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

Table of Contents

-54-

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

Toledo, Ohio

February 20, 2019

We have served as the Company's auditor since 2002.

Table of Contents

-55-

OWENS CORNING AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF EARNINGS
(in millions, except per share amounts)

	Twelve Months Ended December 31,		
	2018	2017	2016
NET SALES	\$7,057	\$6,384	\$5,677
COST OF SALES	5,425	4,815	4,300
Gross margin	1,632	1,569	1,377
OPERATING EXPENSES			
Marketing and administrative expenses	700	620	584
Science and technology expenses	89	85	82
Other expenses, net	36	67	14
Total operating expenses	825	772	680
OPERATING INCOME	807	797	697
Non-operating (income) expense	(14)	60	(2)
EARNINGS BEFORE INTEREST AND TAXES	821	737	699
Interest expense, net	117	107	108
Loss on extinguishment of debt	—	71	1
EARNINGS BEFORE TAXES	704	559	590
Income tax expense	156	269	188
Equity in loss of affiliates	(1)	—	(3)
NET EARNINGS	547	290	399
Net earnings attributable to noncontrolling interests	2	1	6
NET EARNINGS ATTRIBUTABLE TO OWENS CORNING	\$545	\$289	\$393
EARNINGS PER COMMON SHARE ATTRIBUTABLE TO OWENS CORNING COMMON STOCKHOLDERS			
Basic	\$4.94	\$2.59	\$3.44
Diluted	\$4.89	\$2.55	\$3.41
Dividend	\$0.85	\$0.81	\$0.74
WEIGHTED AVERAGE COMMON SHARES			
Basic	110.4	111.5	114.4
Diluted	111.4	113.2	115.4

The accompanying Notes to the Consolidated Financial Statements are an integral part of this Statement.

Table of Contents

-56-

OWENS CORNING AND SUBSIDIARIES
 CONSOLIDATED STATEMENTS OF COMPREHENSIVE EARNINGS
 (in millions)

	Twelve Months Ended December 31,		
	2018	2017	2016
NET EARNINGS	\$547	\$290	\$399
Currency translation adjustment (net of tax of \$(4), \$15 and \$(2), for the periods ended December 31, 2018, 2017 and 2016, respectively)	(123)	101	(37)
Pension and other postretirement adjustment (net of tax of \$6, \$(32) and \$15, for the periods ended December 31, 2018, 2017 and 2016, respectively)	(19)	98	(10)
Hedging adjustment (net of tax of \$0, \$2 and \$(3), for the periods ended December 31, 2018, 2017 and 2016, respectively)	—	(3)	7
COMPREHENSIVE EARNINGS	405	486	359
Comprehensive earnings attributable to noncontrolling interests	2	1	6
COMPREHENSIVE EARNINGS ATTRIBUTABLE TO OWENS CORNING	\$403	\$485	\$353

The accompanying Notes to the Consolidated Financial Statements are an integral part of this Statement.

Table of Contents

-57-

OWENS CORNING AND SUBSIDIARIES
 CONSOLIDATED BALANCE SHEETS
 (in millions)

	December 31, 2018	December 31, 2017
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	\$ 78	\$ 246
Receivables, less allowances of \$16 at December 31, 2018 and \$19 at December 31, 2017	794	806
Inventories	1,072	841
Assets held for sale	3	12
Other current assets	73	80
Total current assets	2,020	1,985
Property, plant and equipment, net	3,811	3,425
Goodwill	1,949	1,507
Intangible assets, net	1,779	1,360
Deferred income taxes	43	144
Other non-current assets	169	211
TOTAL ASSETS	\$ 9,771	\$ 8,632
LIABILITIES AND EQUITY		
Total current liabilities	\$ 1,278	\$ 1,282
Long-term debt, net of current portion	3,362	2,405
Pension plan liability	268	256
Other employee benefits liability	190	225
Deferred income taxes	141	37
Other liabilities	208	223
OWENS CORNING STOCKHOLDERS' EQUITY		
Preferred stock, par value \$0.01 per share (a)	—	—
Common stock, par value \$0.01 per share (b)	1	1
Additional paid in capital	4,028	4,011
Accumulated earnings	2,013	1,575
Accumulated other comprehensive deficit	(656)	(514)
Cost of common stock in treasury (c)	(1,103)	(911)
Total Owens Corning stockholders' equity	4,283	4,162
Noncontrolling interests	41	42
Total equity	4,324	4,204
TOTAL LIABILITIES AND EQUITY	\$ 9,771	\$ 8,632

(a) 10 shares authorized; none issued or outstanding at December 31, 2018 and December 31, 2017

(b) 400 shares authorized; 135.5 issued and 109.5 outstanding at December 31, 2018; 135.5 issued and 111.5 outstanding at December 31, 2017

(c) 26.0 shares at December 31, 2018 and 24.0 shares at December 31, 2017

The accompanying Notes to the Consolidated Financial Statements are an integral part of this Statement.

Table of Contents

-58-

OWENS CORNING AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in millions)

	Common Stock Outstanding Shares	Par Value \$	Treasury Stock Shares	Cost \$	APIC (a)	Accumulated Earnings	AOCI (b)	NCI (c)	Total
Balance at December 31, 2015	115.9	\$ 1	19.6	\$(612)	\$3,965	\$ 1,055	\$(670)	\$ 40	\$3,779
Net earnings attributable to Owens Corning	—	—	—	—	—	393	—	—	393
Net earnings attributable to noncontrolling interests	—	—	—	—	—	—	—	6	6
Currency translation adjustment	—	—	—	—	—	—	(37)	(2)	(39)
Pension and other postretirement adjustment (net of tax)	—	—	—	—	—	—	(10)	—	(10)
Deferred gain on hedging transactions (net of tax)	—	—	—	—	—	—	7	—	7
Redeemable equity issued	—	—	—	—	(2)	—	—	—	(2)
Issuance of common stock under share-based payment plans	1.7	—	(1.7)	57	(20)	—	—	—	37
Purchases of treasury stock	(4.9)	—	4.9	(248)	—	—	—	—	(248)
Stock-based compensation expense	—	—	—	—	41	—	—	—	41
Cumulative effect of accounting change (d)	—	—	—	—	—	14	—	—	14
Dividends declared	—	—	—	—	—	(85)	—	(4)	(89)
Balance at December 31, 2016	112.7	\$ 1	22.8	\$(803)	\$3,984	\$ 1,377	\$(710)	\$ 40	\$3,889
Net earnings attributable to Owens Corning	—	—	—	—	—	289	—	—	289
Net earnings attributable to noncontrolling interests	—	—	—	—	—	—	—	1	1
Currency translation adjustment	—	—	—	—	—	—	101	4	105
Pension and other postretirement adjustment (net of tax)	—	—	—	—	—	—	98	—	98
Deferred gain on hedging transactions (net of tax)	—	—	—	—	—	—	(3)	—	(3)
Redeemable equity redeemed and changes in subsidiary shares from noncontrolling interests	—	—	—	—	2	—	—	(1)	1
Issuance of common stock under share-based payment plans	1.3	—	(1.3)	48	(19)	—	—	—	29
Purchases of treasury stock	(2.5)	—	2.5	(156)	—	—	—	—	(156)
Stock-based compensation expense	—	—	—	—	44	—	—	—	44
Dividends declared	—	—	—	—	—	(91)	—	(2)	(93)
Balance at December 31, 2017	111.5	\$ 1	24.0	\$(911)	\$4,011	\$ 1,575	\$(514)	\$ 42	\$4,204
Net earnings attributable to Owens Corning	—	—	—	—	—	545	—	—	545
	—	—	—	—	—	—	—	2	2

Net earnings attributable to noncontrolling interests									
Currency translation adjustment	—	—	—	—	—	—	(123)	(2)	(125)
Pension and other postretirement adjustment (net of tax)	—	—	—	—	—	—	(19)	—	(19)
Issuance of common stock under share-based payment plans	1.0	—	(1.0)	44	(30)	—	—	—	14
Purchases of treasury stock	(3.0)	—	3.0	(236)	—	—	—	—	(236)
Stock-based compensation expense	—	—	—	—	47	—	—	—	47
Cumulative effect of accounting change (e)	—	—	—	—	—	(12)	—	—	(12)
Dividends declared	—	—	—	—	—	(95)	—	(1)	(96)
Balance at December 31, 2018	109.5	\$ 1	26.0	\$(1,103)	\$4,028	\$ 2,013	\$(656)	\$ 41	\$4,324

(a) Additional Paid in Capital (APIC)

(b) Accumulated Other Comprehensive Earnings (Deficit) ("AOCI")

(c) Noncontrolling Interest ("NCI")

(d) Cumulative effect of accounting change relates to our adoption of ASU 2016-09 "Compensation - Stock

Compensation (Topic 718)."

(e) Cumulative effect of accounting change relates to our adoption of ASU 2014-09 "Revenue from Contracts with Customers (Topic 606)" and ASU 2016-16 "Intra-Entity Transfers of Assets Other Than Inventory (Topic 740)."

The accompanying Notes to the Consolidated Financial Statements are an integral part of this Statement.

Table of Contents

-59-

OWENS CORNING AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in millions)

	Twelve Months Ended December 31,		
	2018	2017	2016
NET CASH FLOW PROVIDED BY OPERATING ACTIVITIES			
Net earnings	\$547	\$290	\$399
Adjustments to reconcile net earnings to cash provided by operating activities:			
Depreciation and amortization	433	371	343
Deferred income taxes	141	183	136
Provision for pension and other employee benefits liabilities	—	74	11
Stock-based compensation expense	47	44	41
Loss on extinguishment of debt	—	71	1
Other adjustments to reconcile net earnings to cash provided by operating activities	(49)	18	4
Change in operating assets and liabilities:			
Changes in receivables, net	39	(66)	55
Changes in inventories	(216)	(57)	5
Changes in accounts payable and accrued liabilities	(89)	187	25
Changes in other operating assets and liabilities	7	(10)	(4)
Pension fund contributions	(40)	(72)	(63)
Payments for other employee benefits liabilities	(19)	(18)	(18)
Other	2	1	8
Net cash flow provided by operating activities	803	1,016	943
NET CASH FLOW USED FOR INVESTING ACTIVITIES			
Cash paid for property, plant and equipment	(537)	(337)	(373)
Derivative settlements	64	3	4
Proceeds from the sale of assets or affiliates	27	3	—
Investment in subsidiaries and affiliates, net of cash acquired	(1,143)	(570)	(452)
Other	—	—	6
Net cash flow used for investing activities	(1,589)	(901)	(815)
NET CASH FLOW PROVIDED BY (USED FOR) FINANCING ACTIVITIES			
Proceeds from senior revolving credit and receivables securitization facilities	1,954	1,133	669
Payments on senior revolving credit and receivables securitization facilities	(1,879)	(1,133)	(669)
Proceeds from term loan borrowing	600	—	300
Payments on term loan borrowing	(100)	—	(300)
Proceeds from long-term debt	389	588	395
Payments on long-term debt	—	(351)	(163)
Dividends paid	(92)	(89)	(81)
Net increase (decrease) in short-term debt	16	1	(6)
Purchases of treasury stock	(236)	(159)	(247)
Other	(5)	13	14
Net cash flow provided by (used for) financing activities	647	3	(88)
Effect of exchange rate changes on cash	(29)	17	(18)
Net (decrease) increase in cash, cash equivalents and restricted cash	(168)	135	22
Cash, cash equivalents and restricted cash at beginning of period	253	118	96

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CASH, CASH EQUIVALENTS AND RESTRICTED CASH AT END OF PERIOD	\$85	\$253	\$118
DISCLOSURE OF CASH FLOW INFORMATION			
Cash paid during the year for income taxes	\$91	\$67	\$69
Cash paid during the year for interest	\$158	\$106	\$118

The accompanying Notes to the Consolidated Financial Statements are an integral part of this Statement.

Table of Contents

-60-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. BUSINESS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Description of Business

Owens Corning, a Delaware corporation, is a leading global producer of glass fiber reinforcements and other materials for composite systems and of residential and commercial building materials. The Company operates within three segments: Composites, which includes the Company's Reinforcements and Downstream businesses; Insulation and Roofing. Through these lines of business, Owens Corning manufactures and sells products worldwide. The Company maintains leading market positions in many of its major product categories.

General

On February 7, 2019, the Board of Directors declared a quarterly dividend of \$0.22 per common share payable on April 2, 2019 to shareholders of record as of March 8, 2019.

Basis of Presentation

Unless the context requires otherwise, the terms "Owens Corning," "Company," "we" and "our" in these notes refer to Owens Corning and its subsidiaries.

The accompanying Consolidated Financial Statements have been prepared in accordance with accounting principles generally accepted in the United States.

Principles of Consolidation

The Consolidated Financial Statements of the Company include the accounts of majority-owned subsidiaries.

Intercompany accounts and transactions are eliminated.

Reclassifications

Certain reclassifications have been made to the 2017 and 2016 Consolidated Financial Statements and Notes to the Consolidated Financial Statements to conform to the classifications used in 2018.

Use of Estimates and Assumptions

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ materially from those estimates.

Revenue Recognition

We recognize revenue as the amount of consideration that we expect to receive in exchange for transferring promised goods or services to customers. We do not adjust the transaction price for the effects of a significant financing component, as the time period between control transfer of goods and services and expected payment is one year or less. At the time of sale, we estimate provisions for different forms of variable consideration (discounts, rebates, returns and other refund liabilities) based on historical experience, current conditions and contractual obligations, as applicable. The estimated transaction price is typically not subject to significant reversals. We adjust these estimates when the most likely amount of consideration we expect to receive changes, although these changes are typically minor. Sales, value-added and other similar taxes that we collect are excluded from revenue.

Many of our customer volume commitments are short-term and our performance obligations are generally limited to single purchase orders. Substantially all of our revenue is recognized at a point-in-time when control of goods transfers to the customer. Control transfer typically occurs when goods are shipped from our facilities or at other predetermined control transfer points (for instance, destination terms or consignment arrangements).

Table of Contents

-61-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

1. BUSINESS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (continued)

Revenue Recognition (continued)

We typically do not satisfy performance obligations without obtaining an unconditional right to payment from customers and, therefore, do not carry contract asset balances on the Consolidated Balance Sheets. Contract liability balances are recorded separately from receivables on the Consolidated Balance Sheets in either Accounts payable and accrued liabilities or Other liabilities, depending on the timing of performance obligation satisfaction.

We sell separately-priced warranties that extend certain product and workmanship coverages beyond our standard product warranty, which is described in Note 11. The up-front consideration on extended warranty contracts is deferred and recognized as revenue over time, based on the respective coverage period, ranging from 16 to 20 years. On an annual basis, we expect to recognize approximately \$2 million of revenue associated with these extended warranty contracts. Additionally, in certain limited cases, we receive consideration before goods or services are transferred to the customer. These customer down payments and deposits are deferred, and typically recognized as revenue in the following quarter when we satisfy the related performance obligations.

As a practical expedient, we recognize incremental costs of obtaining a contract, if any, as an expense when incurred if the amortization period of the asset would have been one year or less. We do not have any costs to obtain or fulfill a contract that are capitalized under ASC 606.

Cost of Sales

Cost of sales includes material, labor, energy and manufacturing overhead costs, including depreciation and amortization expense associated with the manufacture and distribution of the Company's products. Provisions for warranties are provided in the same period that the related sales are recorded and are based on historical experience, current conditions and contractual obligations, as applicable. Distribution costs include inbound freight costs; purchasing and receiving costs; inspection costs; warehousing costs; shipping and handling costs, which include costs incurred relating to preparing, packaging, and shipping products to customers; and other costs of the Company's distribution network. We account for shipping and handling activities that occur after control of the related good transfers as fulfillment activities instead of performance obligations. All shipping and handling costs billed to the customer are included as net sales in the Consolidated Statements of Earnings.

