

TENNECO INC  
Form 10-K  
February 24, 2016  
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UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

FORM 10-K  
(Mark One)

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

For the fiscal year ended December 31, 2015

OR

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

Commission file number 1-12387

TENNECO INC.

(Exact name of registrant as specified in its charter)

Delaware

76-0515284

(State or other jurisdiction of incorporation or organization)

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

500 North Field Drive

60045

Lake Forest, IL

(Zip Code)

(Address of principal executive offices)

Registrant's telephone number, including area code: (847) 482-5000

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 \$.01 per share	New York and Chicago Stock Exchanges

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

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

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

Note — Checking the box above will not relieve any registrant required to file reports pursuant to Section 13 or 15(d) of the Exchange Act from their obligations under those Sections.

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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes  No

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

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

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company” in Rule 12b-2 of the Exchange Act.

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

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

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant as of June 30, 2015, computed by reference to the price at which the registrant's common stock was last sold on the New York Stock Exchange on June 30, 2015, was approximately \$3.4 billion.

Common Stock, par value \$.01 per share, outstanding as of February 19, 2016 was 57,514,337.

Documents Incorporated by Reference:

Document

Part of the Form 10-K  
into which incorporated

Portions of Tenneco Inc.’s Definitive Proxy Statement for the Annual Meeting of  
Stockholders to be held May 18, 2016

Part III

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CAUTIONARY STATEMENT FOR PURPOSES OF THE “SAFE HARBOR” PROVISIONS OF THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995

This report contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 concerning, among other things, our prospects and business strategies. These forward-looking statements are included in various sections of this report, including the section entitled “Outlook” appearing in Item 7 of this report. The words “may,” “will,” “believe,” “should,” “could,” “plan,” “expect,” “anticipate,” “estimate,” and similar expressions (and their variations), identify these forward-looking statements. Although we believe that the expectations reflected in these forward-looking statements are based on reasonable assumptions, these expectations may not prove to be correct. Because these forward-looking statements are also subject to risks and uncertainties, actual results may differ materially from the expectations expressed in the forward-looking statements. Important factors that could cause actual results to differ materially from the expectations reflected in the forward-looking statements include:

- general economic, business and market conditions;
  - our ability to source and procure needed materials, components and other products and services in accordance with customer demand and at competitive prices;
- the cost and outcome of existing and any future claims, legal proceedings or investigations, including, but not limited to, any of the foregoing arising in connection with the ongoing global antitrust investigation, product performance, product safety or intellectual property rights;
- changes in capital availability or costs, including increases in our cost of borrowing (i.e., interest rate increases), the amount of our debt, our ability to access capital markets at favorable rates, and the credit ratings of our debt;
- changes in consumer demand, prices and our ability to have our products included on top selling vehicles, including any shifts in consumer preferences away from light trucks, which tend to be higher margin products for our customers and us, to other lower margin vehicles, for which we may or may not have supply arrangements;
- changes in consumer demand for our automotive, commercial or aftermarket products, or changes in automotive and commercial vehicle manufacturers’ production rates and their actual and forecasted requirements for our products, due to difficult economic conditions, such as the prolonged recession in Europe;
- the overall highly competitive nature of the automobile and commercial vehicle parts industries, and any resultant inability to realize the sales represented by our awarded book of business (which is based on anticipated pricing and volumes over the life of the applicable program);
  - the loss of any of our large original equipment manufacturer (“OEM”) customers (on whom we depend for a substantial portion of our revenues), or the loss of market shares by these customers if we are unable to achieve increased sales to other OEMs or any change in customer demand due to delays in the adoption or enforcement of worldwide emissions regulations;
  - our ability to successfully execute cash management and other cost reduction plans, including our European cost reduction initiatives, and to realize anticipated benefits from these plans;
- economic, exchange rate and political conditions in the countries where we operate or sell our products;
- industrywide strikes, labor disruptions at our facilities or any labor or other economic disruptions at any of our significant customers or suppliers or any of our customers’ other suppliers;
- increases in the costs of raw materials, including our ability to successfully reduce the impact of any such cost increases through materials substitutions, cost reduction initiatives, customer recovery and other methods;
- the negative impact of fuel price volatility on transportation and logistics costs, raw material costs, discretionary purchases of vehicles or aftermarket products and demand for off-highway equipment;
- the cyclical nature of the global vehicle industry, including the performance of the global aftermarket sector and the impact of vehicle parts’ longer product lives;
- costs related to product warranties and other customer satisfaction actions;
- the failure or breach of our information technology systems, including the consequences of any misappropriation, exposure or corruption of sensitive information stored on such systems and the interruption to our business that such failure or breach may cause;
- the impact of consolidation among vehicle parts suppliers and customers on our ability to compete;
-

changes in distribution channels or competitive conditions in the markets and countries where we operate, including the impact of increasing competition from lower cost, private-label products on our aftermarket business;

- customer acceptance of new products;
- new technologies that reduce the demand for certain of our products or otherwise render them obsolete;
- our ability to introduce new products and technologies that satisfy customers' needs in a timely fashion;

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our ability to realize our business strategy of improving operating performance;

our ability to successfully integrate any acquisitions that we complete and effectively manage our joint ventures and other third-party relationships;

changes by the Financial Accounting Standards Board or the Securities and Exchange Commission of authoritative generally accepted accounting principles or policies;

changes in accounting estimates and assumptions, including changes based on additional information;

any changes by the International Organization for Standardization (ISO) or other such committees in their certification protocols for processes and products, which may have the effect of delaying or hindering our ability to bring new products to market;

the impact of the extensive, increasing and changing laws and regulations to which we are subject, including environmental laws and regulations, which may result in our incurrence of environmental liabilities in excess of the amount reserved;

the potential impairment in the carrying value of our long-lived assets and goodwill or our deferred tax assets;

potential volatility in our effective tax rate;

natural disasters, such as the 2011 earthquake in Japan and flooding in Thailand, and any resultant disruptions in the supply or production of goods or services to us or by us or in demand by our customers;

- acts of war and/or terrorism, as well as actions taken or to be taken by the United States and other governments as a result of further acts or threats of terrorism, and the impact of these acts on economic, financial and social conditions in the countries where we operate; and

the timing and occurrence (or non-occurrence) of other transactions, events and circumstances which may be beyond our control.

The risks included here are not exhaustive. Refer to “Part I, Item 1A — Risk Factors” of this report for further discussion regarding our exposure to risks. Additionally, new risk factors emerge from time to time and it is not possible for us to predict all such risk factors, nor to assess the impact such risk factors might have on our business or the extent to which any factor or combination of factors may cause actual results to differ materially from those contained in any forward-looking statements. Given these risks and uncertainties, investors should not place undue reliance on forward-looking statements as a prediction of actual results.

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PART I

ITEM 1. BUSINESS.

TENNECO INC.

General

Our company, Tenneco Inc., designs, manufactures and distributes highly engineered products for both original equipment vehicle manufacturers (“OEMs”) and the repair and replacement markets, or aftermarket, worldwide. We are one of the world’s largest producers of clean air and ride performance products and systems for light vehicle, commercial truck, off-highway and other vehicle applications. As used herein, the term “Tenneco,” “we,” “us,” “our,” or the “Company” refers to Tenneco Inc. and its consolidated subsidiaries.

We were incorporated in Delaware in 1996. In 2005, we changed our name from Tenneco Automotive Inc. to Tenneco Inc. The name Tenneco better represents the expanding number of markets we serve through our commercial truck and off-highway businesses. Building a stronger presence in these markets complements our core businesses of supplying ride performance and clean air products and systems to original equipment and aftermarket customers worldwide. Our common stock is traded on the New York Stock Exchange (“NYSE”) and the Chicago Stock Exchange under the symbol “TEN.”

Corporate Governance and Available Information

We have established a comprehensive approach to corporate governance for the purpose of defining responsibilities, setting high standards of professional and personal conduct and assuring compliance with such responsibilities and standards. As part of its annual review process, the Board of Directors monitors developments in the area of corporate governance. Listed below are some of the key elements of our corporate governance policies.

For more information about these matters, see our definitive Proxy Statement for the Annual Meeting of Stockholders to be held on May 18, 2016.

Independence of Directors

Eight of our nine directors are independent under the NYSE listing standards.

Independent directors are scheduled to meet separately in executive session after every regularly scheduled Board of Directors meeting.

We have a lead independent director, Mr. Paul T. Stecko.

Audit Committee

All members meet the independence standards for audit committee membership under the NYSE listing standards and applicable Securities and Exchange Commission (“SEC”) rules.

Two members of the Audit Committee, Mr. Dennis J. Letham and Mr. Thomas C. Freyman, have been designated by the Board as “audit committee financial experts,” as defined in the SEC rules, and all members of the Audit Committee satisfy the NYSE’s financial literacy requirements.

The Audit Committee operates under a written charter which governs its duties and responsibilities, including its sole authority to appoint, review, evaluate and replace our independent auditors.

The Audit Committee has adopted policies and procedures governing the pre-approval of all audit, audit-related, tax and other services provided by our independent auditors.

Compensation/Nominating/Governance Committee

All members meet the independence standards for compensation and nominating committee membership under the NYSE listing standards.

The Compensation/Nominating/Governance Committee operates under a written charter that governs its duties and responsibilities, including the responsibility for executive compensation.

We have an Executive Compensation Subcommittee which has the responsibility to consider and approve compensation for our executive officers which is intended to qualify as “performance based compensation” under Section 162(m) of the Internal Revenue Code.

Corporate Governance Principles

We have adopted Corporate Governance Principles, including qualification and independence standards for directors.





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### Stock Ownership Guidelines

We have adopted Stock Ownership Guidelines to align the interests of our executives with the interests of stockholders and promote our commitment to sound corporate governance.

The Stock Ownership Guidelines apply to the independent directors, the Chairman and Chief Executive Officer, and all other officers with a rank of Vice President or higher.

### Communication with Directors

The Audit Committee has established a process for confidential and anonymous submission by our employees, as well as submissions by other interested parties, regarding questionable accounting or auditing matters.

Additionally, the Board of Directors has established a process for stockholders to communicate with the Board of Directors, as a whole, or any independent director.

### Codes of Business Conduct and Ethics

We have adopted a Code of Ethical Conduct for Financial Managers, which applies to our Chief Executive Officer, Chief Operating Officer, Chief Financial Officer, Controller and other key financial managers. This code is filed as Exhibit 14 to this report.

We also operate under a Code of Conduct that applies to all directors, officers and employees and includes provisions ranging from restrictions on gifts to conflicts of interests. All salaried employees are required to affirm annually their acceptance of, and compliance with, the Code of Conduct.

### Related Party Transactions Policy

We have adopted a Policy and Procedure for Transactions With Related Persons, under which our Audit Committee must generally pre-approve transactions involving more than \$120,000 with our directors, executive officers, five percent or greater stockholders and their immediate family members.

### Equity Award Policy

We have adopted a written policy for all issuances by our company of compensatory awards in the form of our common stock or any derivative of our common stock.

### Clawback Policy

We have adopted a clawback policy under which we will, in specified circumstances, require reimbursement of annual and long-term incentives paid to an executive officer. We will continue to review this policy as final rulemaking is adopted regarding clawbacks under the Dodd-Frank Wall Street Reform and Consumer Protection Act.

### Personal Loans to Executive Officers and Directors

We comply with and operate in a manner consistent with the legislation outlawing extensions of credit in the form of a personal loan to or for our directors or executive officers.

Our Internet address is <http://www.tenneco.com>. We make our proxy statements, annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports, as filed with or furnished to the SEC, available free of charge on our Internet website as soon as reasonably practicable after submission to the SEC. Securities ownership reports on Forms 3, 4 and 5 are also available free of charge on our website as soon as reasonably practicable after submission to the SEC. The contents of our website are not, however, a part of this report. All such statements and reports can also be found at the internet site maintained by the SEC at <http://www.sec.gov>.

Our Audit Committee, Compensation/Nominating/Governance Committee and Executive Compensation Subcommittee Charters, Corporate Governance Principles, Stock Ownership Guidelines, Audit Committee policy regarding accounting complaints, Code of Ethical Conduct for Financial Managers, Code of Conduct, Policy and Procedures for Transactions with Related Persons, Equity Award Policy, policy for communicating with the Board of Directors and Audit Committee policy regarding the pre-approval of audit, non-audit, tax and other services are available free of charge on our website at [www.tenneco.com](http://www.tenneco.com). In addition, we will make a copy of any of these documents available to any person, without charge, upon written request to Tenneco Inc., 500 North Field Drive, Lake Forest, Illinois 60045, Attn: General Counsel. We intend to satisfy the disclosure requirements under Item 5.05 of Form 8-K and applicable NYSE rules regarding amendments to, or waivers of, our Code of Ethical Conduct for Financial Managers and Code of Conduct by posting this information on our website at [www.tenneco.com](http://www.tenneco.com).



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## CONTRIBUTIONS OF MAJOR BUSINESSES

For information concerning our operating segments, geographic areas and major products or groups of products, see Note 11 to the consolidated financial statements of Tenneco Inc. included in Item 8. The following tables summarize for each of our reportable segments for the periods indicated: (i) net sales and operating revenues; (ii) earnings before interest expense, income taxes and noncontrolling interests ("EBIT"); and (iii) expenditures for plant, property and equipment. See also "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in Item 7 for information about certain costs and charges included in our results; and our six operating segments (North America Clean Air, North America Ride Performance, Europe, South America and India Clean Air, Europe, South America and India Ride Performance, Asia Pacific Clean Air and Asia Pacific Ride Performance). Within each geographical area, each operating segment manufactures and distributes either clean air or ride performance products primarily for the original equipment and aftermarket industries. Each of the six operating segments constitutes a reportable segment. Costs related to other business activities, primarily corporate headquarter functions, are disclosed separately from the six operating segments as "Other". We evaluate segment performance based primarily on earnings before interest expense, income taxes, and noncontrolling interests. Products are transferred between segments and geographic areas on a basis intended to reflect as nearly as possible the "market value" of the products.

## Net Sales and Operating Revenues:

	2015		2014		2013				
	(Dollar Amounts in Millions)								
Clean Air Division									
North America	\$2,867	35	%	\$2,840	34	%	\$2,666	33	%
Europe, South America & India	1,935	23	%	2,088	25	%	2,045	26	%
Asia Pacific	1,037	13	%	1,022	12	%	853	11	%
Intergroup sales	(116	) (1	)%	(139	) (2	)%	(120	) (2	)%
Total Clean Air Division	5,723	70	%	5,811	69	%	5,444	68	%
Ride Performance Division									
North America	1,323	16	%	1,361	16	%	1,265	16	%
Europe, South America & India	972	12	%	1,070	13	%	1,087	14	%
Asia Pacific	275	3	%	269	3	%	251	3	%
Intergroup sales	(84	) (1	)%	(91	) (1	)%	(83	) (1	)%
Total Ride Performance Division	2,486	30	%	2,609	31	%	2,520	32	%
Total Tenneco Inc.	\$8,209	100	%	\$8,420	100	%	\$7,964	100	%

## EBIT:

	2015		2014		2013				
	(Dollar Amounts in Millions)								
Clean Air Division									
North America	\$244	47	%	\$237	48	%	\$229	54	%
Europe, South America & India	52	10	%	59	12	%	57	13	%
Asia Pacific	121	23	%	101	21	%	84	20	%
Total Clean Air Division	417	80	%	397	81	%	370	87	%
Ride Performance Division									
North America	155	30	%	143	29	%	124	29	%
Europe, South America & India	(5	) (1	)%	40	8	%	(7	) (1	)%
Asia Pacific	39	8	%	36	7	%	22	5	%
Total Ride Performance Division	189	37	%	219	44	%	139	33	%

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Other	(87	) (17	)%	(124	) (25	)%	(85	) (20	)%
Total Tenneco Inc.	\$519	100	%	\$492	100	%	\$424	100	%

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## Expenditures for Plant, Property and Equipment:

	2015			2014			2013		
	(Dollar Amounts in Millions)								
Clean Air Division									
North America	\$95	32	%	\$83	26	%	\$76	30	%
Europe, South America & India	74	25	%	84	26	%	61	24	%
Asia Pacific	43	15	%	56	18	%	44	17	%
Total Clean Air Division	212	72	%	223	70	%	181	71	%
Ride Performance Division									
North America	34	12	%	35	11	%	32	13	%
Europe, South America & India	42	14	%	47	15	%	33	13	%
Asia Pacific	6	2	%	10	3	%	6	2	%
Total Ride Performance Division	82	28	%	92	29	%	71	28	%
Other	1	—	%	2	1	%	2	1	%
Total Tenneco Inc.	\$295	100	%	\$317	100	%	\$254	100	%