Marketing and Advertising Expenses

Marketing and advertising expenses are included in Marketing and administrative expenses. These costs include advertising and marketing communications, which are expensed the first time the advertisement takes place.

Marketing and advertising expenses for the years ended December 31, 2018, 2017 and 2016 were \$120 million, \$108 million and \$105 million, respectively.

Science and Technology Expenses

The Company incurs certain expenses related to science and technology. These expenses include salaries, building and equipment costs, utilities, administrative expenses, materials and supplies associated with the improvement and development of the Company's products and manufacturing processes. These costs are expensed as incurred.

Earnings per Share

Basic earnings per share are computed using the weighted-average number of common shares outstanding during the period. Diluted earnings per share reflect the dilutive effect of common equivalent shares and increased shares that would result from the conversion of equity securities. The effects of anti-dilution are not presented.

Cash, Cash Equivalents and Restricted Cash

The Company defines cash and cash equivalents as cash and time deposits with maturities of three months or less when purchased. On the Consolidated Statements of Cash Flows, the total of Cash, cash equivalents and restricted cash includes restricted cash of \$7 million, \$7 million and \$6 million as of December 31, 2018, 2017 and 2016, respectively. Restricted cash primarily represents amounts received from a counterparty related to its performance

assurance on an executory contract, and is included in Other current assets on the Consolidated Balance Sheets. These amounts are contractually required to be set aside, and the counterparty can exchange the cash for another form of performance assurance at its discretion.

Table of Contents

-62-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

1. BUSINESS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (continued)

Accounts Receivable

Trade accounts receivable are recorded at the invoiced amount and do not bear interest. The allowance for doubtful accounts is an estimate of the amount of probable credit losses in our existing accounts receivable. Account balances are charged off against the allowance when the Company believes it is probable the receivable will not be recovered.

Inventory Valuation

Inventory costs include material, labor, and manufacturing overhead costs, including depreciation and amortization expense associated with the manufacture and distribution of the Company's products. Inventories are stated at lower of cost or net realizable value and expense estimates are made for excess and obsolete inventories. Cost is determined by the first-in, first-out ("FIFO") method.

Investments in Affiliates

The Company accounts for investments in affiliates of 20% to 50% ownership when the Company does not have a controlling financial interest using the equity method under which the Company's share of earnings and losses of the affiliate is reflected in earnings and dividends are credited against the investment in affiliate when declared.

Investments in affiliates are recorded in Other non-current assets on the Consolidated Balance Sheets and as of December 31, 2018 and 2017, the total value of investments was \$51 million and \$52 million, respectively.

Goodwill and Other Intangible Assets

Goodwill assets are not amortized but are tested for impairment on at least an annual basis. In the current year, as part of the annual assessment, the Company used both a qualitative and quantitative approach to determine whether the fair value of a reporting unit was less than its carrying amount.

Events and circumstances we consider in performing the qualitative assessment include macro-economic conditions, market and industry conditions, internal cost factors, and the overall financial performance of the reporting units. As part of our quantitative testing process for goodwill, the Company estimates fair values using a discounted cash flow approach from the perspective of a market participant. Significant estimates in the discounted cash flow approach are cash flow forecasts of our reporting units, the discount rate, the terminal business value and the projected income tax rate. The cash flow forecasts of the reporting units are based upon management's long-term view of our markets and are the forecasts that are used by senior management and the Board of Directors to evaluate operating performance. The discount rate utilized is management's estimate of what the market's weighted average cost of capital is for a company with a similar debt rating and stock volatility, as measured by beta. The projected income tax rates utilized are the statutory tax rates for the countries where each reporting unit operates. The terminal business value is determined by applying a business growth factor to the latest year for which a forecast exists. As part of our goodwill quantitative testing process, we would evaluate whether there are reasonably likely changes to management's estimates that would have a material impact on the results of the goodwill impairment testing.

Other indefinite-lived intangible assets are not amortized but are tested for impairment on at least an annual basis or when determined to have a finite useful life. Substantially all of the indefinite-lived intangible assets are in trademarks and trade names. The Company uses the royalty relief approach to determine whether it is more likely than not that the fair value of these assets is less than its carrying amount. This review is performed annually, or when circumstances arise which indicate there may be impairment. When applying the royalty relief approach, the Company performs a discounted cash flow analysis based on the value derived from owning these trademarks and trade names and being relieved from paying royalty to third parties. Significant assumptions used include projected cash flows, royalty rates, discount rate, projected income tax rate and terminal business value.

The inputs for the goodwill and indefinite-lived intangible tests are considered Level 3 inputs under the fair value hierarchy as they are the Company's own data, and are unobservable in the marketplace. Indefinite-lived intangible assets purchased through acquisition are generally tested qualitatively for impairment in the first year following the

acquisition before transitioning to the standard methodology described herein in subsequent years. Identifiable intangible assets with a determinable useful life are amortized over that determinable life. Amortization expense for the years ended December 31, 2018, 2017 and 2016 was \$49 million, \$31 million and \$25 million, respectively. See Note 6 for further discussion.

Table of Contents

-63-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

1. BUSINESS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (continued)

Properties and Depreciation

Property, plant and equipment are stated at cost and depreciated over their estimated useful lives using the straight-line method. Property, plant and equipment accounts are relieved of the cost and related accumulated depreciation when assets are disposed of or otherwise retired.

Precious metals used in our production tooling are included in property, plant and equipment and are depleted as they are consumed during the production process. Depletion typically represents an annual expense of less than 3% of the outstanding value and is recorded in Cost of sales on the Consolidated Statements of Earnings.

For the years ended December 31, 2018, 2017 and 2016, depreciation expense was \$384 million, \$340 million and \$318 million, respectively. In 2018, 2017 and 2016, depreciation expense included \$10 million, \$17 million and \$19 million, respectively, of accelerated depreciation related to restructuring actions further explained in Note 12 to the Consolidated Financial Statements.

The range of useful lives for the major components of the Company's plant and equipment is as follows:

Buildings and leasehold improvements 15 – 40 years

Machinery and equipment

Furnaces 4 – 15 years

Information systems 5 – 10 years

Equipment 5 – 20 years

Expenditures for normal maintenance and repairs are expensed as incurred.

Asset Impairments

The Company evaluates tangible and intangible long-lived assets for impairment when triggering events have occurred. This requires significant assumptions including projected cash flows, projected income tax rate and terminal business value. These inputs are considered Level 3 inputs under the fair value hierarchy as they are the Company's own data, and are unobservable in the marketplace. Changes in management intentions, market conditions or operating performance could indicate that impairment charges might be necessary that would be material to the Company's Consolidated Financial Statements in any given period.

Income Taxes

The Company recognizes current tax liabilities and assets for the estimated taxes payable or refundable on the tax returns for the current year. Deferred tax balances reflect the impact of temporary differences between the carrying amount of assets and liabilities and their tax basis. Amounts are stated at enacted tax rates expected to be in effect when taxes are actually paid or recovered. In addition, realization of certain deferred tax assets is dependent upon our ability to generate future taxable income. The Company records a valuation allowance to reduce its deferred tax assets to the amount that it believes is more likely than not to be realized. In addition, the Company estimates tax reserves to cover potential taxing authority claims for income taxes and interest attributable to audits of open tax years. Please refer to Note 20 for information on the Company's application of SEC Staff Accounting Bulletin No. 118, "Income Tax Accounting Implications of the Tax Cuts and Jobs Act," ("SAB 118") on the estimates used to record the effects of the tax legislation commonly known as the U.S. Tax Cuts and Jobs Act of 2017 (the "Tax Act").

Taxes Collected from Customers and Remitted to Government Authorities and Taxes Paid to Vendors

Taxes are assessed by various governmental authorities at different rates on many different types of transactions. The Company charges sales tax or value-added tax (VAT) on sales to customers where applicable, as well as captures and claims back all available VAT that has been paid on purchases. VAT is recorded in separate payable or receivable accounts and does not affect revenue or cost of sales line items in the income statement. VAT receivable is recorded as a percentage of qualifying purchases at the time the vendor invoice is processed. VAT payable is recorded as a percentage of qualifying sales at the time an Owens Corning sale to a customer subject to VAT occurs. Amounts are paid to the taxing authority according to the method and collection prescribed by local regulations. Where applicable,

VAT payable is netted against VAT receivable. The Company also pays sales tax to vendors who include a tax, required by government regulations, to the purchase price charged to the Company.

Table of Contents

-64-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

1. BUSINESS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (continued)

Pension and Other Postretirement Benefits

Accounting for pensions and other postretirement benefits involves estimating the cost of benefits to be provided well into the future and attributing that cost over the time period each employee works. To accomplish this, extensive use is made of assumptions about investment returns, discount rates, inflation, mortality, turnover and medical costs.

Derivative Financial Instruments

The Company recognizes all derivative instruments as either assets or liabilities at fair value on the balance sheet. Please refer to Note 5 for further disclosure on derivatives.

The Company performs an analysis for effectiveness of its derivatives designated as hedging instruments at the end of each quarter based on the terms of the contracts and the underlying items being hedged. The change in the fair value of cash flow hedges is deferred in Accumulated other comprehensive income (deficit) ("AOCI") and is subsequently recognized in Cost of sales (for commodity and foreign currency cash flow hedges) on the Consolidated Statements of Earnings in order to mirror the location of the hedged items impacting earnings. Cash settlements for commodity and foreign currency hedges qualifying as cash flow hedges are included in Operating activities in the Consolidated Statements of Cash Flows.

The Company has translation exposure resulting from translating the financial statements of foreign subsidiaries into U.S. Dollars, which is recognized in Currency translation adjustment (a component of AOCI). The Company uses cross-currency forward contracts to hedge a portion of the net investment in foreign subsidiaries against fluctuations in foreign exchange rates. The changes in fair values of these derivative instruments are recognized in Currency translation adjustment (a component of AOCI), with recognition of the excluded components amortized to Interest expense, net on the Consolidated Statements of Earnings. Cash settlements for derivatives qualifying as net investment hedges are included in Investing activities in the Consolidated Statements of Cash Flows.

The Company uses forward currency exchange contracts to manage existing exposures to foreign exchange risk related to assets and liabilities recorded on the Consolidated Balance Sheets. Gains and losses resulting from the changes in fair value of these instruments are recorded in Other expenses, net on the Consolidated Statements of Earnings, and are substantially offset by net revaluation impacts on foreign currency denominated balance sheet exposures (which are also recorded in Other expenses, net). Cash settlements for non-designated derivatives are included in the Consolidated Statements of Cash Flows in the category that is consistent with the nature of the derivative instrument, which is generally the same category as the underlying item being hedged.

Fair Value Measurements

The carrying value of cash and cash equivalents, accounts receivable and short-term debt approximate fair value because of the short-term maturity of the instruments. The Company uses widely accepted valuation tools to determine fair value of our derivatives, such as discounting cash flows to calculate a present value for the derivatives. Our derivatives consist of natural gas forward swaps, cross currency swaps and foreign exchange forward contracts, all of which are over-the-counter and not traded through an exchange. The models use Level 2 inputs, such as forward curves and other commonly quoted observable transactions and prices. The fair value of our derivatives and hedging instruments are all classified as Level 2 investments within the three-tier hierarchy.

Please refer to Notes 5 and 13 for additional fair value disclosure of derivative financial instruments and long-term debt, respectively.

Table of Contents

-65-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

1. BUSINESS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (continued)

Foreign Currency

The functional currency of the Company's subsidiaries is generally the applicable local currency. Assets and liabilities of foreign subsidiaries are translated into United States dollars at the period-end rate of exchange, and their Statements of Earnings and Statements of Cash Flows are converted on an ongoing basis at the monthly average rate. The resulting translation adjustment is included in AOCI in the Consolidated Balance Sheets and Consolidated Statements of Stockholders' Equity. Transaction gains and losses that arise from exchange rate fluctuations on transactions denominated in a currency other than the functional currency are recorded in Other expenses, net in the Consolidated Statements of Earnings as incurred. As discussed in the Derivative Financial Instruments section above, the Company uses non-designated foreign currency derivative financial instruments to mitigate this risk. The Company recorded foreign currency transactional gains (net of associated derivative activity) of \$7 million during the year ended December 31, 2018 and foreign currency transactional losses (net of associated derivative activity) of \$4 million and \$2 million during the years ended 2017 and 2016, respectively. Please refer to Note 5 for additional disclosures related to non-designated derivatives.

Table of Contents

-66-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

1. BUSINESS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (continued)

Accounting Pronouncements

The following table summarizes recent accounting standard updates (ASU) issued by the Financial Accounting Standards Board (FASB) that could have an impact on the Company's Consolidated Financial Statements:

Standard	Description	Effective Date for Company	Effect on the Consolidated Financial Statements
Recently adopted standards:			
ASU 2014-09 "Revenue from Contracts with Customers (Topic 606)," as amended by ASU's 2015-14, 2016-08, 2016-10, 2016-11, 2016-12, 2016-20, 2017-05 and 2017-13 and 2017-14	This standard outlines a new, single comprehensive model for entities to use in accounting for revenue arising from contracts with customers. Entities can adopt this standard either through a retrospective or modified-retrospective approach.	January 1, 2018	The adoption of this standard did not have a material impact on our Consolidated Financial Statements. Please refer to Note 3 for transition disclosures, as well as other ongoing disclosure requirements.
ASU 2016-16 "Income Taxes (Topic 740)"	This standard requires that an entity recognize the income tax consequences of an intra-entity transfer of an asset other than inventory when the transfer occurs.	January 1, 2018	The adoption of this standard did not have a material impact on our Consolidated Financial Statements. Please refer to Note 20 of the Consolidated Financial Statements for a detailed explanation of the cumulative effect of adoption recognized on January 1, 2018.
ASU 2017-07 "Compensation - Retirement Benefits (Topic 715)"	This standard requires that the other components of net benefit cost be presented in the income statement separately from the service cost component and outside a subtotal of income from operations, if one is presented. Retrospective application is required upon adoption of the presentation elements of this standard.	January 1, 2018	The adoption of this standard did not have a material effect on our Consolidated Financial Statements for the year ended December 31, 2018. The standard's retrospective adoption, though, resulted in a full-year \$60 million reclassification of non-service costs from various financial statement lines to non-operating expense, primarily related to pension settlement losses that were recorded in 2017. Please refer to Note 14 for additional detail on this adoption.
ASU 2017-12 "Derivatives and Hedging (Topic 815)"	This standard changes how an entity assesses effectiveness of derivative instruments, potentially resulting in less ineffectiveness and more derivatives qualifying for hedge accounting. Entities may early adopt the standard in any interim period, with the effect of	January 1, 2018	The early adoption of this standard did not have a material impact on our Consolidated Financial Statements. Please refer to Note 5 of the Consolidated Financial Statements for additional detail on this adoption.

adoption being applied to existing hedging relationships as of the beginning of the fiscal year of adoption.