Interest expense, income taxes, and noncontrolling interests that were not allocated to our operating segments are:

	2015	2014	2013
	(Millions)		
Interest expense (net of interest capitalized)	\$67	\$91	\$80
Income tax expense	149	131	122
Noncontrolling interests	56	44	39

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### DESCRIPTION OF OUR BUSINESS

We design, manufacture and sell clean air and ride performance systems and products for light vehicle, commercial truck, off-highway and other applications, and generated revenues of \$8.2 billion in 2015. We serve both original equipment manufacturers (OEMs) and replacement markets worldwide through leading brands, including Monroe<sup>®</sup>, Rancho<sup>®</sup>, Clevite<sup>®</sup> Elastomers, Axios<sup>™</sup>, Kinetic<sup>®</sup>, and Fric-Rot<sup>™</sup> ride performance products and Walker<sup>®</sup>, XNOx<sup>®</sup>, Fonos<sup>™</sup>, DynoMax<sup>®</sup> and Thrush<sup>®</sup> clean air products.

As a parts supplier, we produce individual component parts for vehicles as well as groups of components that are combined as modules or systems within vehicles. These parts, modules and systems are sold globally to most leading OEMs, commercial truck and off-highway engine manufacturers, and aftermarket distribution channels.

#### Overview of Parts Industry for Vehicles and Engines

The parts industry for vehicles and engines is generally separated into two categories: (1) “original equipment” or “OE” parts that are sold in large quantities directly for use by manufacturers of light vehicles, commercial trucks and off-highway engines; and (2) “aftermarket” or replacement parts that are sold in varying quantities to wholesalers, retailers and installers. In the OE category, parts suppliers are generally divided into tiers — “Tier 1” suppliers that provide their products directly to OEMs, and “Tier 2” or “Tier 3” suppliers that sell their products principally to other suppliers for combination into those other suppliers’ own product offerings.

“Light vehicles” are comprised of: (1) passenger cars and (2) light trucks which include sport-utility vehicles (SUVs), crossover vehicles (CUVs), pick-up trucks, vans and multi-purpose passenger vehicles. Demand for OE light vehicle automotive parts is generally a function of the number of new vehicles produced, which in turn depends on prevailing economic conditions and consumer preferences. Although OE demand is tied to planned vehicle production, parts suppliers also have the opportunity to grow revenues by increasing their product content per vehicle, by further expanding business with existing customers and by serving new customers in existing or new markets. Companies with a global presence and advanced technology, engineering, manufacturing and support capabilities, such as our company, are better positioned to take advantage of these opportunities.

Increasing vehicle emissions regulations are driving opportunities for increasing clean air content of vehicles and engines. Additionally, the increase and expansion in mandated diesel emission control and noise regulations or standards in North America, Europe, China, Japan, Brazil, Russia, India and South Korea have enabled suppliers such as us to serve customers beyond light vehicles. Certain parts suppliers that have traditionally supplied the automotive industry also develop and produce components and integrated systems for commercial truck, off-highway and other applications, such as medium- and heavy-duty trucks, buses, stationary engines, agricultural and construction equipment, locomotive and marine engines and recreational two-wheelers and all-terrain vehicles. We foresee this diversification of content and applications as a source of future growth.

Demand for aftermarket products is driven by general economic conditions, the number of vehicles in operation, the age and distance driven of the vehicle fleet, and the average useful life and quality of vehicle parts. Although more vehicles are on the road than ever before, the aftermarket has experienced longer replacement cycles due to the improved quality and increased average useful life of vehicle parts that has come to pass as a result of technological innovation. Parts suppliers are increasingly being required to deliver innovative aftermarket products to drive increased aftermarket demand. Global economic downturns generally impact aftermarket sales less adversely than OE sales, as customers forego new vehicle purchases and keep their vehicles longer, thereby increasing demand for repair and maintenance parts and services.

#### Industry Trends

As the dynamics of the customers we serve change, so do the roles, responsibilities and relationships of the participants. Key trends that we believe are affecting parts suppliers include:

##### General Economic Factors and Production Levels

Global light vehicle production has increased at a moderate but slowing pace over the past three years, increasing 4% in 2013, 3% in 2014 and 1% in 2015. The overall rate of growth in 2015 was largely impacted by the South America and Japan production declines of 21% and 5%, respectively. Of these regions, South America has the biggest impact on Tenneco and continues to struggle with political and economic turmoil. IHS Automotive projects global light

vehicle production will grow 3% in 2016. Production of commercial trucks globally and off-highway equipment in regulated regions has weakened over the past three years with production increasing 4% in 2013, about flat in 2014 and declining 7% in 2015. IHS and Power Systems Research forecast these markets to decline 1% in 2016.

#### Increasing Environmental Standards

OE manufacturers and their parts suppliers are designing and developing products to respond to increasingly stringent environmental requirements, growth in engines using diesel and alternative fuels and increased demand for better fuel economy. Government regulations adopted over the past decade require substantial reductions in vehicle tailpipe criteria pollutant

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emissions, longer warranty periods for a vehicle's pollution control equipment and additional equipment to control fuel vapor emissions. The products that our clean air division provides reduce the tailpipe emissions of criteria pollutants. In addition, new regulations have been adopted to regulate greenhouse gas emissions of carbon dioxide. Reducing CO<sub>2</sub> emissions requires improving fuel economy; as a result improved combustion efficiency and reduction of vehicle mass have become priorities. Manufacturers are responding to all of these regulations with new technologies for gasoline- and diesel-fueled vehicles that minimize pollution and improve fuel economy.

As a leading supplier of clean air systems with strong technical capabilities, we are well positioned to benefit from the more rigorous environmental standards being adopted around the world. We continue to expand our investment in all regions such as China, India, Thailand and Japan to capitalize on the growing demand for environmentally friendly solutions for light vehicle, commercial truck and off-highway applications driven by environmental regulations in these regions.

To meet stricter air quality regulations, we have developed and sold diesel particulate filters (DPFs) in Europe, for example, for the Audi A4, BMW 1 series passenger cars and Scania trucks and in North America for GM Duramax engine applications, the Ford Super Duty, the Chrysler Ram Heavy Duty, and off-highway applications for Caterpillar and John Deere in North America and Europe, and Kubota in Japan. These particulate filters, coupled with converters, reduce emissions of particulate matter by up to 90 percent. In addition, we have development and production contracts for our selective catalytic reduction (SCR) systems with light and commercial vehicle manufacturers. These SCR systems reduce emissions of nitrogen oxides by up to 95 percent. In China, South America, Europe, and Japan, we have development and production contracts for complete turnkey SCR systems that include the urea dosing technology acquired in 2007 and now sold globally under the name XNOx<sup>®</sup>. New regulations in the U.S. and European markets, which require reductions in carbon dioxide emissions and improvements in fuel economy, are creating increased demand for our fabricated manifolds, maniverters, integrated turbocharger/manifold modules, electronic exhaust valves, and lightweight components. Lastly, for various off-highway customers, we offer emission aftertreatment systems designed to meet environmental regulations or their equivalent outside of the U.S. Both commercial truck and off-highway customers are embracing the concept of turnkey aftertreatment systems which require aftertreatment electronic control units (ECUs) as well as related control software which we have developed and sold to several customers.

#### Increasing Technologically Sophisticated Content

As end users and consumers continue to demand vehicles with improved performance, safety and functionality at competitive prices, the components and systems in these vehicles are becoming technologically more advanced and sophisticated. Mechanical functions are being replaced with electronics; and mechanical and electronic devices are being integrated into single systems. More stringent emission and other regulatory standards are increasing the complexity of the systems as well.

To remain competitive as a parts and systems supplier, we invest in engineering, research and development, spending \$146 million in 2015, \$169 million in 2014, and \$144 million in 2013, net of customer reimbursements. Such expenses reimbursed by our customers totaled \$145 million in 2015, \$159 million in 2014, and \$169 million in 2013, including building prototypes and incurring other costs on behalf of our customers. We also fund and sponsor university and other independent research to advance our clean air and ride performance development efforts. By investing in technology, we have been able to expand our product offerings and penetrate new markets. For example, we developed DPFs which were first sold in Europe and then offered in North America. Since these original innovations, we have developed T.R.U.E-Clean<sup>®</sup> systems with our partners, a product used to regenerate DPFs. We have also built prototypes of urea SCR systems for locomotive and marine engines. We expanded our suite of NOx-reduction technologies, developing prototypes of SCR systems using gaseous ammonia, absorbed on a solid salt, as the reductant or a hydrocarbon lean NOx catalyst (HC-LNC for NOx reduction) that relies on hydrocarbons, ethanol, or other reductants instead of urea. We successfully developed and sold fabricated manifolds, previously used only on gasoline engines, into the passenger car diesel segment. We developed our prototype aftertreatment system for large engines, up to 4500 horsepower, used in line haul locomotives. Tenneco, through an exclusive partnership with Jiangsu Lvyuan in China, has become the first company to obtain China Classification Society (CCS) approval to sell marine selective catalytic reduction systems for China flagged vessels, as required by the International Maritime



Organization. On the ride performance side of our business, we co-developed with Öhlins Racing AB a continuously controlled electronic suspension system offered by OEMs such as Volvo, Audi, Ford, VW, Mercedes Benz and BMW. Enhanced Vehicle Safety and Handling

To serve the needs of their customers and meet government mandates, OEMs are seeking parts suppliers that invest in new technologies, capabilities and products that advance vehicle safety, such as roll-over protection systems, computerized electronic suspension, and safer, more durable materials. Those suppliers able to offer such innovative products and technologies have a distinct competitive advantage.

Tenneco offers adjustable and adaptive damping as well as semi-active suspension systems designed to improve vehicle stability, handling, safety and control. Our systems are based on various technologies including DRiV™ digital valve, Continuously Variable Semi-Active (CVSA) suspension and Kinetic® ride control, and Actively Controlled Car (ACOCAR)™. In

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the aftermarket, we supply premium Monroe® branded brakes that complement our ride performance offerings. In addition, we continue to promote the Safety Triangle™ of Steering-Stopping-Stability to educate consumers about the detrimental effect of worn shock absorbers on vehicle steering and stopping distances.

### Outsourcing and Demand for Systems and Modules

OEMs have steadily outsourced more of the design and manufacturing of vehicle parts and systems to simplify the assembly process, lower costs and reduce development times. Furthermore, they have demanded from their parts suppliers fully integrated, functional modules and systems made possible with the development of advanced electronics in addition to innovative, individual vehicle components and parts that may not readily interface together. Modules and systems being produced by parts suppliers are described as follows:

“Modules” are groups of component parts arranged in close physical proximity to each other within a vehicle. Modules are often assembled by the supplier and shipped to the OEM for installation in a vehicle as a unit. Integrated shock and spring units, seats, instrument panels, axles and door panels are examples.

“Systems” are groups of component parts located throughout a vehicle which operate together to provide a specific vehicle functionality. Emission control systems, anti-lock braking systems, safety restraint systems, roll control systems and powertrain systems are examples.

This shift towards fully integrated modules and systems created the role of the Tier 1 systems integrator, a supplier responsible for executing a broad array of activities, including design, development, engineering, and testing of component parts, modules and systems. As an established Tier 1 supplier, we have produced modules and systems for various vehicle platforms produced worldwide, supplying ride performance modules for the Chevrolet Silverado, GMC Sierra, Chevrolet Malibu, Chevrolet Impala and Chevrolet Cruze and emission control systems for the Chevrolet Colorado, GMC Canyon, Ford Super Duty, Ford Focus, Chevrolet Silverado, GMC Sierra, Chevrolet Malibu, Opel Astra, and VW Golf. In addition, we continue to design other modules and systems for platforms yet to be introduced to the global marketplace.

### Global Reach of OE Customers

Changing market dynamics are driving OEMs and their parts suppliers to expand their global reach:

- **Growing Importance of Growth Markets:** Because the North American and Western European automotive regions are mature, OEMs are increasingly focusing on other markets for growth opportunities, such as India, China and Thailand. As OEMs have penetrated new regions, growth opportunities for suppliers have emerged.

**Governmental Tariffs and Local Parts Requirements:** Many governments around the world require vehicles sold within their country to contain specified percentages of locally produced parts. Additionally, some governments place high tariffs on imported parts.

**Location of Production Closer to End Markets:** As OEMs and parts suppliers have shifted production globally to be closer to their end markets, suppliers have expanded their reach, capturing sales in other markets and taking advantage where possible of relatively low labor costs.

### Global Rationalization of OE Vehicle Platforms (described below).

Because of these trends, OEMs are increasingly seeking suppliers capable of supporting vehicle platforms on a global basis. They want suppliers like Tenneco with design, production, engineering and logistics capabilities that can be accessed not just in North America and Europe but also in many other regions of the world.

### Global Rationalization of OE Vehicle Platforms

OEMs have standardized on global platforms designing basic mechanical structures that are suitable for a number of similar vehicle models and able to accommodate different features for more than one region. This standardization will drive production of light vehicles designed on global platforms to grow. Accordingly light vehicle platforms whose annual production exceed one million units will grow from 53 percent of global OE production in 2015 to 57 percent in 2020 based on data provided by IHS Automotive.

With such global platforms, OEMs realize significant economies of scale by limiting variations in items such as steering columns, brake systems, transmissions, axles, exhaust systems, support structures and power window and door lock mechanisms. The shift towards standardization can also benefit parts suppliers. They can experience greater economies of scale, lower material costs, and reduced development costs.

### Extended Product Life of Automotive Parts

The average useful life of automotive parts, both OE and replacement, has steadily increased in recent years due to technological innovations including longer-lasting materials. As a result, although there are more vehicles on the road than ever before, the global aftermarket has not kept pace with that growth. Accordingly, aftermarket suppliers have focused on reducing

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costs and providing product differentiation through advanced technology and recognized brand names. With our long history of technological innovation, strong brands and operational effectiveness, we believe we are well positioned to leverage our products and technology.

Changing Aftermarket Distribution Channels and Increased Competition from Lower cost, Private-Label Products From 2003 to 2015, the number of traditional jobber stores declined in the U.S. Major aftermarket retailers, such as AutoZone and Advance Auto Parts, have continued their work to expand their retail outlets and commercial distribution strategies to sell directly and more effectively to parts installers, which historically had purchased the majority of their needs from local warehouse distributors and jobbers. The size and number of consolidations as well as key customer distribution center footprint expansions have increased in the last a few years, including Advance Auto Parts' purchase of Carquest (which included WorldPac), Auto Zone's purchase of Interamerican Motor Company, O'Reilly Auto Parts' purchase of V.I.P. to expand their entrance into the Northeast U.S. market, and Icahn Enterprises L.P.'s agreement to acquire Pep Boys. We are well positioned to respond to these trends and feel our strategy and portfolio of customers are in line with the market changes and opportunities. We make and sell high-quality products marketed under premium brands that appeal to aftermarket retailers and the customers they serve. In addition, our breadth of suspension and emissions control products and a reputation for customer service provide benefits to both wholesalers and retailers.

More recently, our aftermarket business is facing increasing competition from these lower cost, private-label products and there is growing pressure to expand our entry-level product lines so that retailers may offer a greater range of price points to their consumer customers.

Analysis of Revenues

The table below provides, for each of the years 2013 through 2015, information relating to our net sales and operating revenues, by primary product lines and customer categories.

	Net Sales		
	Year Ended December 31,		
	2015	2014	2013
	(Millions)		
Clean Air Products & Systems			
Aftermarket	\$318	\$318	\$327
Original Equipment			
OE Value-add	3,489	3,559	3,282
OE Substrate(1)	1,916	1,934	1,835
	5,405	5,493	5,117
	5,723	5,811	5,444
Ride Performance Products & Systems			
Aftermarket	941	976	953
Original Equipment	1,545	1,633	1,567
	2,486	2,609	2,520
Total Revenues	\$8,209	\$8,420	\$7,964

(1) See "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in Item 7 for a discussion of substrate sales.