Recently issued standards:

<p>ASU 2016-02 "Leases (Topic 842)," as amended by ASU 2017-13, 2018-01, 2018-10, and 2018-11</p>	<p>The standard requires lessees to recognize a right-of-use asset and lease liability for all leases with terms of more than 12 months. The recognition and presentation of expenses will depend on classification as a finance or operating lease. Entities may elect to apply the provisions of the new leasing standard on January 1, 2019, without adjusting the comparative periods presented by recognizing a cumulative-effect adjustment to the opening balance of retained earnings.</p>	<p>January 1, 2019</p>	<p>The Company will adopt the accounting standard using the optional transition method, allowing us to record the cumulative effect adjustment of adopting the standard in the period of adoption, without restating prior periods presented. We are finalizing our assessment of our lease portfolio, implementation of systems, development of processes and internal controls and our accounting policy elections to comply with the standard's adoption requirements. We anticipate adoption of the standard will add approximately \$200 to \$250 million in right-of-use assets and lease obligations to our consolidated balance sheet and will not significantly impact results. (Our operating lease obligations are described in Note 9 of the Consolidated Financial Statements.)</p>
<p>ASU 2016-13 "Financial Instruments - Credit Losses (Topic 326)"</p>	<p>This standard replaces the incurred loss methodology for recognizing credit losses with a current expected credit losses model and applies to all financial assets, including trade receivables. Entities will adopt the standard using a modified-retrospective approach.</p>	<p>January 1, 2020</p>	<p>We are currently assessing the impact this standard will have on our Consolidated Financial Statements. Our current accounts receivable policy (as described in Note 1 of the Consolidated Financial Statements) uses historical and current information to estimate the amount of probable credit losses in our existing accounts receivable. We have not yet analyzed our current systems and methods to determine the impact of using forward-looking information to estimate expected credit losses.</p>
<p>ASU 2018-14 "Compensation-Retirement Benefits-Defined Benefit Plans-General (Subtopic 715-20)</p>	<p>This standard modifies the disclosure requirements for employers that sponsor defined benefit pension or other postretirement plans.</p>	<p>January 1, 2020</p>	<p>We do not believe the adoption of this guidance will have a material effect on our consolidated financial statements.</p>

Table of Contents

-67-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

2. SEGMENT INFORMATION

The Company has three reportable segments: Composites, Insulation and Roofing. Accounting policies for the segments are the same as those for the Company. The Company's three reportable segments are defined as follows: Composites – The Composites segment includes vertically integrated downstream activities. The Company manufactures, fabricates and sells glass reinforcements in the form of fiber. Glass reinforcement materials are also used downstream by the Composites segment to manufacture and sell glass fiber products in the form of fabrics, non-wovens and other specialized products.

Insulation – Within our Insulation segment, the Company manufactures and sells fiberglass insulation into residential, commercial, industrial and other markets for both thermal and acoustical applications. It also manufactures and sells glass fiber pipe insulation, flexible duct media, bonded and granulated mineral wool insulation, cellular glass insulation and foam insulation used in above- and below-grade construction applications.

Roofing – Within our Roofing segment, the Company manufactures and sells residential roofing shingles, oxidized asphalt materials, roofing components used in residential and commercial construction and specialty applications, and synthetic packaging materials.

NET SALES

The following table summarizes our net sales by segment and geographic region (in millions). Corporate eliminations (shown below) largely reflect the intercompany sales from Composites to Roofing. External customer sales are attributed to geographic region based upon the location from which the product is sold to the external customer.

	Twelve Months Ended		
	December 31,		
	2018	2017	2016
Reportable Segments			
Composites	\$2,041	\$2,068	\$1,952
Insulation	2,720	2,001	1,748
Roofing	2,492	2,553	2,194
Total reportable segments	7,253	6,622	5,894
Corporate eliminations	(196)	(238)	(217)
NET SALES	\$7,057	\$6,384	\$5,677
External Customer Sales by Geographic Region			
United States			\$4,647 \$4,495 \$3,963
Europe			1,209 661 550
Asia Pacific			656 675 666
Canada and other			545 553 498
NET SALES			\$7,057 \$6,384 \$5,677

EARNINGS BEFORE INTEREST AND TAXES

Earnings before interest and taxes (EBIT) by segment consists of net sales less related costs and expenses and are presented on a basis that is used internally for evaluating segment performance. Certain items, such as general corporate expenses or income and certain other expense or income items, are excluded from the internal evaluation of segment performance. Accordingly, these items are not reflected in EBIT for our reportable segments and are included in the Corporate, Other and Eliminations category.

Table of Contents

-68-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

2. SEGMENT INFORMATION (continued)

The following table summarizes EBIT by segment (in millions):

	Twelve Months Ended		
	December 31,		
	2018	2017	2016
Reportable Segments			
Composites	\$251	\$291	\$264
Insulation	290	177	126
Roofing	434	535	486
Total reportable segments	975	1,003	876
Restructuring costs	(22)	(48)	(28)
Acquisition-related costs	(16)	(15)	(9)
Recognition of acquisition inventory fair value step-up	(2)	(5)	(10)
Litigation settlement gain, net of legal fees	—	29	—
Pension settlement losses	—	(64)	—
Environmental liability charges	—	(15)	—
General corporate expense and other	(114)	(148)	(130)
Total Corporate, other and eliminations	\$(154)	\$(266)	\$(177)
EBIT	\$821	\$737	\$699

TOTAL ASSETS AND PROPERTY, PLANT AND EQUIPMENT BY GEOGRAPHIC REGION

The following table summarizes total assets by segment and property, plant and equipment by geographic region (in millions):

	December 31,	
	2018	2017
TOTAL ASSETS		
Reportable Segments		
Composites	\$2,480	\$2,486
Insulation	4,907	3,618
Roofing	1,750	1,621
Total reportable segments	9,137	7,725
Cash and cash equivalents	78	246
Noncurrent deferred income taxes	43	144
Investments in affiliates	51	52
Assets held for sale	3	12
Corporate property, plant and equipment, other assets and eliminations	459	453
CONSOLIDATED TOTAL ASSETS	\$9,771	\$8,632
		December 31,
PROPERTY, PLANT AND EQUIPMENT BY GEOGRAPHIC REGION	2018	2017
United States	\$2,166	\$2,164
Europe	779	479
Asia Pacific	567	459
Canada and other	299	323
TOTAL PROPERTY, PLANT AND EQUIPMENT	\$3,811	\$3,425

Table of Contents

-69-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

2. SEGMENT INFORMATION (continued)

PROVISION FOR DEPRECIATION AND AMORTIZATION

The following table summarizes the provision for depreciation and amortization by segment (in millions):

	Twelve Months Ended December 31,		
	2018	2017	2016
Reportable Segments			
Composites	\$147	\$144	\$138
Insulation	186	124	106
Roofing	51	50	46
Total reportable segments	384	318	290
General corporate depreciation and amortization (a)	49	53	53
CONSOLIDATED PROVISION FOR DEPRECIATION AND AMORTIZATION	\$433	\$371	\$343

In 2018, 2017 and 2016, General corporate depreciation and amortization expense included \$10 million, \$17 (a) million and \$19 million, respectively, of accelerated depreciation related to restructuring actions further explained in Note 12 to the Consolidated Financial Statements.

ADDITIONS TO PROPERTY, PLANT AND EQUIPMENT

The following table summarizes additions to property, plant and equipment on an accrual basis by segment (in millions):

	Twelve Months Ended December 31,		
	2018	2017	2016
Reportable Segments			
Composites (a)	\$154	\$148	\$152
Insulation	240	151	154
Roofing	91	66	66
Total reportable segments	485	365	372
General corporate additions	57	37	42
CONSOLIDATED ADDITIONS TO PROPERTY, PLANT AND EQUIPMENT	\$542	\$402	\$414

(a) The 2018 figure for Composites includes \$12 million of capital expenditures related to an acquired non-wovens plant, which was accounted for as an asset acquisition.

3. REVENUE

ASU 2014-09 Adoption

On January 1, 2018, we adopted ASU 2014-09 "Revenue from Contracts with Customers (Topic 606)" and the related amendments (collectively, "ASC 606"). We used the modified retrospective method of adoption, in which the cumulative effect of initially applying the new standard to existing contracts (as of January 1, 2018) was recorded as a \$2 million decrease to the January 1, 2018 opening balance of Accumulated earnings. The effect of this adoption was immaterial to our Consolidated Financial Statements, and we do not expect a material effect to our Consolidated

Financial Statements on an ongoing basis. Under the modified-retrospective method of adoption, the comparative information in the Consolidated Financial Statements has not been revised and continues to be reported under the previously applicable revenue accounting guidance ("ASC 605"). If ASC 605 had been applied to the year 2018, the impact would have been immaterial to our Consolidated Financial Statements. Please refer to Significant Policies in Note 1 for other disclosures required by ASC 606.

Table of Contents

-70-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

3. REVENUE (continued)

Disaggregated Revenue

The following table shows a disaggregation of Net sales (in millions):

Reportable Segments Disaggregation Categories	For the twelve months ended December 31, 2018				
	Composites	Insulation	Roofing	Eliminations	Consolidated
U.S. residential	\$263	\$ 990	\$ 2,199	\$ (177)	\$ 3,275
U.S. commercial and industrial	598	625	161	(12)	1,372
Europe	590	605	14	—	1,209
Asia-Pacific	464	178	15	(1)	656
Rest of world	126	322	103	(6)	545
NET SALES	\$2,041	\$ 2,720	\$ 2,492	\$ (196)	\$ 7,057

Please refer to Note 2 and Item 1 of our 2018 Form 10-K for further information on our three reportable segments (Composites, Insulation and Roofing). Our contracts with customers are broadly similar in nature throughout our reportable segments, but the amount, timing and uncertainty of revenue and cash flows may vary in each reportable segment due to geographic and end-market economic factors.

In the United States, sales are primarily related to the residential housing market and commercial and industrial applications. Residential market demand is driven by housing starts and repair and remodeling activity (influenced by existing home sales, seasonal home improvement and damage from major storms). Significant portions of our residential products are used interchangeably in both new construction and repair and remodeling, and our customers typically distribute (or use) the products for both applications. U.S. commercial and industrial revenues are largely driven by U.S. industrial production growth.

Outside of the United States (Europe, Asia-Pacific and Rest of world), sales are primarily related to commercial and industrial applications and, to a lesser extent, residential applications in certain countries. Throughout the international regions, demand is primarily driven by industrial production growth in each respective geographical region.

Contract Balances

As of January 1, 2018, our contract liability balances (for extended warranties, down payments and deposits, collectively) totaled \$46 million, of which \$14 million was recognized as revenue throughout 2018. As of December 31, 2018, our contract liability balances totaled \$53 million.

4. INVENTORIES

Inventories consist of the following (in millions):

	December	
	2018	2017
Finished goods	\$730	\$562
Materials and supplies	342	279
Total inventories	\$1,072	\$841

Table of Contents

-71-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

5. DERIVATIVE FINANCIAL INSTRUMENTS

The Company is exposed to, among other risks, the impact of changes in commodity prices, foreign currency exchange rates, and interest rates in the normal course of business. The Company's risk management program is designed to manage the exposure and volatility arising from these risks, and utilizes derivative financial instruments to offset a portion of these risks. The Company uses derivative financial instruments only to the extent necessary to hedge identified business risks, and does not enter into such transactions for trading purposes.

The Company generally does not require collateral or other security with counterparties to these financial instruments and is therefore subject to credit risk in the event of nonperformance; however, the Company monitors credit risk and currently does not anticipate nonperformance by other parties. Contracts with counterparties generally contain right of offset provisions. These provisions effectively reduce the Company's exposure to credit risk in situations where the Company has gain and loss positions outstanding with a single counterparty. It is the Company's policy to offset on the Consolidated Balance Sheets the amounts recognized for derivative instruments with any cash collateral arising from derivative instruments executed with the same counterparty under a master netting agreement. As of December 31, 2018 and 2017, the Company did not have any amounts on deposit with any of its counterparties, nor did any of its counterparties have any amounts on deposit with the Company.

During 2018, the Company early adopted ASU 2017-12, "Derivatives and Hedging (Topic 815)," which was issued with the objective of improving the financial reporting of hedging relationships to better portray the economic results of an entity's risk management activities in its financial statements and to make certain targeted improvements to simplify the application of previously applicable hedge accounting guidance. This adoption did not have a material effect on our Consolidated Financial Statements, and did not result in any cumulative adjustment to equity as of the date of adoption. Please refer to the Cash Flow Hedges and Net Investment Hedges paragraphs below for further information.

Derivative Fair Values

The following table presents the fair value of derivatives and hedging instruments and the respective location on the Consolidated Balance Sheets (in millions):

	Location	Fair Value at December 31,	
		2018	2017
Derivative assets designated as hedging instruments:			
Net investment hedges:			
Cross currency swaps	Other current assets	\$ 9	\$ 7
Cash flow hedges:			
Natural gas forward swaps	Other current assets	\$ —	\$ 1
Derivative liabilities designated as hedging instruments:			
Net investment hedges:			
Cross-currency swaps	Other liabilities	\$ 17	\$ 38
Cash flow hedges:			
Natural gas forward swaps	Accounts payable and accrued liabilities	\$ 1	\$ 1
Derivative assets not designated as hedging instruments:			
Foreign exchange forward contracts	Other current assets	\$ 1	\$ 1
Derivative liabilities not designated as hedging instruments:			
Foreign exchange forward contracts	Accounts payable and accrued liabilities	\$ 8	\$ 1

Table of Contents

-72-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

5. DERIVATIVE FINANCIAL INSTRUMENTS (continued)

Consolidated Statements of Earnings Activity

The following table presents the impact and respective location of derivative activities on the Consolidated Statements of Earnings (in millions):

	Location	Twelve Months Ended December 31, 2018 2017 2016		
Derivative activity designated as hedging instruments:				
Natural gas cash flow hedges:				
Amount of (gain)/loss reclassified from AOCI into earnings	Cost of sales	\$(2)	\$(1)	\$6
Amount of loss recognized in earnings (ineffective portion)	Other expenses, net	\$—	\$2	\$—
Cross-currency swap net investment hedges:				
Amount of gain recognized in earnings on derivative amounts excluded from effectiveness testing	Interest expense, net	\$(12)	\$—	\$—
Derivative activity not designated as hedging instruments:				
Natural gas:				
Amount of gain recognized in earnings	Other expenses, net	\$—	\$—	\$(2)
Foreign currency:				
Amount of (gain)/loss recognized in earnings (a)	Other expenses, net	\$(55)	\$5	\$3
(Gains)/losses related to foreign currency derivatives were substantially offset by net revaluation impacts on (a) foreign currency denominated balance sheet exposures, which were also recorded in Other expenses, net. Please refer to the "Other Derivatives" section below for additional detail.				

Consolidated Statements of Comprehensive Earnings Activity

The following table presents the impact of derivative activities on the Consolidated Statements of Comprehensive Earnings (in millions):

Hedging Type	Derivative Financial Instrument	Amount of (Gain) Loss Recognized in Comprehensive Earnings Twelve Months Ended December 31,	
		2018	2017
Net investment hedge	Cross-currency swaps	\$ (18)	\$ 38
Cash flow hedge	Natural gas forward swaps	\$ —	\$ 4
Cash Flow Hedges			

The Company uses a combination of derivative financial instruments, which qualify as cash flow hedges, and physical contracts to manage forecasted exposure to electricity and natural gas prices. The Company's policy for electricity exposure is to hedge up to 75% of its total forecasted exposure for the current calendar year and up to 65% of its total forecasted exposure for the first calendar year forward. The Company's policy for natural gas exposure is to hedge up to 75% of its total forecasted exposure for the next three months and up to 60% of its total forecasted exposure for the

following three months, and lesser amounts for the remaining periods. Based on market conditions, approved variation from these standard policies may occur for certain geographic regions. Currently, the Company is managing risk associated with electricity prices only through physical contracts and has natural gas derivatives designated as hedging instruments that mature within 15 months. As of December 31, 2018, the notional amounts of these natural gas forward swaps was 2 MMBTu (or MMBTu equivalent based on U.S. and European indices), which is down from 5 MMBTu at December 31, 2017 due to reduced notional hedging in the U.S.

Table of Contents

-73-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

5. DERIVATIVE FINANCIAL INSTRUMENTS (continued)

As of December 31, 2018, the Company had notional amounts of \$4 million for derivative financial instruments designated as cash flow hedges for foreign currency exposures in Polish Zloty primarily related to European Euro, and \$8 million for exposures in Swedish Krona primarily related to European Euro.

Net Investment Hedges

The Company has translation exposure resulting from translating the financial statements of foreign subsidiaries into U.S. Dollars, which is recognized in Currency translation adjustment (a component of AOCI). The Company uses cross-currency forward contracts to hedge a portion of the net investment in foreign subsidiaries against fluctuations in foreign exchange rates. As of December 31, 2018, the notional amount of these derivative financial instruments was \$516 million related to the U.S Dollar and European Euro.

In 2018, we redesignated these derivative financial instruments that qualify as hedges of net investments in foreign operations using the spot method. The changes in fair values of these derivative instruments are recognized in Currency translation adjustment (a component of AOCI), with recognition of the excluded components amortized to Interest expense, net on the Consolidated Statements of Earnings. For 2018, the difference between the change in fair value of the excluded components and the amounts recognized to earnings was a \$14 million increase to Accumulated other comprehensive deficit. Prior to our first quarter 2018 adoption of ASU 2017-12, all settlements and changes in fair values of these derivative instruments were recognized in Currency translation adjustment (a component of AOCI), and there has been no ineffectiveness on these hedging relationships.

Other Derivatives

The Company uses forward currency exchange contracts to manage existing exposures to foreign exchange risk related to assets and liabilities recorded on the Consolidated Balance Sheets. As of December 31, 2018, the Company had notional amounts of \$731 million for non-designated derivative financial instruments related to foreign currency exposures in U.S. Dollars primarily related to Brazilian Real, Chinese Yuan, European Euro, Indian Rupee, Japanese Yen, and South Korean Won. The growth in notional amounts (as compared to \$109 million at December 31, 2017) was primarily related to new derivative financial instruments used to hedge increased European Euro denominated balance sheet exposures following our acquisition of Paroc. In addition, the Company had notional amounts of \$121 million for non-designated derivative financial instruments related to foreign currency exposures in European Euro primarily related to the Russian Ruble, Swedish Krona, and Swiss Franc.

Table of Contents

-74-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

6. GOODWILL AND OTHER INTANGIBLE ASSETS

The Company tests goodwill and indefinite-lived intangible assets for impairment as of October 1 each year, or more frequently should circumstances change or events occur that would more likely than not reduce the fair value of a reporting unit below its carrying amount. The annual tests performed in 2018 resulted in no impairment of goodwill or indefinite-lived intangible assets.

Intangible assets and goodwill consist of the following (in millions):

December 31, 2018	Weighted Average Useful Life	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Amortizable intangible assets:				
Customer relationships	20 years	\$ 554	\$ (138)	\$ 416
Technology	17 years	321	(134)	187
Other	14 years	60	(28)	32
Indefinite-lived intangible assets:				
Trademarks		1,144	—	1,144
Total intangible assets		\$ 2,079	\$ (300)	\$ 1,779
Goodwill		\$ 1,949		

December 31, 2017	Weighted Average Useful Life	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Amortizable intangible assets:				
Customer relationships	20 years	\$ 363	\$ (109)	\$ 254
Technology	18 years	255	(116)	139
Other	8 years	47	(26)	21
Indefinite-lived intangible assets:				
Trademarks		946	—	946
Total intangible assets		\$ 1,611	\$ (251)	\$ 1,360
Goodwill		\$ 1,507		

The changes in the net carrying amount of goodwill by segment are as follows (in millions):

	Composites	Insulation	Roofing	Total
Balance at December 31, 2017	\$ 58	1,049	\$ 400	\$ 1,507
Acquisitions (see Note 8)	—	494	—	494
Foreign currency translation	(1)	(48)	(3)	(52)
Balance at December 31, 2018	\$ 57	\$ 1,495	\$ 397	\$ 1,949

Other Intangible Assets

The Company amortizes the cost of other intangible assets over their estimated useful lives which, individually, range up to 45 years. The Company's future cash flows are not materially impacted by its ability to extend or renew agreements related to its amortizable intangible assets. These costs are reported in Other expenses, net on the Consolidated Statements of Earnings.

Table of Contents

-75-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

6. GOODWILL AND OTHER INTANGIBLE ASSETS (continued)

The Other category below primarily includes franchise agreements and emission rights. The changes in the gross carrying amount of intangible assets by asset group are as follows (in millions):

	Customer Relationships	Technology	Trademarks	Other	Total
Balance at December 31, 2017	\$ 363	\$ 255	\$ 946	\$ 47	\$1,611
Acquisitions (see Note 8)	215	73	213	7	508
Other additions, net	—	—	—	8	8
Foreign currency translation	(24)	(7)	(15)	(2)	(48)
Balance at December 31, 2018	\$ 554	\$ 321	\$ 1,144	\$ 60	\$2,079

The estimated amortization expense for intangible assets for the next five years is as follows (in millions):

Amortization

Period^(a)

2019	\$ 51
2020	\$ 51
2021	\$ 50
2022	\$ 46
2023	\$ 42

(a) The yearly amortization amounts in the table above include approximately \$16 million of amortization expense related to the amortizable intangible assets acquired as part of the Paroc acquisition; see Note 8 for more details of this acquisition.

7. PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment consist of the following (in millions):

	December 31, 2018	December 31, 2017
Land	\$ 224	\$ 251
Buildings and leasehold improvements	1,091	944
Machinery and equipment	4,628	4,211
Construction in progress	443	350
	6,386	5,756
Accumulated depreciation	(2,575)	(2,331)
Property, plant and equipment, net	\$ 3,811	\$ 3,425

Machinery and equipment includes certain precious metals used in our production tooling, which comprise approximately 11% and 12% of total machinery and equipment as of December 31, 2018 and December 31, 2017, respectively. Precious metals used in our production tooling are depleted as they are consumed during the production process, which typically represents an annual expense of less than 3% of the outstanding carrying value.

Table of Contents

-76-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

8. ACQUISITIONS

During 2018, the Company completed acquisitions with an aggregate purchase price of \$1,147 million, net of cash acquired.

Paroc Acquisition

On February 5, 2018, the Company acquired all the outstanding equity of Paroc, a leading producer of mineral wool insulation for building and technical applications in Europe, for \$1,121 million, net of cash acquired. The acquisition of Paroc expands the Company's mineral wool technology, grows its presence in the European insulation market, provides access to a variety of new end-use markets and will increase the Insulation segment's geographic sales mix outside of the U.S. and Canada. Paroc's operating results and purchase price allocation have been included in the Company's Insulation segment within the Consolidated Financial Statements. The Company has completed its valuation of certain assets and liabilities, and during 2018, the Company recorded immaterial measurement period adjustments to the purchase price allocation which are reflected in the value of the goodwill noted below.

The following table details the identifiable indefinite and definite-lived intangible assets acquired, their fair values (in millions) and estimated weighted average useful lives:

Type of Intangible Asset	Fair Value	Weighted Average Useful Life
Customer relationships	\$ 215	20
Technology - Know-how	61	15
Technology - Patented	12	5
Quarry Rights	7	45
Trademarks	213	Indefinite
Total	\$ 508	

During 2018, the Consolidated Statements of Earnings included \$462 million in Net Sales attributable to the acquisition and a \$2 million charge related to inventory fair value step-up in Cost of Sales. The acquisition also included property, plant and equipment with a fair value of \$305 million and net deferred tax liabilities of \$99 million. Goodwill has been valued at \$476 million, with none of the amount expected to be tax-deductible. The factors contributing to the recognition of the amount of goodwill are based on several strategic and synergistic benefits that are expected to be realized from the acquisition. The Company has assigned the goodwill acquired to the Insulation reporting unit. The acquisition also included cash of approximately \$17 million. The pro forma effect of this acquisition on Net sales and Net earnings attributable to Owens Corning was immaterial.

Pittsburgh Corning Acquisition

On June 27, 2017, the Company acquired all the outstanding equity of Pittsburgh Corning, the world's leading producer of cellular glass insulation systems for commercial and industrial markets, for \$563 million, net of cash acquired. This acquisition expands the Company's position in commercial and industrial product offerings and grows its presence in Europe and Asia. Pittsburgh Corning's operating results since the date of acquisition and purchase price allocation have been included in the Company's Insulation segment in the Consolidated Financial Statements.

Table of Contents

-77-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

8. ACQUISITIONS (continued)

The following table details the identifiable indefinite and definite-lived intangible assets acquired, their fair values (in millions) and estimated weighted average useful lives:

Type of Intangible Asset	Fair Value	Weighted Average Useful Life
Customer relationships	\$ 107	19
Technology	37	15
Trademarks	101	indefinite
Total	\$ 245	

During 2018, the Consolidated Statements of Earnings included \$128 million in Net sales attributable to the Pittsburgh Corning acquisition (related to the one-year post-acquisition period). Goodwill has been valued at \$154 million, with none of the amount expected to be tax-deductible. The factors contributing to the recognition of the amount of goodwill are based on several strategic and synergistic benefits that are expected to be realized from the acquisition. The acquisition also included cash of approximately \$52 million. The pro forma effect of this acquisition on Net sales and Net earnings attributable to Owens Corning was not material.

9. OPERATING LEASES

The Company leases certain equipment and facilities under operating leases expiring on various dates through 2032. Some of these leases include cost-escalation clauses. Such cost-escalation clauses are recognized on a straight-line basis over the lease term. Total rental expense was \$106 million, \$87 million and \$79 million in the years ended December 31, 2018, 2017 and 2016, respectively. At December 31, 2018, the minimum future rental commitments under non-cancelable operating leases with initial maturities greater than one year, payable over the remaining lives of the leases are (in millions):

Period	Minimum Future Rental Commitments
2019	\$ 83
2020	\$ 64
2021	\$ 47
2022	\$ 31
2023	\$ 18
2024 and beyond	\$ 27

10. TOTAL CURRENT LIABILITIES

Current liabilities consist of the following current portions of these liabilities (in millions):

	December 31,	
	2018	2017
Accounts payable	\$851	\$834
Payroll, vacation pay and incentive compensation	157	198
Payroll, property and other taxes	43	71
Other	227	179
Total	\$1,278	\$1,282

Table of Contents

-78-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

11. WARRANTIES

The Company records a liability for warranty obligations at the date the related products are sold. Adjustments are made as new information becomes available. Please refer to Note 1 for information about our separately-priced extended warranty contracts. A reconciliation of the warranty liability is as follows (in millions):

	December 31, 2018 2017	
Beginning balance	\$55	\$52
Amounts accrued for current year	20	18
Settlements of warranty claims	(15)	(15)
Ending balance	\$60	\$55

12. RESTRUCTURING AND ACQUISITION-RELATED COSTS

The Company may incur restructuring, transaction and integration costs related to acquisitions, and may incur restructuring costs in connection with its global cost reduction and productivity initiatives.

Acquisition-Related Costs

During 2018, the Company incurred \$16 million of transaction and integration costs related to its announced acquisitions. Please refer to Note 8 of the Consolidated Financial Statements for further information on these acquisitions. These costs are recorded in the Corporate, Other and Eliminations category. See the Restructuring Costs paragraph below for detail on additional costs related to these acquisitions. The following table presents the impact and respective location of acquisition-related costs for 2018 in the Consolidated Statements of Earnings (in millions):

Location	Paroc Acquisition	Pittsburgh Corning Acquisition	Total
Marketing and administrative expenses	\$ 5	\$ 2	\$ 7
Other expenses, net	9	—	9
Total acquisition-related costs	\$ 14	\$ 2	\$ 16

Restructuring Costs

Pittsburgh Corning Acquisition-Related Restructuring

Following the acquisition of Pittsburgh Corning into the Company's Insulation segment, the Company took actions to realize expected synergies from the newly acquired operations. During 2018, the Company recorded \$3 million of charges related to these actions, comprised of \$2 million of severance and \$1 million of accelerated depreciation. The Company expects to incur an immaterial amount of incremental costs in 2019 related to these actions.

2017 Cost Reduction Actions

During the second quarter of 2017, the Company took actions to avoid future capital outlays and reduce costs in its Composites segment, mainly through decisions to close certain sub-scale manufacturing facilities in Asia Pacific (Doudian, People's Republic of China and Thimmapur, India) and North America (Mexico City, Mexico and Brunswick, Maine) and to reposition assets in its Chambéry, France operation. During 2018, the Company recorded \$19 million of charges, comprised of \$2 million of severance, \$9 million of accelerated depreciation, and \$8 million of

exit costs associated with these actions. The Company expects to recognize approximately \$8 million of incremental costs in 2019.

Table of Contents

-79-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

12. RESTRUCTURING AND ACQUISITION-RELATED COSTS (continued)

Consolidated Statements of Earnings Classification

The following table presents the impact and respective location of total restructuring costs on the Consolidated Statements of Earnings, which are included in our Corporate, Other and Eliminations category (in millions):

Type of Cost	Location	Twelve Months Ended December 31,		
		2018	2017	2016
Accelerated depreciation	Cost of sales	\$ 10	\$ 17	\$ 19
Other exit costs	Cost of sales	7	3	6
Severance	Other expenses, net	4	27	1
Other exit costs	Other expenses, net	1	1	2
Total restructuring costs		\$ 22	\$ 48	\$ 28

Summary of Unpaid Liabilities

The following table summarizes the status of the unpaid liabilities from the Company's restructuring activities (in millions):

	2017 Cost Pittsburgh Corning		
	Reduction Actions	Acquisition-Related Restructuring	Total
Balance at December 31, 2017	\$ 11	\$ 9	\$ 20
Restructuring costs	19	3	22
Payments	(14)	(4)	(18)
Non-cash items and reclassifications to other accounts	(6)	(1)	(7)
Balance at December 31, 2018	\$ 10	\$ 7	\$ 17
Cumulative charges incurred	\$ 48	\$ 20	\$ 68

As of December 31, 2018, the remaining liability balance is comprised of \$14 million of severance, inclusive of \$1 million of non-current severance and \$13 million of severance the Company expects to pay over the next twelve months, and \$3 million of contract termination fees.

Table of Contents

-80-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

13. DEBT

Details of the Company's outstanding long-term debt, as well as the fair values, are as follows (in millions):

	December 31, 2018		December 31, 2017	
	Carrying Value	Fair Value	Carrying Value	Fair Value
4.20% senior notes, net of discount and financing fees, due 2022	\$598	99 %	\$597	105 %
4.20% senior notes, net of discount and financing fees, due 2024	393	99 %	392	105 %
3.40% senior notes, net of discount and financing fees, due 2026	396	90 %	395	98 %
7.00% senior notes, net of discount and financing fees, due 2036	400	112 %	400	132 %
4.30% senior notes, net of discount and financing fees, due 2047	588	76 %	588	99 %
4.40% senior notes, net of discount and financing fees, due 2048	389	77 %	—	n/a
Accounts receivable securitization facility, maturing in 2020 (a)	75	100 %	—	n/a
Various capital leases, due through and beyond 2050 (a)	27	100 %	31	100 %
Term loan borrowing, maturing in 2021 (a)	500	100 %	—	n/a
Unamortized interest rate swap basis adjustment	5	n/a	6	n/a
Total long-term debt	3,371	n/a	2,409	n/a
Less – current portion (a)	9	100 %	4	100 %
Long-term debt, net of current portion	\$3,362	n/a	\$2,405	n/a

(a) The Company determined that the book value of the above noted debt instruments approximates fair value.