Brands

We have two of the most recognized brands in the industry: Monroe<sup>®</sup> used for ride control products and Walker<sup>®</sup> for exhaust products. We differentiate our products and their value proposition with our brands:

• Monroe<sup>®</sup>, Kinetic<sup>®</sup>, Fric-Rot,<sup>™</sup> Gas-Matic<sup>®</sup>, Sensa-Trac<sup>®</sup>, OESpectrum<sup>®</sup>, and Quick-Strut<sup>®</sup> for ride performance products,

• Walker<sup>®</sup>, Fonos,<sup>™</sup> XNOx<sup>®</sup>, Mega-Flow<sup>®</sup>, Quiet-Flow<sup>®</sup>, and Tru-Fit<sup>®</sup> for clean air products,

• DynoMax<sup>®</sup> and Thrush<sup>®</sup> for performance clean air products,

• Rancho<sup>®</sup> for suspension products for high performance light trucks, and

Clevite® Elastomers and Axios™ for noise, vibration and harshness control components.

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## Customers

We strive to develop long-standing business relationships with our customers around the world. In each of our operating segments, we work collaboratively with our OE customers in all stages of production, including design, development, component sourcing, quality assurance, manufacturing and delivery. For both OE and aftermarket customers, we provide timely delivery of quality products at competitive prices and deliver customer service. With our diverse product mix and numerous facilities in major markets worldwide, we believe we are well positioned to meet customer needs.

In 2015, we served more than 80 different OEMs and commercial truck and off-highway engine manufacturers worldwide, and our products were included on nine of the top 10 passenger car models produced for sale in Europe and eight of the top 10 light truck models produced for sale in North America for 2015.

During 2015, our OE customers included the following manufacturers of light vehicles, commercial trucks and off-highway equipment and engines:

North America	Europe	Asia
AM General	Agco Corp	Beijing Automotive
Caterpillar	AvtoVAZ	BMW
CNH Industrial	BMW	Brilliance Automobile
Daimler AG	Caterpillar	Chang'an Automotive
FCA	CNH Industrial (Iveco)	China National Heavy-Duty Truck Group
Ford Motor	Daimler AG	Daimler AG
General Motors	Deutz AG	Dongfeng Motor
Harley-Davidson	FCA	Deutz AG
Honda Motors	Ford Motor	First Auto Works
Hyundai Motor	Geely Automobile	Ford Motor
John Deere	General Motors	Geely Automobile
Navistar International	John Deere	General Motors
Nissan Motor	Mazda Motor	Great Wall Motor
Paccar	McLaren Automotive	Isuzu Motor Company
Toyota Motor	Nissan Motor	Jiangling Motors
Volkswagen Group	Paccar	JND
Volvo Global Truck	PSA Peugeot Citroen	Kubota
	Renault	Nissan Motor
	Suzuki Motor	SAIC Motor
	Tata Motors	Toyota Motor
	Toyota Motor	Weichai Power
	Volkswagen Group	Yuchai Group
	Volvo Global Truck	

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Australia	South America	India
Ford Motor	Agrale S.A.	Ashok Leyland
General Motors	CNH Industrial (Iveco)	BMW
Toyota Motor	Daimler AG	Daimler AG
	FCA	Ford Motor
	Ford Motor	General Motors
	General Motors	Mahindra & Mahindra
	Navistar International	Nissan Motor
	Nissan Motor	Suzuki Motor
	PSA Peugeot Citroen	Tata Motors
	Randon S.A.	Toyota Motor
	Renault	Volkswagen Group
	Toyota Motor	
	Volkswagen Group	

The following customers accounted for 10 percent or more of our net sales in any of the last three years.

Customer	2015	2014	2013	
General Motors Company	15	% 15	% 15	%
Ford Motor Company	13	% 13	% 14	%

During 2015, our aftermarket customers were comprised of full-line and specialty warehouse distributors, retailers, jobbers, installer chains and car dealers. These customers included National Auto Parts Association (NAPA), Advance Auto Parts, Uni-Select, O'Reilly Auto Parts, Aftermarket Auto Parts Alliance, and AutoZone in North America, Temot Autoteile GmbH, Autodistribution International, Group Auto Union, Auto Teile Ring and AP United in Europe and Rede Presidente in South America. We believe our aftermarket revenue mix is balanced, with our top 10 aftermarket customers accounting for 63 percent of our net aftermarket sales and our aftermarket sales representing 15 percent of our total net sales in 2015.

**Competition**

We operate in highly competitive markets. Customer loyalty is a key element of competition in these markets and is developed through long-standing relationships, customer service, high quality value-added products and timely delivery. Product pricing and services provided are other important competitive factors.

As a supplier of OE and aftermarket parts, we compete with the vehicle manufacturers, some of which are also customers of ours, and numerous independent suppliers. For OE sales, we believe that we rank among the top two suppliers for certain key clean air and ride performance products and systems in many regions of the world. In the aftermarket, we believe that we are a leader in supplying clean air and ride performance products for light vehicles for the key applications we serve throughout the world.

**Seasonality**

Our OE and aftermarket businesses are somewhat seasonal. OE production is historically higher in the first half of the year compared to the second half. It typically decreases in the third quarter due to OE plant shutdowns for model changeovers and European holidays, and softens further in the fourth quarter due to reduced production during the end-of-year holiday season in North America and Europe generally. Our aftermarket operations, also affected by seasonality, experience relatively higher demand during the Spring as vehicle owners prepare for the Summer driving season.

While seasonality does impact our business, actual results may vary from the above trends due to global and local economic dynamics as well as industry-specific platform launches and other production-related events. During periods of economic recession, OE sales traditionally decline due to reduced consumer demand for automobiles and other capital goods. Aftermarket sales tend not to be as adversely affected during periods of economic downturn, as consumers forego new vehicle purchases and keep their vehicles longer, thereby increasing demand for repair and maintenance services. By participating in both the OE and aftermarket segments, we generally see a smaller revenue decline during economic downturns than the overall change in OE production.





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Clean Air Systems

Vehicle emission control products and systems play a critical role in safely conveying noxious exhaust gases away from the passenger compartment and reducing the level of pollutants and engine exhaust noise emitted to acceptable levels. Precise engineering of the exhaust system — which extends from the manifold that connects an engine’s exhaust ports to an exhaust pipe, to the catalytic converter that eliminates pollutants from the exhaust, and to the muffler that modulates noise emissions — leads to a pleasantly tuned engine sound, reduced pollutants and optimized engine performance.

We design, manufacture and distribute a variety of products and systems designed to reduce pollution and optimize engine performance, acoustic tuning and weight, including the following:

- Catalytic converters and diesel oxidation catalysts — Devices consisting of a substrate coated with precious metals enclosed in a steel casing used to reduce harmful gaseous emissions such as carbon monoxide;
  - Diesel Particulate Filters (DPFs) — Devices to capture and regenerate particulate matter emitted from diesel engines;
  - Burner systems — Devices which actively combust fuel and air inside the exhaust system to create extra heat for DPF regeneration, or to improve the efficiency of SCR systems;
  - Lean NOx traps — Devices which reduce nitrogen oxide (NOx) emissions from diesel powertrains using capture and store technology;
  - Hydrocarbon vaporizers and injectors — Devices to add fuel to a diesel exhaust system in order to regenerate particulate filters or Lean NOx traps;
  - Selective Catalytic Reduction (SCR) systems — Devices which reduce NOx emissions from diesel powertrains using urea mixers and injected reductants such as Verband der Automobil industrie e.V.'s AdBlue® or Diesel Exhaust Fluid (DEF);
  - SCR-coated diesel particulate filters (SDPF) systems - Lightweight and compact devices combining the SCR catalyst and the particulate filter onto the same substrate for reducing NOx and particulate matter emissions;
  - Urea dosing systems - Systems comprised of a urea injector, pump, and control unit, among other parts, that dose liquid urea onto SCR catalysts;
  - Four-way catalysts - Devices that combine a three-way catalyst and a particulate filter onto a single device by having the catalyst coating of a converter directly applied onto a particulate filter;
  - Alternative NOx reduction technologies — Devices which reduce NOx emissions from diesel powertrains, by using, for example, alternative reductants such as diesel fuel, E85 (85% ethanol, 15% gasoline), or solid forms of ammonia;
  - Mufflers and resonators — Devices to provide noise elimination and acoustic tuning;
  - Fabricated exhaust manifolds — Components that collect gases from individual cylinders of a vehicle’s engine and direct them into a single exhaust pipe. Fabricated manifolds can form the core of an emissions module that includes an integrated catalytic converter (maniverter) and/or turbocharger;
  - Pipes — Utilized to connect various parts of both the hot and cold ends of an exhaust system;
  - Hydroformed assemblies — Forms in various geometric shapes, such as Y-pipes or T-pipes, which provide optimization in both design and installation as compared to conventional pipes;
  - Elastomeric hangers and isolators — Used for system installation and elimination of noise and vibration, and for the improvement of useful life; and
  - Aftertreatment control units — Computerized electronic devices that utilize embedded software to regulate the performance of active aftertreatment systems, including the control of sensors, injectors, vaporizers, pumps, heaters, valves, actuators, wiring harnesses, relays and other mechatronic components.
- For the catalytic converters, SCR system and other substrate-based devices we sell, we need to procure substrates coated with precious metals or in the case of catalytic converter systems only, purchase the complete systems. We obtain these components and systems from third parties, often at the OEM's direction, or directly from OE vehicle and engine manufacturers. See Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” for more information on our sales of these products.
- We supply our clean air offerings to approximately 30 light vehicle manufacturers for use on over 225 light vehicle models, including six of the top 10 passenger car models produced in Europe and seven of the top 10 light truck