The fair values of the Company's outstanding long-term debt instruments were estimated using market observable inputs, including quoted prices in active markets, market indices and interest rate measurements. Within the hierarchy of fair value measurements, these are Level 2 fair values.

Senior Notes

The Company issued \$400 million of 2048 senior notes on January 25, 2018. Interest on the notes is payable semiannually in arrears on January 30 and July 30 each year, beginning on July 30, 2018. The proceeds from these notes were used, along with borrowings on a \$600 million term loan commitment and borrowings on the Receivables Securitization Facility (as defined below), to fund the purchase of Paroc in the first quarter of 2018.

The Company issued \$600 million of 2047 senior notes on June 26, 2017. Interest on the notes is payable semiannually in arrears on January 15 and July 15 each year, beginning on January 15, 2018. A portion of the proceeds from these notes was used to fund the purchase of Pittsburgh Corning in 2017 and for general corporate purposes. The remaining proceeds were used to repay \$144 million of our 2019 senior notes and \$140 million of our 2036 senior notes.

The Company issued \$400 million of 2026 senior notes on August 8, 2016. Interest on the notes is payable semiannually in arrears on February 15 and August 15 each year, beginning on February 15, 2017. A portion of the proceeds from these notes was used to redeem \$158 million of our 2016 senior notes. The remaining proceeds were used to pay down portions of our Receivables Securitization Facility and for general corporate purposes.

The Company issued \$400 million of 2024 senior notes on November 12, 2014. Interest on the notes is payable semiannually in arrears on June 1 and December 1 each year, beginning on June 1, 2015. A portion of the proceeds from these notes was used to repay \$242 million of our 2016 senior notes and \$105 million of our 2019 senior notes. The remaining proceeds were used to pay down our Senior Revolving Credit Facility (as defined below), finance general working capital needs, and for general corporate purposes.

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The Company issued \$600 million of 2022 senior notes on October 17, 2012. Interest on the notes is payable semiannually in arrears on June 15 and December 15 each year, beginning on June 15, 2013. The proceeds of these notes were used to refinance \$250 million of our 2016 senior notes and \$100 million of our 2019 senior notes and pay down our Senior Revolving Credit Facility.

Table of Contents

-81-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

13. DEBT (continued)

On October 31, 2006, the Company issued \$550 million of 2036 senior notes. The proceeds of these notes were used to pay certain unsecured and administrative claims, finance general working capital needs and for general corporate purposes.

Collectively, the notes above are referred to as the "Senior Notes." The Senior Notes are general unsecured obligations of the Company and rank pari passu with all existing and future senior unsecured indebtedness of the Company.

In May 2018, the Company entered into a new agreement covering our Senior Revolving Credit Facility. This new agreement, among other things, removed all subsidiaries of the Company as guarantors under our Senior Revolving Credit Facility, unless certain conditions precedent are met that do not exist at this time, and had the effect of removing the guarantees of such subsidiaries under our Senior Notes. In addition, we elected to amend our Registration Statement on Form S-3 to eliminate the guarantees of our Senior Notes as registered securities.

The Company has the option to redeem all or part of the Senior Notes at any time at a "make-whole" redemption price.

The Company is subject to certain covenants in connection with the issuance of the Senior Notes that it believes are usual and customary. The Company was in compliance with these covenants as of December 31, 2018.

In the first quarter of 2016, the Company terminated interest rate swaps designated to hedge a portion of the 4.20% senior notes due 2022. The residual fair value of the swaps are recognized in Long-term debt, net of current portion on the Consolidated Balance Sheets as an unamortized interest rate swap basis adjustment.

Senior Revolving Credit Facilities

The Company has an \$800 million Senior Revolving Credit Facility with a maturity date in May 2023. In May 2018, the Company entered into a new agreement to extend its maturity to May 2023 and remove all subsidiaries of the Company as guarantors under the Senior Revolving Credit Facility, unless certain conditions precedent are met that do not exist at this time. The Senior Revolving Credit Facility includes both borrowings and letters of credit. Borrowings under the Senior Revolving Credit Facility may be used for general corporate purposes and working capital. The Company has the discretion to borrow under multiple options, which provide for varying terms and interest rates including the United States prime rate, federal funds rate plus a spread or LIBOR plus a spread.

The Senior Revolving Credit Facility contains various covenants, including a maximum allowed leverage ratio and a minimum required interest expense coverage ratio, that the Company believes are usual and customary for a senior unsecured credit agreement. The Company was in compliance with these covenants as of December 31, 2018. Please refer to the Credit Facility Utilization paragraph below for liquidity information as of December 31, 2018.

Term Loan Commitments

The Company obtained two term loan commitments on October 27, 2017 for \$300 million and \$600 million, respectively, (collectively, the "Term Loan Commitments"). The Company entered into the Term Loan Commitments, in part, to pay a portion of the purchase price of the Paroc acquisition. In the first quarter of 2018, the Company borrowed on the \$600 million term loan commitment, along with borrowings on the Receivables Securitization Facility and the proceeds of the 2048 senior notes, to fund the purchase of Paroc. The \$600 million term loan borrowing (the "Term Loan") requires partial quarterly principal repayments and full repayment by February 2021. On February 12, 2018, the Company voluntarily reduced the entire \$300 million term loan commitment, thus eliminating the availability of credit under the facility. On May 4, 2018, the Company amended the terms of the \$600 million term loan, among other things, to provide for a reduction in the applicable margin used in the calculation of interest on the outstanding indebtedness and mirror the terms of the new Senior Revolving Credit Facility. As of December 31, 2018, the Term Loan had \$500 million outstanding.

The Term Loan Commitment contains various covenants, including a maximum allowed leverage ratio and a minimum required interest expense coverage ratio, that the Company believes are usual and customary for a term loan. The Company was in compliance with these covenants as of December 31, 2018.

Table of Contents

-82-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

13. DEBT (continued)

Receivables Securitization Facility

Included in long-term debt on the Consolidated Balance Sheets are borrowings outstanding under a Receivables Purchase Agreement (RPA) that are accounted for as secured borrowings in accordance with ASC 860, "Accounting for Transfers and Servicing." Owens Corning Sales, LLC and Owens Corning Receivables LLC, each a subsidiary of the Company, have a \$280 million RPA with certain financial institutions. The securitization facility (the "Receivables Securitization Facility") has been amended from time to time, with a maturity date of May 2020. The facility was most recently amended in April 2018 to increase the borrowing limit from \$250 million to \$280 million. No other significant terms impacting liquidity were amended. The Company has the ability to borrow at the lenders' cost of funds, which approximates A-1/P-1 commercial paper rates, plus a fixed spread.

The Receivables Securitization Facility contains various covenants, including a maximum allowed leverage ratio and a minimum required interest expense coverage ratio that the Company believes are usual and customary for a securitization facility. The Company was in compliance with these covenants as of December 31, 2018. Please refer to the Credit Facility Utilization section below for liquidity information as of December 31, 2018.

Owens Corning Receivables LLC's sole business consists of the purchase or acceptance through capital contributions of trade receivables and related rights from Owens Corning Sales, LLC and the subsequent retransfer of or granting of a security interest in such trade receivables and related rights to certain purchasers who are party to the RPA. Owens Corning Receivables LLC is a separate legal entity with its own separate creditors who will be entitled, upon its liquidation, to be satisfied out of Owens Corning Receivables LLC's assets prior to any assets or value in Owens Corning Receivables LLC becoming available to Owens Corning Receivables LLC's equity holders. The assets of Owens Corning Receivables LLC are not available to pay creditors of the Company or any other affiliates of the Company or Owens Corning Sales, LLC.

Credit Facility Utilization

The following table shows how the Company utilized its primary sources of liquidity (in millions):

	As of December 31, 2018	
	Senior Revolving Credit Facility	Receivables Securitization Facility
Facility size	\$ 800	\$ 280
Collateral capacity limitation on availability	n/a	—
Outstanding borrowings	—	75
Outstanding letters of credit	9	3
Availability on facility	\$ 791	\$ 202

Debt Maturities

The aggregate maturities for all outstanding long-term debt borrowings for each of the five years following December 31, 2018 and thereafter are presented in the table below (in millions). The maturities below are the aggregate par amounts of the outstanding senior notes and borrowings from the Term Loan, Receivables Securitization Facility, and capital lease liabilities:

Period	Maturities
2019	\$ 11
2020	142
2021	441
2022	605
2023	4

2024 and beyond 2,217
Total \$ 3,420

Table of Contents

-83-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

13. DEBT (continued)

Short-Term Debt

At December 31, 2018 and December 31, 2017, short-term borrowings were \$16 million and \$1 million, respectively. The short-term borrowings for both periods consisted of various operating lines of credit and working capital facilities. Certain of these borrowings are collateralized by receivables, inventories or property. The borrowing facilities are typically for one-year renewable terms. The weighted average interest rate on all short-term borrowings was approximately 3.0% and 6.7% for December 31, 2018 and December 31, 2017, respectively.

14. PENSION PLANS

ASU 2017-07 Adoption

On January 1, 2018, we adopted ASU 2017-07, "Compensation - Retirement Benefits (Topic 715)." This standard requires that the other components of net benefit cost be presented in the income statement separately from the service cost component and outside a subtotal of income from operations, if one is presented. These other components of net benefit cost are now presented in Non-operating (income) expense on the Consolidated Statements of Earnings. In accordance with the standard's retrospective adoption requirement, we used an allowable practical expedient that permits the use of amounts disclosed in previous pension and other postretirement benefit plan disclosures as the estimation basis for applying the retrospective presentation requirement. Accordingly, the amounts below reflect the adoption's combined impact on pension plans (described in this note) and postemployment and postretirement benefits other than pension (described in Note 15). Please refer to the Accounting Pronouncements section of Note 1 for more details on the impact of this adoption.

The following tables show the location and impact of the adoption on certain periods in the Consolidated Statements of Earnings:

Location	Twelve Months Ended December 31, 2017		
	Before Adoption	After Adoption	Impact
	Cost of sales	\$4,812	\$ 3
Other expenses, net	\$130	\$ (63)	\$ 67
Non-operating (income) expense	\$—	\$ 60	\$ 60

Location	Twelve Months Ended December 31, 2016		
	Before Adoption	After Adoption	Impact
	Cost of sales	\$4,296	\$ 4
Other expenses, net	\$16	\$ (2)	\$ 14
Non-operating (income) expense	\$—	\$ (2)	\$ (2)

Pension Plans

The Company sponsors defined benefit pension plans. Under the plans, pension benefits are based on an employee's years of service and, for certain categories of employees, qualifying compensation. Company contributions to these pension plans are determined by an independent actuary to meet or exceed minimum funding requirements. In our U.S. plan, the unrecognized cost of any retroactive amendments and actuarial gains and losses are amortized over the average remaining life expectancy of inactive participants. In all of our Non-U.S. plans, the unrecognized cost of any retroactive amendments and actuarial gains and losses are amortized over the average future service period of plan participants expected to receive benefits.

During 2017, the Company completed balance sheet risk mitigation actions related to certain U.S. and non-U.S. pension plans. These actions included the purchase of non-participating annuity contracts from insurance companies and the payment of lump sums to retirees, which resulted in the settlement of liabilities to affected participants. As a result of these transactions, the Company recognized pension settlement losses of \$64 million during the twelve months ended December 31, 2017. These losses are included

Table of Contents

-84-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

14. PENSION PLANS (continued)

in Non-operating (income) expense on the Consolidated Statements of Earnings in our Corporate, Other and Eliminations category. These transactions did not have a material effect on the plans' funded status.

The following tables provide a reconciliation of the change in the projected benefit obligation, the change in plan assets and the net amount recognized in the Consolidated Balance Sheets (in millions):

	December 31, 2018			December 31, 2017		
	U.S.	Non-U.S.	Total	U.S.	Non-U.S.	Total
Change in Projected Benefit Obligation						
Benefit obligation at beginning of period	\$993	\$ 457	\$1,450	\$1,066	\$ 512	\$1,578
Service cost	6	6	12	7	5	12
Interest cost	34	13	47	40	15	55
Actuarial loss (gain)	(67)	(18)	(85)	30	(16)	14
Currency loss (gain)	—	(26)	(26)	—	42	42
Benefits paid	(75)	(17)	(92)	(53)	(18)	(71)
Settlements/curtailments	—	(6)	(6)	(97)	(116)	(213)
Acquisition	—	11	11	—	21	21
Other	—	7	7	—	12	12
Benefit obligation at end of period	\$891	\$ 427	\$1,318	\$993	\$ 457	\$1,450
	December 31, 2018			December 31, 2017		
	U.S.	Non-U.S.	Total	U.S.	Non-U.S.	Total
Change in Plan Assets						
Fair value of assets at beginning of period	\$836	\$ 364	\$1,200	\$822	\$ 393	\$1,215
Actual return on plan assets	(59)	(8)	(67)	114	26	140
Currency gain (loss)	—	(20)	(20)	—	31	31
Company contributions	25	15	40	50	22	72
Benefits paid	(75)	(17)	(92)	(53)	(18)	(71)
Settlements/curtailments	—	(6)	(6)	(97)	(116)	(213)
Acquisition	—	—	—	—	14	14
Other	—	—	—	—	12	12
Fair value of assets at end of period	\$727	\$ 328	\$1,055	\$836	\$ 364	\$1,200
Funded status	\$(164)	\$(99)	\$(263)	\$(157)	\$(93)	\$(250)
	December 31, 2018			December 31, 2017		
	U.S.	Non-U.S.	Total	U.S.	Non-U.S.	Total
Amounts Recognized in the Consolidated Balance Sheets						
Prepaid pension cost			\$—	\$ 7	\$ 7	\$ 7
Accrued pension cost – current			—	(2)	(2)	(1)
Accrued pension cost – non-current			(164)	(104)	(268)	(157)
Net amount recognized			\$(164)	\$(99)	\$(263)	\$(157)
Amounts Recorded in AOCI						
Net actuarial loss	\$(392)	\$(92)	\$(484)	\$(357)	\$(86)	\$(443)

Table of Contents

-85-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

14. PENSION PLANS (continued)

The following table presents information about the projected benefit obligation, accumulated benefit obligation (ABO) and plan assets of the Company's pension plans (in millions):

	December 31, 2018			December 31, 2017		
	U.S.	Non-U.S.	Total	U.S.	Non-U.S.	Total
Plans with ABO in excess of fair value of plan assets:						
Projected benefit obligation	\$891	\$ 269	\$1,160	\$993	\$ 288	\$1,281
Accumulated benefit obligation	\$891	\$ 265	\$1,156	\$993	\$ 284	\$1,277
Fair value of plan assets	\$727	\$ 169	\$896	\$836	\$ 193	\$1,029
Plans with fair value of assets in excess of ABO:						
Projected benefit obligation	\$—	\$ 158	\$158	\$—	\$ 169	\$169
Accumulated benefit obligation	\$—	\$ 140	\$140	\$—	\$ 145	\$145
Fair value of plan assets	\$—	\$ 159	\$159	\$—	\$ 171	\$171
Summary of all plans:						
Total projected benefit obligation	\$891	\$ 427	\$1,318	\$993	\$ 457	\$1,450
Total accumulated benefit obligation	\$891	\$ 405	\$1,296	\$993	\$ 429	\$1,422
Total fair value of plan assets	\$727	\$ 328	\$1,055	\$836	\$ 364	\$1,200

Weighted-Average Assumptions Used to Determine Benefit Obligation

The following table presents weighted average assumptions used to determine benefit obligations at the measurement dates:

	December 31,	
	2018	2017
United States Plans		
Discount rate	4.25%	3.55%
Expected return on plan assets	6.75%	6.75%
Non-United States Plans		
Discount rate	3.04%	2.88%
Expected return on plan assets	4.91%	5.22%
Rate of compensation increase	4.14%	4.29%

Components of Net Periodic Pension Cost

The following table presents the components of net periodic pension cost (in millions):

	Twelve Months		
	Ended December		
	31,		
	2018	2017	2016
Service cost	\$12	\$12	\$10
Interest cost	47	55	62
Expected return on plan assets	(73)	(79)	(81)
Amortization of actuarial loss	15	18	16
Settlement/curtailment	—	64	(6)
Other	—	—	2
Net periodic benefit cost	\$1	\$70	\$3

Table of Contents

-86-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

14. PENSION PLANS (continued)

Weighted-Average Assumptions Used to Determine Net Periodic Pension Cost

The following table presents weighted-average assumptions used to determine net periodic pension costs for the periods noted:

	Twelve Months Ended December 31,					
	2018		2017		2016	
United States Plans						
Discount rate	3.55 %		3.95 %		4.20 %	
Expected return on plan assets	6.75 %		6.75 %		7.00 %	
Rate of compensation increase	N/A	(a)	N/A	(a)	N/A	(a)
Non-United States Plans						
Discount rate	2.88 %		3.14 %		3.88 %	
Expected return on plan assets	5.22 %		5.92 %		6.23 %	
Rate of compensation increase	4.29 %		4.25 %		3.97 %	

(a) Not applicable due to changes in plan made on August 1, 2009 that were effective beginning January 1, 2010.

The expected return on plan assets assumption is derived by taking into consideration the target plan asset allocation, historical rates of return on those assets, projected future asset class returns and net outperformance of the market by active investment managers. An asset return model is used to develop an expected range of returns on plan investments over a 20 year period, with the expected rate of return selected from a best estimate range within the total range of projected results. The result is then rounded down to the nearest 25 basis points.

Accumulated Other Comprehensive Earnings (Deficit)

Of the \$(484) million balance in AOCI, \$14 million is expected to be recognized as net periodic pension cost during 2019.

Items Measured at Fair Value

The Company classifies and discloses pension plan assets in one of the following three categories:

Level 1: Quoted market prices in active markets for identical assets.

Level 2: Observable market based inputs or unobservable inputs that are corroborated by market data.

Level 3: Unobservable inputs that are not corroborated by market data.

Table of Contents

-87-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

14. PENSION PLANS (continued)

Plan Assets

The tables in this section show pension plan asset fair values and fair value leveling information. The assets are categorized into one of the three levels of the fair value hierarchy or are not subject to leveling, in the case of investments that are valued using the net asset value per share (or its equivalent) practical expedient ("NAV").

The following table summarizes the fair values and applicable fair value hierarchy levels of United States pension plan assets (in millions):

Asset Category	December 31, 2018			
	Level 1	Level 2	Level 3	Total
Equities				
Domestic	\$50	\$ —	\$ —	—\$50
International	52	—	—	52
Fixed income and cash equivalents				
Corporate bonds	—	236	—	236
Government debt	—	91	—	91
Real estate investment trusts	24	—	—	24
Total United States plan assets subject to leveling	\$126	\$327	\$ —	—453

Plan assets measured at NAV

Equities	123
Real assets	54
Fixed income and cash equivalents	53
Absolute return strategies	44
Total United States plan assets	\$727

Asset Category	December 31, 2017			
	Level 1	Level 2	Level 3	Total
Equities				
Domestic	\$67	\$ —	\$ —	—\$67
International	78	—	—	78
Fixed income and cash equivalents				
Corporate bonds	—	231	—	231
Government debt	—	88	—	88
Real estate investment trusts	26	—	—	26
Total United States plan assets subject to leveling	\$171	\$319	\$ —	—490

Plan assets measured at NAV

Equities	173
Real assets	51
Fixed income and cash equivalents	69
Absolute return strategies	53
Total United States plan assets	\$836

Table of Contents

-88-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

14. PENSION PLANS (continued)

The following table summarizes the fair values and applicable fair value hierarchy levels of non-United States pension plan assets (in millions):

Asset Category	December 31, 2018		
	Level 1	Level 2	Level 3 Total
Equities	\$ 4	\$	—\$4
Fixed income and cash equivalents			
Cash and cash equivalents	—62	—	62
Corporate bonds	—12	—	12
Total non-United States plan assets subject to leveling	\$ 78	\$	—78

Plan assets measured at NAV

Equities			41
Fixed income and cash equivalents			109
Absolute return strategies			100
Total non-United States plan assets			\$328

Asset Category	December 31, 2017		
	Level 1	Level 2	Level 3 Total
Equities	\$ 3	\$	—\$3
Fixed income and cash equivalents			
Cash and cash equivalents	—64	—	64
Corporate bonds	—12	—	12
Total non-United States plan assets subject to leveling	\$ 79	\$	—79

Plan assets measured at NAV

Equities			52
Fixed income and cash equivalents			123
Absolute return strategies			110
Total non-United States plan assets			\$364

Investment Strategy

The current targeted asset allocation for the United States pension plan is to have 33% of assets invested in equities, 3% in real estate, 8% in real assets, 50% in intermediate and long-term fixed income securities and 6% in absolute return strategies. Assets are rebalanced quarterly to conform to policy tolerances. The Company actively evaluates the reasonableness of its asset mix given changes in the projected benefit obligation and market dynamics. Our investment policy and asset mix for the non-United States pension plans varies by location and is based on projected benefit obligation and market dynamics.

Table of Contents

-89-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

14. PENSION PLANS (continued)

Estimated Future Benefit Payments

The following table shows estimated future benefit payments from the Company's pension plans (in millions):

Year	Estimated Benefit Payments
2019	\$ 87
2020	\$ 85
2021	\$ 83
2022	\$ 85
2023	\$ 83
2024-2028	\$ 398

Contributions

Owens Corning expects to contribute \$25 million in cash to the United States pension plan during 2019 and another \$14 million to non-United States plans. Actual contributions to the plans may change as a result of a variety of factors, including changes in laws that impact funding requirements.

Defined Contribution Plans

The Company sponsors two defined contribution plans which are available to substantially all United States employees. The Company matches a percentage of employee contributions up to a maximum level and contributes up to 2% of an employee's wages regardless of employee contributions. The Company recognized expense of \$48 million, \$42 million and \$38 million during the years ended December 31, 2018, 2017 and 2016, respectively, related to these plans.

15. POSTEMPLOYMENT AND POSTRETIREMENT BENEFITS OTHER THAN PENSIONS

The Company maintains health care and life insurance benefit plans for certain retired employees and their dependents. The health care plans in the United States are non-funded and pay either (1) stated percentages of covered medically necessary expenses, after subtracting payments by Medicare or other providers and after stated deductibles have been met, or (2) fixed amounts of medical expense reimbursement.

Salaried employees hired on or before December 31, 2005 become eligible to participate in the United States health care plans upon retirement if they have accumulated 10 years of service after age 45, 48 or 50, depending on the category of employee. For employees hired after December 31, 2005, the Company does not provide subsidized retiree health care. Some of the plans are contributory, with some retiree contributions adjusted annually. The Company has reserved the right to change or eliminate these benefit plans subject to the terms of collective bargaining agreements.

Table of Contents

-90-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

15. POSTEMPLOYMENT AND POSTRETIREMENT BENEFITS OTHER THAN PENSIONS (continued)

The following table provides a reconciliation of the change in the projected benefit obligation and the net amount recognized in the Consolidated Balance Sheets for the years ended December 31, 2018 and 2017 (in millions):

	December 31, 2018			December 31, 2017		
	U.S.	Non-U.S.	Total	U.S.	Non-U.S.	Total
Change in Projected Benefit Obligation						
Benefit obligation at beginning of period	\$216	\$ 14	\$230	\$212	\$ 13	\$225
Service cost	1	—	1	2	—	2
Interest cost	8	—	8	8	1	9
Actuarial gain	(25)	—	(25)	(13)	(2)	(15)
Currency loss	—	(1)	(1)	—	1	1
Plan amendments	(2)	—	(2)	(3)	—	(3)
Benefits paid	(15)	(1)	(16)	(12)	(1)	(13)
Acquisition	—	—	—	22	—	22
Other	—	—	—	—	2	2
Benefit obligation at end of period	\$183	\$ 12	\$195	\$216	\$ 14	\$230
Funded status	\$(183)	\$(12)	\$(195)	\$(216)	\$(14)	\$(230)
Amounts Recognized in the Consolidated Balance Sheets						
Accrued benefit obligation – current			\$(17)	\$—	\$(17)	\$(18)
Accrued benefit obligation – non-current			(166)	(12)	(178)	(198)
Net amount recognized			\$(183)	\$(12)	\$(195)	\$(216)
Amounts Recorded in AOCI						
Net actuarial loss (gain)	\$(49)	\$(5)	\$(54)	\$(29)	\$(6)	\$(35)
Net prior service cost (credit)	(9)	—	(9)	(12)	1	(11)
Net amount recognized	\$(58)	\$(5)	\$(63)	\$(41)	\$(5)	\$(46)

Weighted-Average Assumptions Used to Determine Benefit Obligations

The following table presents the discount rates used to determine the benefit obligations:

	December 31,	
	2018	2017
United States plans	4.15%	3.45%
Non-United States plans	4.59%	4.56%

Table of Contents

-91-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

15. POSTEMPLOYMENT AND POSTRETIREMENT BENEFITS OTHER THAN PENSIONS (continued)

Components of Net Periodic Postretirement Benefit Cost

The following table presents the components of net periodic postretirement benefit cost (in millions):

	Twelve Months Ended December 31, 2018 2017 2016		
Service cost	\$1	\$2	\$2
Interest cost	8	9	9
Amortization of prior service cost	(4)	(4)	(4)
Amortization of actuarial gain	(6)	(3)	(1)
Other	—	—	1
Net periodic postretirement benefit cost	\$(1)	\$4	\$7

Weighted-Average Assumptions Used to Determine Net Periodic Postretirement Benefit Cost

The following table presents the discount rates used to determine net periodic postretirement benefit cost:

	Twelve Months Ended December 31, 2018 2017 2016		
United States plans	3.45%	3.80%	4.00%
Non-United States plans	4.56%	6.78%	3.80%

The following table presents health care cost trend rates used to determine net periodic postretirement benefit cost, as well as information regarding the ultimate rate and the year in which the ultimate rate is reached:

	Twelve Months Ended December 31, 2018 2017 2016		
United States plans			
Initial rate at end of year	6.75 %	6.56 %	6.78 %
Ultimate rate	5.00 %	5.00 %	5.00 %
Year in which ultimate rate is reached	2026	2025	2025
Non-United States plans			
Initial rate at end of year	5.40 %	5.73 %	5.07 %
Ultimate rate	5.40 %	5.49 %	4.70 %
Year in which ultimate rate is reached	2019	2019	2019

The health care cost trend rate assumption can have a significant effect on the amounts reported. To illustrate, a one-percentage point change in the December 31, 2018 assumed health care cost trend rate would have the following effects (in millions):

	1-Percentage Point Increase	Decrease
Increase (decrease) in total service cost and interest cost components of net periodic postretirement benefit cost	\$ —	\$ —
Increase (decrease) of accumulated postretirement benefit obligation	\$ 4	\$ (3)

Accumulated Other Comprehensive Earnings (Deficit)

Approximately \$12 million of the \$63 million balance in AOCI is expected to be recognized as net periodic postretirement benefit during 2019.

Table of Contents

-92-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

15. POSTEMPLOYMENT AND POSTRETIREMENT BENEFITS OTHER THAN PENSIONS (continued)

Estimated Future Benefit Payments

The following table shows estimated future benefit payments from the Company's postretirement benefit plans (in millions):

Year	Estimated Benefit Payments
2019	\$ 18
2020	\$ 18
2021	\$ 17
2022	\$ 17
2023	\$ 16
2024-2028	\$ 70

Postemployment Benefits

The Company may also provide benefits to former or inactive employees after employment but before retirement under certain conditions. These benefits include continuation of benefits such as health care and life insurance coverage. The accrued postemployment benefits liability at December 31, 2018 and 2017 was \$12 million and \$13 million, respectively. The net periodic postemployment benefit expense was \$4 million for the year ended December 31, 2018, \$3 million in 2017, and \$2 million in 2016.

16. CONTINGENT LIABILITIES AND OTHER MATTERS

The Company may be involved in various legal and regulatory proceedings relating to employment, antitrust, tax, product liability, environmental and other matters (collectively, "Proceedings"). The Company regularly reviews the status of such Proceedings along with legal counsel. Liabilities for such Proceedings are recorded when it is probable that the liability has been incurred and when the amount of the liability can be reasonably estimated. Liabilities are adjusted when additional information becomes available. Management believes that the amount of any reasonably possible losses in excess of any amounts accrued, if any, with respect to such Proceedings or any other known claim, including the matters described below under the caption Environmental Matters (the "Environmental Matters"), are not material to the Company's financial statements. Management believes that the ultimate disposition of the Proceedings and the Environmental Matters will not have a material adverse effect on the Company's financial condition. While the likelihood is remote, the disposition of the Proceedings and Environmental Matters could have a material impact on the results of operations, cash flows or liquidity in any given reporting period.

Litigation and Regulatory Proceedings

The Company is involved in litigation and regulatory Proceedings from time to time in the regular course of its business. The Company believes that adequate provisions for resolution of all contingencies, claims and pending matters have been made for probable losses that are reasonably estimable.

Litigation Settlement Gain

In 2017, the Company and TopBuild Corp. entered into a settlement agreement in connection with a commercial breach of contract dispute. Under the terms of the settlement, TopBuild Corp. paid Owens Corning \$30 million in cash in 2017. During the second quarter of 2017, a \$29 million litigation settlement gain, net of legal fees, was recorded in Other expenses, net on the Consolidated Statements of Earnings in the Corporate, Other and Eliminations category.

Table of Contents

-93-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

16. CONTINGENT LIABILITIES AND OTHER MATTERS (continued)

Environmental Matters

The Company has established policies and procedures designed to ensure that its operations are conducted in compliance with all relevant laws and regulations and that enable the Company to meet its high standards for corporate sustainability and environmental stewardship. Our manufacturing facilities are subject to numerous foreign, federal, state and local laws and regulations relating to the presence of hazardous materials, pollution and protection of the environment, including emissions to air, discharges to water, management of hazardous materials, handling and disposal of solid wastes, and remediation of contaminated sites. All Company manufacturing facilities operate using an ISO 14001 or equivalent environmental management system. The Company's 2020 Sustainability Goals require significant global reductions in energy use, water consumption, waste to landfill, emissions of greenhouse gases, fine particulate matter and toxic air emissions. The Company is dedicated to continuous improvement in our environmental, health and safety performance and to achieving its 2020 Sustainability Goals.