models produced in North America for 2015. We also supply clean air products to approximately 30 manufacturers of commercial trucks, off-highway equipment and engines, and other vehicles including BMW Motorcycle, Caterpillar, CNHTC, Daimler Trucks, Deutz, FAW Truck, Harley-Davidson, John Deere, Kubota, Scania and Weichai Power.

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We acquired our original clean air product line in 1967 with the acquisition of Walker Manufacturing Company, which was founded in 1888, and became one of Europe’s leading OE clean air systems suppliers with the acquisition of Heinrich Gillet GmbH & Co. in 1994. Throughout this document, the term “Walker” refers to our subsidiaries and affiliates that produce clean air products and systems.

In the aftermarket, we manufacture, market and distribute replacement mufflers for virtually all North American, European, and Asian light vehicle models under brand names including Quiet-Flow® and Tru-Fit® in addition to offering a variety of other related products such as pipes and catalytic converters (Walker® Perfection). We also serve the specialty exhaust aftermarket with offerings that include Mega-Flow® exhaust products for heavy-duty vehicle applications and DynoMax® high performance exhaust products. We continue to emphasize product-value differentiation with other aftermarket brands such as Walker®, Thrush® and Fonos.™

Ride Performance Systems

Superior ride control is governed by a vehicle’s suspension system, including shock absorbers and struts. Shock absorbers and struts maintain the vertical loads placed on vehicle tires, helping keep the tires in contact with the road. Vehicle steering, braking, acceleration and safety depend on maintaining contact between the tires and the road. Worn shocks and struts can allow excessive transfer of the vehicle’s weight — from side to side, known as “roll;” from front to rear, called “pitch;” or up and down, “bounce.” Because shock absorbers and struts are designed to control the vertical loads placed on tires, they provide resistance to excessive roll, pitch and bounce.

We design, manufacture and distribute a variety of ride performance products and systems including:

• Shock absorbers — A broad range of mechanical shock absorbers and related components for light- and heavy-duty vehicles, including twin-tube and monotube shock absorbers;

• Struts — A complete line of struts and strut assemblies for light vehicles;

• Vibration control components (Clevite® Elastomers, Axios)™— Generally, rubber-to-metal bushings and mountings to reduce vibration between metal parts of a vehicle. Offerings include a broad range of suspension arms, rods and links for light- and heavy-duty vehicles;

• Monroe® Intelligent Suspension Portfolio:

• Kinetic® suspension technology — A suite of roll-control and nearly equal wheel-loading systems ranging from simple mechanical systems to complex hydraulic systems featuring proprietary and patented technology. We have won the PACE Award for our Kinetic® suspension technology;

• Dual-mode suspension - An adaptive suspension solution used for small- and medium-sized vehicles that provides drivers a choice of two suspension modes such as comfort and sport;

• Semi-active and active suspension systems — Shock absorbers and suspension systems such as CVSA2 and ACOCAR that electronically adjust a vehicle’s performance based on certain inputs such as steering and braking;

• Kinetic H2/CVSA Continuously Variable Semi Active suspension system (Formerly known as CES) — In 2011, we won the Supplier of the Year award from Vehicle Dynamics International magazine, which recognizes outstanding achievement in global automotive suspension and chassis engineering, for the Kinetic H2/CVSA Continuously Variable Semi Active suspension system installed on the McLaren MP4-12C; and

• Other — We also offer other ride performance products such as load assist products, springs, steering stabilizers, adjustable suspension systems, suspension kits and modular assemblies.

We supply our ride performance offerings to approximately 25 light vehicle manufacturers for use on over 195 light vehicle models, including eight of the top 10 passenger car models produced in Europe and eight of the top 10 light truck models produced in North America for 2015. We also supply ride performance products and systems to over 40 manufacturers of commercial truck, off-highway and other vehicles including Volvo Truck, Scania, Navistar, Daimler Trucks and Paccar.

In the ride performance aftermarket, we manufacture, market and distribute replacement shock absorbers for virtually all North American, European and Asian light vehicle models under several brand names including Gas-Matic®, Sensa-Trac®, Monroe® Reflex® and Monroe® Adventure,™ Quick-Strut®, as well as Clevite® Elastomers and Axios™ for elastomeric vibration control components. We also sell ride performance offerings for commercial truck and other aftermarket segments, such as our Gas-Magnum® shock absorbers for the North American commercial category.

We entered the ride performance product line in 1977 with the acquisition of Monroe Auto Equipment Company, which was founded in 1916, and introduced the world's first modern tubular shock absorber in 1930. When the term "Monroe" is used in this document it refers to our subsidiaries and affiliates that produce ride performance products and systems.

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### Financial Information About Geographic Areas

Refer to Note 11 of the consolidated financial statements of Tenneco Inc. included in Item 8 of this report for financial information about geographic areas.

### Sales, Marketing and Distribution

We have separate and distinct sales and marketing efforts for our OE and aftermarket businesses.

For OE sales, our sales and marketing team is an integrated group of professionals, including skilled engineers and program managers, who are organized by customer and product type (e.g., ride performance and clean air). Our sales and marketing team provides the appropriate mix of operational and technical expertise needed to interface successfully with the OEMs. Our new business “capture process” involves working closely with the OEM platform engineering and purchasing teams. Bidding on OE automotive platforms typically encompasses many months of engineering and business development activity. Throughout the process, our sales team, program managers and product engineers assist the OE customer in defining the project’s technical and business requirements. A normal part of the process includes our engineering and sales personnel working on customers’ integrated product teams, and assisting with developing component/system specifications and test procedures. Given that the OE business involves long-term production contracts awarded on a platform-by-platform basis, our strategy is to leverage our engineering expertise and strong customer relationships to target and win new business and increase operating margins.

For aftermarket sales and marketing, our sales force is generally organized by customer and region and covers multiple product lines. We sell aftermarket products through four primary channels of distribution: (1) the traditional three-step distribution system of full-line warehouse distributors, jobbers and installers; (2) the specialty two-step distribution system of specialty warehouse distributors that carry only specified automotive product groups and installers; (3) direct sales to retailers; and (4) direct sales to installer chains. Our aftermarket sales and marketing representatives cover all levels of the distribution channel, stimulating interest in our products and helping our products move through the distribution system. Also, to generate demand for our products from end-users, we run print, online and outdoor advertisements and offer pricing promotions. We offer business-to-business services to customers with TA-Direct, an on-line order entry and customer service tool. In addition, we maintain detailed web sites for each of Walker®, Monroe®, Rancho®, DynoMax®, Monroe® brake brands and our heavy-duty products.

### Manufacturing and Engineering

We focus on achieving superior product quality at the lowest operating costs possible using productive, reliable and safe manufacturing processes to achieve that goal. Our manufacturing strategy centers on a lean production system called the Tenneco Manufacturing System (TMS), that is designed to eliminate waste, develop skills, share best practices and lead our manufacturing enterprise to reduce overall costs, while maintaining quality standards and reducing manufacturing cycle time. As part of TMS, we use Six Sigma techniques both in manufacturing and design to minimize product defects and improve operational efficiencies. We deploy new technology to differentiate our products from our competitors’ and to achieve higher quality and productivity. We continue to adapt our capacity to customer demand, both expanding capabilities in growth areas as well as reallocating capacity away from segments in decline.