Owens Corning is involved in remedial response activities and is responsible for environmental remediation at a number of sites, including certain of its currently owned or formerly owned plants. These responsibilities arise under a number of laws, including, but not limited to, the Federal Resource Conservation and Recovery Act, and similar state or local laws pertaining to the management and remediation of hazardous materials and petroleum. The Company has also been named a potentially responsible party under the U.S. Federal Superfund law, or state equivalents, at a number of disposal sites. The Company became involved in these sites as a result of government action or in connection with business acquisitions. As of December 31, 2018, the Company was involved with a total of 22 sites worldwide, including 8 Superfund sites and 14 owned or formerly owned sites. None of the liabilities for these sites are individually significant to the Company.

Remediation activities generally involve a potential range of activities and costs related to soil and groundwater contamination. This can include pre-cleanup activities such as fact finding and investigation, risk assessment, feasibility studies, remedial action design and implementation (where actions may range from monitoring to removal of contaminants, to installation of longer-term remediation systems). A number of factors affect the cost of environmental remediation, including the number of parties involved in a particular site, the determination of the extent of contamination, the length of time the remediation may require, the complexity of environmental regulations, variability in clean-up standards, the need for legal action, and changes in remediation technology. Taking these factors into account, Owens Corning has predicted the costs of remediation reasonably estimated to be paid over a period of years. The Company accrues an amount on an undiscounted basis, consistent with the reasonable estimates of these costs when it is probable that a liability has been incurred. Actual cost may differ from these estimates for the reasons mentioned above.

At December 31, 2018, the Company had an accrual totaling \$16 million for its environmental liabilities, of which the current portion is \$8 million. Changes in required remediation procedures or timing of those procedures, or discovery of contamination at additional sites, could result in material increases to the Company's environmental obligations.

17. STOCK COMPENSATION

2016 Stock Plan

On April 21, 2016, the Company's stockholders approved the Owens Corning 2016 Stock Plan (the "2016 Stock Plan") which replaced the 2013 Stock Plan. The 2016 Stock Plan authorizes grants of stock options, stock appreciation

rights, restricted stock awards, restricted stock units, bonus stock awards and performance stock awards. At December 31, 2018, the number of shares remaining available under the 2016 Stock Plan for all stock awards was 2.5 million.

Stock Options

The Company has granted stock options under its stockholder approved stock plans. The Company calculates a weighted-average grant-date fair value using a Black-Scholes valuation model for options granted. Compensation expense for options is measured based on the fair market value of the option on the date of grant, and is recognized on a straight-line basis over a four year vesting period. In general, the exercise price of each option awarded was equal to the closing market price of the Company's common stock on the date of grant and an option's maximum term is 10 years. The volatility assumption was based on a benchmark study of our peers prior to 2014. Starting with the options granted in 2014, the volatility was based on the Company's historic volatility.

Table of Contents

-94-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

17. STOCK COMPENSATION (continued)

During 2018, 2017 and 2016, no stock options were granted.

During the years ended December 31, 2018, 2017 and 2016, the Company recognized expense of less than \$1 million, \$1 million and \$2 million, respectively, related to the Company's stock options. As of December 31, 2018, there was no unrecognized compensation cost related to stock options. The total aggregate intrinsic value of options outstanding as of December 31, 2018, 2017 and 2016 was \$3 million, \$28 million and \$16 million, respectively. The total aggregate intrinsic value of options exercisable as of December 31, 2018, 2017 and 2016 was \$3 million, \$25 million and \$13 million, respectively. Cash received from option exercises was \$1 million, \$15 million and \$26 million for the years ended December 31, 2018, 2017 and 2016, respectively. There were no tax benefits realized from tax deductions associated with option exercises for the year ended December 31, 2018. Tax benefits realized from tax deductions associated with option exercises totaled \$7 million and \$9 million for the years ended December 31, 2017 and 2016, respectively.

The following table summarizes the Company's stock option activity:

	Twelve Months Ended December 31,					
	2018		2017		2016	
	Number of Options	Weighted-Average Exercise Price	Number of Options	Weighted-Average Exercise Price	Number of Options	Weighted-Average Exercise Price
Beginning Balance	518,725	\$ 37.17	975,400	\$ 35.14	1,953,320	\$ 31.09
Granted	—	—	—	—	—	—
Exercised	(39,100)	37.05	(453,425)	32.79	(960,570)	26.90
Forfeited	(750)	37.65	(3,250)	37.65	(11,350)	38.50
Expired	—	—	—	—	(6,000)	30.00
Ending Balance	478,875	\$ 37.18	518,725	\$ 37.17	975,400	\$ 35.14

The following table summarizes information about the Company's options outstanding and exercisable:

Range of Exercise Prices	Options Outstanding		Options Exercisable	
	Options Outstanding	Weighted-Average Remaining Contractual Exercise Price Life	Number Exercisable at Dec. 31, 2018	Weighted-Average Remaining Contractual Exercise Price Life
\$13.89 - \$42.16	478,875	4.00 \$ 37.18	478,875	4.00 \$ 37.18

Restricted Stock Awards and Restricted Stock Units

The Company has granted restricted stock awards and restricted stock units (collectively referred to as "restricted stock") under its stockholder approved stock plans. Compensation expense for restricted stock is measured based on the closing market price of the stock at date of grant and is recognized on a straight-line basis over the vesting period, which is typically three or four years. The Stock Plan allows alternate vesting schedules for death, disability, and retirement over various periods ending in 2020.

During the years ended December 31, 2018, 2017 and 2016, the Company recognized expense of \$23 million, \$21 million and \$19 million, respectively, related to the Company's restricted stock. As of December 31, 2018, there was \$36 million of total unrecognized compensation cost related to restricted stock. That cost is expected to be recognized over a weighted-average period of 2.40 years. The total grant date fair value of shares vested during the years ended December 31, 2018, 2017 and 2016, was \$23 million, \$19 million and \$15 million, respectively.

Table of Contents

-95-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

17. STOCK COMPENSATION (continued)

The following table shows a summary of the Company's Restricted Stock plans:

	Twelve Months Ended December 31,					
	2018		2017		2016	
	Number of Shares	Weighted-Average Grant Date Fair Value	Number of Shares	Weighted-Average Grant Date Fair Value	Number of Shares	Weighted-Average Grant Date Fair Value
Beginning Balance	1,752,136	\$ 42.40	1,800,557	\$ 37.78	1,707,490	\$ 35.37
Granted	365,363	84.34	496,021	56.60	544,627	45.61
Vested	(558,288)	41.34	(477,857)	38.94	(398,751)	37.55
Forfeited	(79,837)	54.20	(66,585)	44.90	(52,809)	39.80
Ending Balance	1,479,374	\$ 52.30	1,752,136	\$ 42.40	1,800,557	\$ 37.78

Performance Stock Awards and Performance Stock Units

The Company has granted performance stock awards and performance stock units (collectively referred to as "PSUs") as a part of its long-term incentive plan. All outstanding performance grants will fully settle in stock. The amount of stock ultimately distributed from the 2018, 2017 and 2016 grants is contingent on meeting internal company-based metrics or an external-based stock performance metric.

In 2018, 2017 and 2016, the Company granted both internal company-based and external-based metric PSUs.

Internal Company-based metrics

The internal company-based metrics vest after a three-year period and are based on various company-based metrics over a three-year period. The amount of stock distributed will vary from 0% to 300% of PSUs awarded depending on performance versus the company-based metrics.

The initial fair value for all internal company-based metric PSUs assumes that the performance goals will be achieved and is based on the grant date stock price. This assumption is monitored quarterly and if it becomes probable that such goals will not be achieved or will be exceeded, compensation expense recognized will be adjusted and previous surplus compensation expense recognized will be reversed or additional expense will be recognized. The expected term represents the period from the grant date to the end of the three-year performance period. Pro-rata vesting may be utilized in the case of death, disability or retirement, and awards, if earned, will be paid at the end of the three-year period.

External based metrics

The external-based metrics vest after a three-year period. Outstanding grants issued in or after 2015 will be based on the Company's total stockholder return relative to the performance of the S&P Building & Construction Industry Index. The amount of stock distributed will vary from 0% to 200% of PSUs awarded depending on the relative stockholder return performance.

2018 Grant

For the 2018 grant, the fair value of the external based metric PSUs was estimated at the grant date using a Monte Carlo simulation that used various assumptions that include expected volatility of 24.56%, a risk free interest rate of 2.22% and an expected term of 2.92 years. Expected volatility was based on Owens Corning's most recent 2.92 years volatility. The risk-free interest rate was based on zero coupon United States Treasury bills at the grant date. The expected term represents the period from the grant date to the end of the three-year performance period.

For the 2018 grant, the fair value of the internal based metric PSUs was estimated using the grant date stock price and assumed that the performance goals will be achieved. This assumption is monitored each quarter and if it becomes probable that such goals will not be achieved or will be exceeded, compensation expense recognized will be adjusted.

This adjustment results in either reversing previous surplus compensation expense recognized or recognizing additional expense.

Table of Contents

-96-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

17. STOCK COMPENSATION (continued)

2017 Grant

For the 2017 grant, the fair value of the external based metric PSUs was estimated at the grant date using a Monte Carlo simulation that used various assumptions that include expected volatility of 26.06%, a risk free interest rate of 1.44% and an expected term of 2.92 years. Expected volatility was based on Owens Corning's most recent 2.92 years volatility. The risk-free interest rate was based on zero coupon United States Treasury bills at the grant date. The expected term represents the period from the grant date to the end of the three-year performance period.

For the 2017 grant, the fair value of the internal based metric PSUs was estimated using the grant date stock price and assumed that the performance goals will be achieved. This assumption is monitored each quarter and if it becomes probable that such goals will not be achieved or will be exceeded, compensation expense recognized will be adjusted. This adjustment results in either reversing previous surplus compensation expense recognized or recognizing additional expense.

2016 Grant

For the 2016 grant, the fair value of the external based metric PSUs was estimated at the grant date using a Monte Carlo simulation that used various assumptions that include expected volatility of 26.55%, a risk free interest rate of 0.84% and an expected term of 2.91 years. Expected volatility was based on Owens Corning's most recent 2.91 years volatility. The risk-free interest rate was based on zero coupon United States Treasury bills at the grant date. The expected term represents the period from the grant date to the end of the three-year performance period.

For the 2016 grant, the fair value of the internal based metric PSUs was estimated using the grant date stock price and assumed that the performance goals will be achieved. The performance period for this grant ended in 2018, and performance was consistent with estimated compensation expense that was recognized over the life of the grant.

PSU Summary

For all PSUs, respectively, during the years ended December 31, 2018, 2017 and 2016, the Company recognized expense of \$20 million, \$19 million and \$16 million. As of December 31, 2018, there was \$14 million total unrecognized compensation cost related to PSUs. That cost is expected to be recognized over a weighted-average period of 1.57 years. The total grant date fair value of shares vested during the years ended December 31, 2018, 2017 and 2016, was \$23 million, \$9 million and \$3 million, respectively.

The following table shows a summary of the Company's PSU plans:

	Twelve Months Ended December 31,					
	2018		2017		2016	
	Number of PSUs	Weighted-Average Grant Date Fair Value	Number of PSUs	Weighted-Average Grant Date Fair Value	Number of PSUs	Weighted-Average Grant Date Fair Value
Beginning Balance	451,148	\$ 53.96	472,300	\$ 47.19	431,400	\$ 44.52
Granted	171,725	94.14	221,050	59.71	244,250	48.74
Vested	(212,852)	48.73	(219,050)	43.83	(186,750)	44.43
Forfeited/canceled	(49,044)	60.31	(23,152)	49.50	(16,600)	44.48
Ending Balance	360,977	\$ 75.23	451,148	\$ 53.96	472,300	\$ 47.19

Table of Contents

-97-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

17. STOCK COMPENSATION (continued)

Employee Stock Purchase Plan

The Owens Corning Employee Stock Purchase Plan (ESPP) is a tax qualified plan under Section 423 of the Internal Revenue Code. The purchase price of shares purchased under the ESPP is equal to 85% of the lower of the fair market value of shares of Owens Corning common stock at the beginning or ending of the offering period, which is a six month period ending on May 31 and November 30 of each year. There were 2 million shares available for purchase under the ESPP as of its approval date. The Company recognized expense related to the ESPP of \$4 million, \$3 million and \$3 million for the years ended December 31, 2018, 2017 and 2016, respectively. As of December 31, 2018, the Company had \$2 million of total unrecognized compensation costs related to the ESPP. For the years ended December 31, 2018, 2017 and 2016, our employees purchased 0.3 million shares at an average price of \$48.93, 0.3 million shares at an average price of \$48.48, and 0.2 million shares at an average price of \$41.99, respectively. Under the outstanding ESPP as of February 15, 2019 employees have contributed \$4 million to purchase shares for the current purchase period ending May 31, 2019.

18. CHANGES IN ACCUMULATED OTHER COMPREHENSIVE DEFICIT

The following table summarizes the changes in accumulated other comprehensive income (deficit) (in millions):

	Twelve Months Ended December 31, 2018 2017	
Currency Translation Adjustment		
Beginning balance	\$(183)	\$(284)
Net investment hedge amounts classified into AOCI, net of tax	14	(24)
(Loss) Gain on foreign currency translation	(137)	125
Other comprehensive (loss)/income, net of tax	(123)	101
Ending balance	\$(306)	\$(183)
Pension and Other Postretirement Adjustment		
Beginning balance	\$(331)	\$(429)
Amounts reclassified from AOCI to net earnings, net of tax (a)	4	53
Amounts classified into AOCI, net of tax	(23)	45
Other comprehensive (loss)/income, net of tax	(19)	98
Ending balance	\$(350)	\$(331)
Hedging Adjustment		
Beginning balance	\$—	\$3
Amounts reclassified from AOCI to net earnings, net of tax (b)	(1)	(1)
Amounts classified into AOCI, net of tax	1	(2)
Other comprehensive (loss), net of tax	—	(3)
Ending balance	\$—	\$—
Total AOCI ending balance	\$(656)	\$(514)

(a) These AOCI components are included in the computation of total Pension and OPEB expense and are recorded in Cost of sales, marketing and administrative expenses and Other expenses, net. See Notes 14 and 15 for additional information.

(b) Amounts reclassified from (loss)/gain on cash flow hedges are reclassified from AOCI to income when the hedged item affects earnings and is recognized in Cost of sales. See Note 5 for additional information.

Table of Contents

-98-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

19. EARNINGS PER SHARE

The following table is a reconciliation of weighted-average shares for calculating basic and diluted earnings per-share (in millions, except per share amounts):

	Twelve Months Ended December 31,		
	2018	2017	2016
Net earnings attributable to Owens Corning	\$545	\$289	\$393
Weighted-average number of shares outstanding used for basic earnings per share	110.4	111.5	114.4
Non-vested restricted and performance shares	0.8	1.5	0.8
Options to purchase common stock	0.2	0.2	0.2
Weighted-average number of shares outstanding and common equivalent shares used for diluted earnings per share	111.4	113.2	115.4
Earnings per common share attributable to Owens Corning common stockholders:			
Basic	\$4.94	\$2.59	\$3.44
Diluted	\$4.89	\$2.55	\$3.41

Basic earnings per share is calculated by dividing earnings attributable to Owens Corning by the weighted-average number of shares of the Company's common stock outstanding during the period. Outstanding shares consist of issued shares less treasury stock.