### Clean Air

We operate 63 clean air manufacturing facilities worldwide, of which 14 facilities are located in North America, 25 in Europe, South America and India, and 24 in Asia Pacific. We operate 18 of the manufacturing facilities in Asia Pacific through joint ventures in which we hold a controlling interest. We operate five clean air engineering and technical facilities worldwide and share three other such facilities with our ride performance operations. Of the five clean air engineering and technical facilities, one is located in North America, two in Europe, and two in Asia Pacific. In addition, two joint ventures in which we hold a noncontrolling interest operate a total of two manufacturing facilities in Europe.

Within each of our clean air manufacturing facilities, operations are organized by component (e.g., muffler, catalytic converter, pipe, resonator and manifold). Our manufacturing systems incorporate cell-based designs, allowing work-in-process to move through the operation with greater speed and flexibility. We continue to invest in plant and equipment to stay competitive in the industry. For instance, in our Smithville, Tennessee, OE manufacturing facility, we have developed a muffler assembly cell that utilizes laser welding. This allows for quicker change-over times in

the process as well as less material used and less weight for the product. There is also a reduced cycle time compared to traditional joining and increased manufacturing precision for superior durability and performance. In 2007, we introduced the Measured and Matched Converter technique in North America. This allows us to maintain the optimum GBD (Gap Bulk Density) in our converter manufacturing operations with Tenneco proprietary processing. This process, coupled with cold spinning of the converter body, versus traditional cone to can welding, allows for more effective use of material through reduced welding, lower cost, and better performance of the product. In 2009, we introduced low-cost fabricated diesel manifolds in Europe which utilize advanced manufacturing processes such as deep drawing, laser welding, and furnace brazing.

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To strengthen our position as a Tier 1 OE systems supplier, we have developed some of our clean air manufacturing operations into “just-in-time” or “JIT” systems. In this system, a JIT facility located close to our OE customer’s manufacturing plant receives product components from both our manufacturing operations and independent suppliers, and then assembles and ships products to the OEMs on an as-needed basis. To manage the JIT functions and material flow, we have advanced computerized material requirements planning systems linked with our customers’ and supplier partners’ resource management systems. We have 25 clean air JIT assembly facilities worldwide, of which two facilities are located in North America, ten in Europe and India, and 13 in Asia Pacific.

Our engineering capabilities include advanced predictive design tools, advanced prototyping processes and state-of-the-art testing equipment. These technological capabilities make us a “full system” integrator to the OEMs, supplying complete emission control systems from the manifold to the tailpipe, to provide full emission and noise control. We expanded our engineering capabilities with acquisitions in 2007 and 2012 of Combustion Component Associates’ technology for use in mobile emission and stationary engine applications, respectively. That technology, with its urea and hydrocarbon injectors, electronic controls and software, is marketed and sold globally under the XNOx<sup>®</sup> name for use in selective catalytic reduction (SCR) and other exhaust aftertreatment systems. We also offer a complete suite of alternative full system NOx aftertreatment technologies, including the Hydrocarbon Lean NOx Catalyst (HC-LNC) technology under joint development with General Electric, and Solid SCR<sup>™</sup> technology licensed from Amminex, an engineering and manufacturing company located in Denmark. We also developed advanced predictive engineering tools, including KBM&E (Knowledge Based Manufacturing & Engineering). The innovation of our KBM&E (which we call TEN-KBM&E) is a modular toolbox set of CAD embedded applications for manufacturing and engineering compliant design. The encapsulated TEN-KBM&E content is driven by an analytical method which continuously captures and updates the knowledge of our main manufacturing and engineering processes. Our global engineering capabilities are standardized through the use of the ATLAS Global PDM (Product Data Management) system, enabling a more efficient transfer of knowledge around the world.

### Ride Performance

We operate 30 ride performance manufacturing facilities worldwide, of which nine facilities are located in North America, 15 in Europe, South America and India, and six in Asia Pacific. We operate two of the facilities through joint ventures in which we hold a controlling interest, one in Europe and another one in Asia. We operate seven engineering and technical facilities worldwide and share three other such facilities with our clean air operations. Of the seven ride performance engineering and technical facilities, two are located in North America, four in Europe, South America and India, and one in Asia Pacific.

Within each of our ride performance manufacturing facilities, operations are organized by product (e.g., shocks, struts and vibration control products) and include computer numerically controlled and conventional machine centers; tube milling and drawn-over-mandrel manufacturing equipment; metal inert gas and resistance welding; powdered metal pressing and sintering; chrome plating; stamping; and assembly/test capabilities. Our manufacturing systems incorporate cell-based designs, allowing work-in-process to move through the operation with greater speed and flexibility.

To strengthen our position as a Tier 1 OE module supplier, we have developed four of our ride performance manufacturing facilities into JIT assembly facilities located in Europe and India.

In designing our shock absorbers and struts, we use advanced engineering and test capabilities to provide product reliability, endurance and performance. Our engineering capabilities feature advanced computer-aided design equipment and testing facilities. Our dedication to innovative solutions has led to such technological advances as:

- Adaptive damping systems — adapt to the vehicle’s motion to better control undesirable vehicle motions;
- Electronically adjustable suspensions — change suspension performance based on a variety of inputs such as steering, braking, vehicle height, and velocity; and
- Air leveling systems — manually or automatically adjust the height of the vehicle.

Conventional shock absorbers and struts generally develop an appropriate compromise between ride comfort and handling. Our innovative gas-charged shock absorbers and struts provide both ride comfort and vehicle control, resulting in improved handling, reduced vibration and a wider range of vehicle control. This technology can be found

in our premium quality OESpectrum® shock absorbers. We further enhanced this technology by adding the SafeTech™ fluon banded piston, which improves shock absorber performance and durability. We introduced the Monroe® Reflex® shock absorber, which incorporates our Impact Sensor™ device. This technology permits the shock absorber to automatically switch in a matter of milliseconds between firm and soft compression damping when the vehicle encounters rough road conditions, and thus maintaining better tire-to-road contact and improving handling and safety. We developed the Quick-Strut® which simplifies and shortens the installation of aftermarket struts. This technology combines the spring and upper mount into a single, complete module, eliminating the need for special tools and skills required previously. We have also developed an innovative computerized electronic suspension system, which features dampers developed by Tenneco and electronic valves designed by Öhlins Racing AB. The Continuously Variable Semi Active ("CVSA") electronic suspension ride performance system is featured on Audi, Volvo, Ford, Volkswagen, BMW, and



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Mercedes Benz vehicles. To help make electronic suspension more affordable to a wider range of vehicles, we are designing an innovative, electronically-controlled DRiV™ suspension system that features hydraulic valve technology we purchased in 2014 from Sturman Industries.

### Quality Management

Tenneco's Quality Management System is an important part of product and process development and validation. Design engineers establish performance and reliability standards in the product's design stage, and use prototypes to confirm that the component/system can be manufactured to specifications. Quality Management is also integrated into the launch and manufacturing process, with team members at every stage of the work-in-process, ensuring finished goods are being fabricated to meet customers' requirements.

The Quality Management System is detailed in Tenneco's Global Business Policy Manual. The Global Business Policy Manual complies with the ISO/TS 16949:2009, ISO 9001:2008 specifications, and customers' specific requirements. All of Tenneco's manufacturing facilities, where it has been determined that certification is necessary to serve the customer, or would provide an advantage in securing additional business, have successfully achieved the applicable standard's requirements. Each employee is expected to follow the relevant standards, policies, and procedures contained in the Global Business Policy Manual.

### Global Procurement Management

Our direct and indirect material costs represent a significant component of our cost structure. To ensure that our material acquisition process provides both a local and global competitive advantage, in addition to meeting regional legislative requirements, we have designed globally integrated standard processes which are managed by global teams of commodity specialists. Each global commodity strategy is tailored to regional requirements while leveraging our global scale to deliver the most cost effective solutions at a local level.