On October 24, 2016, the Board of Directors approved a new share buy-back program under which the Company is authorized to repurchase up to 10 million shares of the Company's outstanding common stock (the "Repurchase Authorization"). The Repurchase Authorization enables the Company to repurchase shares through the open market, privately negotiated, or other transactions. The actual number of shares repurchased will depend on timing, market conditions and other factors and is at the Company's discretion. The Company repurchased 2.9 million shares of its common stock for \$203 million for the year ended December 31, 2018 under the Repurchase Authorization. As of December 31, 2018, 4.6 million shares remain available for repurchase under the Repurchase Authorization.

For the year ended December 31, 2018, the number of shares used in the calculation of diluted earnings per share did not include 0.3 million non-vested restricted shares and 0.3 million non-vested performance shares, due to their anti-dilutive effect. For the year ended December 31, 2017, we did not have any non-vested restricted shares or non-vested performance shares that had an anti-dilutive effect on earnings per share. For the years ended December 31, 2016, the number of shares used in the calculation of diluted earnings per share did not include 0.1 million non-vested performance shares, due to their anti-dilutive effect.

Table of Contents

-99-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

20. INCOME TAXES

The following table summarizes our Earnings before taxes and Income tax expense (in millions):

	Twelve Months Ended December 31,		
	2018	2017	2016
Earnings before taxes:			
United States	\$411	\$342	\$281
Foreign	293	217	309
Total	\$704	\$559	\$590
Income tax expense:			
Current			
United States	\$(10)	\$(2)	\$(7)
State and local	6	5	4
Foreign	19	83	55
Total current	15	86	52
Deferred			
United States	114	196	117
State and local	12	3	8
Foreign	15	(16)	11
Total deferred	141	183	136
Total income tax expense	\$156	\$269	\$188

The reconciliation between the United States federal statutory rate and the Company's effective income tax rate from continuing operations is:

	Twelve Months Ended December 31,		
	2018	2017	2016
United States federal statutory rate	21 %	35 %	35 %
State and local income taxes, net of federal tax benefit	2	2	2
Foreign tax rate differential	—	(5)	(4)
U.S. tax expense on foreign earnings	2	49	2
Legislative tax rate changes	—	(9)	1
Foreign tax credits	—	(29)	—
Valuation allowance	2	3	(3)
Uncertain tax positions and settlements	(5)	1	1
Excess tax benefits related to stock compensation	(2)	(1)	(1)
Other, net	2	2	(1)
Effective tax rate	22 %	48 %	32 %

During the first quarter of 2018, the Company adopted ASU No. 2016-16, "Intra-Entity Transfers of Assets Other Than Inventory (Topic 740)." Under this standard, the tax effects of intra-entity sales of assets other than inventory will be recognized immediately in the seller's tax jurisdiction when the transfer occurs, even though the pre-tax effects of that transaction are eliminated in consolidation. Any deferred tax asset that arises in the buyer's jurisdiction would also be

recognized at the time of the transfer. The standard is applied using a modified retrospective transition method by means of a cumulative-effect adjustment to equity as of the beginning of the year of adoption. As of January 1, 2018, we recorded a \$17 million decrease in Other non-current assets, a \$7 million increase in Deferred income tax assets and a \$10 million decrease to Accumulated earnings.

Table of Contents

-100-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

20. INCOME TAXES (continued)

The U.S. government enacted tax legislation commonly known as the U.S. Tax Cuts and Jobs Act of 2017 on December 22, 2017 (the "Tax Act"). The Tax Act made broad and complex changes to the U.S. tax code, including but not limited to, a reduction to the U.S. federal corporate income tax rate from 35% to 21%; a one-time transition tax on certain unrepatriated earnings of foreign subsidiaries (the "Transition Tax"); eliminating the corporate alternative minimum tax (AMT) and changing realization of AMT credits; changing rules related to uses and limitations of net operating loss (NOL) carryforwards created in tax years after December 31, 2017; changes to the limitations on available interest expense deductions; and changes to other existing deductions and business-related exclusions

The SEC issued Staff Accounting Bulletin No. 118, "Income Tax Accounting Implications of the Tax Cuts and Jobs Act" ("SAB 118"), which provides guidance on the accounting for the tax effects of the Tax Act. SAB 118 provides a measurement period that should not extend beyond one year from the Tax Act enactment date to complete the accounting under ASC 740, "Income Taxes." In accordance with SAB 118, a provisional non-cash charge of \$82 million was recorded to tax expense in December 2017 based on reasonable estimates of certain effects of the Tax Act. During the measurement period, the Company completed the accounting for income tax effects of the Tax Act, which resulted in an increase to the provisional charge of \$9 million.

Effective January 1, 2018, the Tax Act creates a new requirement to include in U.S. income global intangible low-taxed income (GILTI) earned by controlled foreign corporations (CFCs). The GILTI must be included currently in the gross income of the CFCs' U.S. shareholder. Under U.S. GAAP, we are allowed to make an accounting policy choice of either (1) treating taxes due on future U.S. inclusions related to GILTI as a current-period expense when incurred (the "period cost method") or (2) factoring such amounts into a company's measurement of its deferred taxes (the "deferred method"). During the first quarter of 2018, we selected the period cost method in recording the tax effects of GILTI in our financial statements.

The Company continues to assert indefinite reinvestment in accordance with ASC 740 based on the laws as of enactment of the Tax Act. As of December 31, 2018, the Company has not provided for withholding or income taxes on approximately \$1.4 billion of undistributed reserves of its foreign subsidiaries and affiliates as they are considered by management to be permanently reinvested. Quantification of the deferred tax liability associated with these undistributed reserves is not practicable.

The cumulative temporary differences giving rise to the deferred tax assets and liabilities are as follows (in millions):

	December 31, 2018		December 31, 2017	
	Deferred Tax Assets	Deferred Tax Liabilities	Deferred Tax Assets	Deferred Tax Liabilities
Other employee benefits	\$ 87	\$ —	\$ 92	\$ —
Pension plans	66	—	48	—
Operating loss and tax credit carryforwards	255	—	377	—
Depreciation	—	259	—	234
Amortization	—	395	—	314
Foreign tax credits	161	—	160	—
State and local taxes	3	—	3	—
Other	61	—	69	—

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Subtotal	633	654	749	548
Valuation allowances	(78)	—	(94)	—
Total deferred taxes	\$ 555	\$ 654	\$ 655	\$ 548

The following table summarizes the amount and expiration dates of our deferred tax assets related to operating loss and credit carryforwards at December 31, 2018 (in millions):

Table of Contents

-101-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

20. INCOME TAXES (continued)

	Expiration Dates	Amounts
U.S. federal loss carryforwards	2027 – 2032	\$ 65
U.S. state loss carryforwards (a)	2019 – 2034	58
Foreign loss and tax credit carryforwards	Indefinite	37
Foreign loss and tax credit carryforwards (a)	2019 – 2034	65
Other U.S. federal and state tax credits	2028 – 2034	30
Total operating loss and tax credit carryforwards		\$ 255
U.S. foreign tax credits	2027	\$ 161

(a) As of December 31, 2018, \$8 million of U.S. state and \$6 million of foreign deferred tax assets related to loss carryforwards are set to expire over the next three years.

At December 31, 2018, the Company had federal, state and foreign net operating loss (NOL) carryforwards of \$0.4 billion, \$1.6 billion and \$0.4 billion, respectively. In order to utilize our NOLs and U.S. foreign tax credits ("FTCs"), the Company will need to generate federal, state, and foreign earnings before taxes of approximately \$1.3 billion, \$1.9 billion, and \$0.4 billion, respectively. Certain of these loss carryforwards are subject to limitation as a result of the changes of control that resulted from the Company's emergence from bankruptcy in 2006 and the acquisition of certain foreign entities in 2007. However, the Company believes that these limitations on its loss carryforwards will not result in a forfeiture of any of the carryforwards.

On June 27, 2017, the Company acquired all the outstanding equity of Pittsburgh Corning. On the date of acquisition, Pittsburgh Corning's tax attributes included a \$296 million NOL carryover generated during the tax year 2016 and short tax year ending June 27, 2017. Section 382 of the Internal Revenue Code (IRC) limits the use of net operating loss tax attributes when a corporation experiences an "ownership change." The acquisition of Pittsburgh Corning on June 27, 2017 qualifies as an "ownership change" under IRC Section 382 which limits the ability to use pre-ownership change losses to offset post-ownership change taxable income. The limits imposed under IRC Section 382 allows utilization of \$192 million of Pittsburgh Corning's NOLs and is included in the Company's total federal NOLs recorded as of December 31, 2017.

Deferred income taxes are provided for temporary differences between amounts of assets and liabilities for financial reporting purposes and the basis of such assets and liabilities as measured under enacted tax laws and regulations, as well as NOLs, tax credits and other carryforwards. A valuation allowance will be recorded to reduce deferred tax assets if, based on all available evidence, it is considered more likely than not that some portion or all of the recorded deferred tax assets will not be realized in future periods. To the extent the reversal of deferred tax liabilities is relied upon in our assessment of the realizability of deferred tax assets, they will reverse in the same period and jurisdiction as the temporary differences giving rise to the deferred tax assets. As of December 31, 2018, the Company had federal and state net deferred tax assets before valuation allowances of \$11 million and \$18 million, and foreign net deferred tax liabilities of \$50 million.

The valuation allowance of \$78 million as of December 31, 2018 is related to tax assets of \$34 million, \$6 million and \$38 million for U.S. federal FTCs and certain state and foreign jurisdictions, respectively. The realization of deferred tax assets depends on achieving a certain minimum level of future taxable income. Management currently believes that it is at least reasonably possible that the minimum level of taxable income will be met within the next 12 months to reduce the valuation allowance of certain foreign jurisdictions by a range of zero to \$1 million. The valuation allowance of \$94 million as of December 31, 2017 is related to tax assets of \$24 million, \$1 million, and \$69 million for U.S. federal FTC's and certain state and foreign jurisdictions, respectively.

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The Company, or one of its subsidiaries, files income tax returns in the United States and other foreign jurisdictions. The Company is no longer subject to U.S. federal tax examinations for years before 2013 or state and foreign examinations for years before 2008. Due to the potential for resolution of federal, state and foreign examinations, and the expiration of various statutes of limitation, it is reasonably possible that the gross unrecognized tax benefits balance may change within the next 12 months by a range of zero to \$3 million.

A reconciliation of the beginning and ending amounts of unrecognized tax benefits is as follows (in millions):

Table of Contents

-102-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

20. INCOME TAXES (continued)

	Twelve Months Ended December 31,		
	2018	2017	2016
Balance at beginning of period	\$90	\$98	\$84
Tax positions related to the current year			
Gross additions	6	1	1
Tax positions related to prior years			
Gross additions	36	13	19
Gross reductions	(37)	(11)	(5)
Settlements	(5)	(12)	(1)
Expiration of statute of limitations	(4)	—	—
Impact of currency changes	(2)	1	—
Balance at end of period	\$84	\$90	\$98

If these uncertain tax benefits (UTBs) were to be recognized as of December 31, 2018, the Company's income tax expense would decrease by about \$65 million.

The Company classifies all interest and penalties as income tax expense. As of December 31, 2018, 2017 and 2016, and for the periods then ended, the Company recognized \$10 million, \$11 million and \$11 million respectively, in liabilities for tax related interest and penalties on its Consolidated Balance Sheets and \$1 million, \$1 million and \$(1) million, respectively, of interest and penalty expense (income) on its Consolidated Statements of Earnings.

On February 5, 2018, the Company acquired all the outstanding equity of Paroc, a leading producer of mineral wool insulation for building and technical applications in Europe. The acquisition included net uncertain tax benefits (UTBs) related to a transfer pricing dispute and interest expense. On December 18, 2018, the Finnish Supreme Administrative Court (SAC) ruled in favor of Paroc Oy Ag, a wholly-owned subsidiary of the Company, regarding the transfer pricing dispute for tax years 2006 to 2008. Based the SAC decision, the Company reduced the UTB regarding the transfer pricing dispute by \$32 million and recorded a corresponding benefit to income tax expense.

Table of Contents

-103-

OWENS CORNING AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

21. QUARTERLY FINANCIAL INFORMATION (unaudited)

Select quarterly financial information is presented in the tables below for the quarterly periods (in millions, except per share amounts):

	Quarter			
	First	Second	Third	Fourth
2018				
Net sales	\$1,691	\$1,824	\$1,818	\$1,724
Gross margin	\$355	\$418	\$448	\$411
Income tax expense	\$11	\$49	\$67	\$29
Net earnings attributable to Owens Corning	\$92	\$121	\$161	\$171
BASIC EARNINGS PER COMMON SHARE ATTRIBUTABLE TO OWENS CORNING COMMON STOCKHOLDERS	\$0.83	\$1.09	\$1.46	\$1.56
DILUTED EARNINGS PER COMMON SHARE ATTRIBUTABLE TO OWENS CORNING COMMON STOCKHOLDERS	\$0.82	\$1.08	\$1.45	\$1.55
	Quarter			
	First	Second	Third	Fourth
2017				
Net sales	\$1,478	\$1,597	\$1,703	\$1,606
Gross margin (a)	\$342	\$408	\$423	\$396
Income tax expense (b)	\$43	\$67	\$32	\$127
Net earnings (loss) attributable to Owens Corning	\$101	\$96	\$96	\$(4)
BASIC EARNINGS (LOSS) PER COMMON SHARE ATTRIBUTABLE TO OWENS CORNING COMMON STOCKHOLDERS	\$0.90	\$0.86	\$0.86	\$(0.04)
DILUTED EARNINGS (LOSS) PER COMMON SHARE ATTRIBUTABLE TO OWENS CORNING COMMON STOCKHOLDERS	\$0.89	\$0.85	\$0.85	\$(0.04)

(a) Gross margin was impacted by the retrospective adoption of ASU 2017-07, which resulted in a gross margin decrease of \$1 million for the first, second and third quarters of 2017. See Note 14 for more information on this adoption.

(b) Income tax expense for the fourth quarter of 2017 includes a provisional charge of \$82 million related to the Tax Act. Please refer to Note 20 for additional details on this charge.

Table of Contents

-104-

OWENS CORNING AND SUBSIDIARIES
INDEX TO CONDENSED FINANCIAL STATEMENT SCHEDULE

Number	Description	Page
II	Valuation and Qualifying Accounts and Reserves – for the years ended December 31, 2018, 2017 and 2016	<u>105</u>

Table of Contents

-105-

OWENS CORNING AND SUBSIDIARIES

SCHEDULE II – VALUATION AND QUALIFYING ACCOUNTS AND RESERVES FOR THE YEARS ENDED

December 31, 2018, 2017 AND 2016

(in millions)

	Balance at Beginning of Period	Charged to Costs and Expenses	Charged to Other Accounts	Deductions	Acquisitions and Divestitures	Balance at End of Period
FOR THE YEAR ENDED DECEMBER 31, 2018						
Allowance for doubtful accounts	\$ 19	\$ —	\$ —	\$ (4) (a)	\$ 1	\$ 16
Tax valuation allowance	\$ 94	\$ 13	\$ (4)	\$ (31)	\$ 6	\$ 78
FOR THE YEAR ENDED DECEMBER 31, 2017						
Allowance for doubtful accounts	\$ 9	\$ 12	\$ —	\$ (2) (a)	\$ —	\$ 19
Tax valuation allowance	\$ 103	\$ 9	\$ 7	\$ (25)	\$ —	\$ 94
FOR THE YEAR ENDED DECEMBER 31, 2016						
Allowance for doubtful accounts	\$ 8	\$ 2	\$ —	\$ (1) (a)	\$ —	\$ 9
Tax valuation allowance	\$ 135	\$ (27)	\$ (5)	\$ —	\$ —	\$ 103

(a)Uncollectible accounts written off, net of recoveries.