### Business Strategy

We strive to strengthen our global market position by designing, manufacturing, delivering and marketing technologically innovative clean air and ride performance products and systems for OEMs and the aftermarket. We work toward achieving a balanced mix of products, markets and customers by capitalizing on emerging trends, specific regional preferences and changing customer requirements. We target both mature and developing markets for light vehicles, commercial trucks, off-highway engines and other vehicle or engine applications. We further enhance our operations by focusing on operational excellence in all functional areas.

The key components of our business strategy are described below:

#### Develop and Commercialize Advanced Technologies

We develop and commercialize technologies that allow us to expand into new, fast-growing market segments and serve our existing customers. By anticipating customer needs and preferences, we design advanced technologies that meet global market needs. For example, to meet the increasingly stringent emissions regulations being introduced around the world, we offer several technologies designed to reduce NOx emissions from passenger, commercial truck and off-highway vehicles. These technologies include an integrated Selective Catalytic Reduction (SCR) system that incorporates our XNOx® technology, electrical valves for diesel-powered vehicles with low-pressure exhaust gas recirculation systems, and diesel and gasoline particulate filters. We also offer a NOx absorber and a hydrocarbon lean NOx catalyst system, thermal management solutions, such as our T.R.U.E.-Clean® active diesel particulate filter system and, through a consortium, thermoelectric generators that convert waste exhaust heat into electrical energy. We expect demand for our products to continue to rise over the next several years. Advanced aftertreatment exhaust systems are required to comply with emissions regulations that affect light, commercial truck and off-highway vehicles as well as locomotive, marine and stationary engines. In addition, vehicle manufacturers are offering greater comfort, handling and safety features with products such as electronic suspension and adjustable dampers. Our Continuously Variable Semi Active ("CVSA") electronic suspension shock absorbers, which we co-developed with Öhlins Racing AB, are now sold to Volvo, Audi, Mercedes, VW, BMW, and Ford, among others, and our engineered elastomers to manufacturers with unique requirements. Our newest electronic suspension product DRiV™ is the first industry example of multiple digital valves coupled with smart switching for use in ride performance products that results in faster response, lighter weight, and reduced power consumption compared to existing analog products.

We continue to focus on introducing highly engineered systems and complex assemblies and modules that provide value-added solutions to our customers and increase our content on vehicles. Having many of our engineering and manufacturing facilities integrated electronically, we believe, has helped our products continue to be selected for inclusion in top-selling vehicles. In addition, our just-in-time and in-line sequencing manufacturing processes and distribution capabilities have enabled us to be more responsive to our customers' needs.

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### Penetrate Adjacent Market Segments

We seek to penetrate a variety of adjacent sales opportunities and achieve growth in higher-margin businesses by applying our design, engineering and manufacturing capabilities. For example, we aggressively leverage our technology and engineering leadership in clean air and ride performance into adjacent sales opportunities for heavy-duty trucks, buses, agricultural equipment, construction machinery and other vehicles in other regions around the world.

We design and launch clean air products for commercial truck and off-highway customers such as Caterpillar, for whom we are their global diesel clean air system integrator, John Deere, Navistar, Deutz, Daimler Trucks, Scania, Weichai Power, FAW Group and Kubota.

We engineer and build modular NO<sub>x</sub>-reduction systems for large engines that meet standards of the International Maritime Organization, among others. In 2015, we received three Product Design Assessment (PDA) certificates from the American Bureau of Shipping, one of the world's leading ship-classification societies, and two Approved-In-Principle (AIP) certificates from DNV GL, another leading global classification society and recognized advisor of the maritime industry.

Our revenues generated by our commercial truck, off-highway and other business sectors were 15 percent of our total annual OE revenues in both 2015 and 2014.

### Expand and Adjust Manufacturing Footprint and Engineering Capabilities

We continue to expand and adjust our global footprint to serve OE and aftermarket customers, building our capabilities to engineer and produce cost competitively cutting-edge products around the world. After adding to our footprint in China, Japan and Thailand from 2011 to 2012, we opened our clean air manufacturing facility in Chakan, India located close to key customers in the Pune region in 2013. In 2014, we opened our clean air research and development facility in Kunshan, China to enhance our engineering capabilities and develop China-specific solutions. In 2015, we opened new facilities in Jeffersonville, Indiana, Sanand, India, Stanowice, Poland and Suzhou, China. We also expanded our manufacturing operations in Celaya, Mexico that produce shock absorbers and other ride performance products for light vehicles and commercial trucks and in Tredegar, U.K. to support growth on significant incremental new business. In addition, we built out our engineering capabilities in Poland, as well as the expansion of our testing capabilities in Germany.

Besides expanding our manufacturing footprint and engineering capabilities to serve new customers or markets, we are re-aligning our production, supply chain and other operational functions to ensure standardization, remove redundancies, reduce transit costs, leverage economies of scale, and optimize manufacturing productivity.

### Maintain Our Aftermarket Leadership

We manufacture, market and sell leading, brand-name products to a diversified and global aftermarket customer base. Two of the most recognized brand-name products in the automotive parts industry are our Monroe<sup>®</sup> ride performance products and Walker<sup>®</sup> clean air products, which have been offered to consumers since the 1930s. We believe our brand equity in the aftermarket is a key asset especially as customers consolidate and distribution channels converge. We provide value differentiation by creating product extensions bearing our various brands. For example, we offer Monroe<sup>®</sup> Reflex<sup>®</sup> and Monroe<sup>®</sup> OESpectrum<sup>®</sup> shock absorbers, Walker<sup>®</sup> Quiet-Flow<sup>®</sup> mufflers, Rancho<sup>®</sup> ride performance products, DynoMax<sup>®</sup> exhaust products and Walker Ultra<sup>®</sup> catalytic converters, and in Europe, Walker and Aluminox Pro<sup>™</sup> mufflers. Further, we market Monroe<sup>®</sup> Springs and Monro-Magnum<sup>®</sup> (bus and truck shock line) in Europe and continue to grow our Monroe<sup>®</sup> Brake pads in North America. We continue to explore other opportunities for developing new product lines that will be marketed under our existing, well-known brands.

We strive to gain additional market share in the aftermarket business by adding new product offerings and increasing our market coverage of existing brands and products. For one, we offer an innovative ride performance product, the Quick-Strut<sup>®</sup>, that combines the spring and the upper mount into a single, complete module and simplifies and shortens the installation process, eliminating the need for the special tools and skills required previously. Additionally, we find ways to benefit from the consolidation of, and the regional expansion by, our customers and gain business from our competitors given our strength and understanding in the markets and channels we do business in.

Our success in the aftermarket strengthens our competitive position with OEMs, and vice versa. We gain timely market and product knowledge that can be used to modify and enhance our offerings for greater customer acceptance.

We also can readily introduce aftermarket products by leveraging our experience in the OE market. An example of such is our suite of manifold converters and diesel particulate filters which were first sold in the OE market and then tailored for the aftermarket.

#### Execute Focused Transactions

We have successfully identified and capitalized on acquisitions, alliances and divestitures to achieve strategic growth and alignment. Through these transactions, we have (1) expanded our product portfolio with complementary technologies; (2) realized

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incremental business from existing customers; (3) gained access to new customers; (4) achieved leadership positions in geographic regions outside North America; and (5) re-focused on areas that will contribute to our profitable growth. We positioned ourselves as a leading exhaust supplier in the rapidly growing Asian region through our operations in China, India and Thailand. We increased our investment from 80 percent to 100 percent in Tenneco Tongtai Exhaust Company Limited (TTEC) located in Dalian in the fourth quarter of 2013.

We have a licensing agreement for T.R.U.E.-Clean<sup>®</sup>, an exhaust aftertreatment technology used for automatic and active regeneration of Diesel Particulate Filters (DPFs), with Woodward Governor Company. This is an example of a technology which complements our array of existing clean air products, allowing us to provide integrated exhaust aftertreatment systems to commercial truck, off-highway and other vehicle manufacturers.

In 2012, we signed an exclusive joint development agreement with Cormetech Inc., a joint equity company of Corning Inc. and Mitsubishi Heavy Industries Ltd, to design ultra-large diameter SCR catalysts for marine, locomotive and certain stationary applications. Also in 2012, we signed a nonexclusive Joint Development and Licensing Agreement with Amminex for the design and development of Solid SCR<sup>™</sup> systems.

In February 2014, we secured the exclusive rights to the digital valve technology used in our DRiV<sup>™</sup> suspension systems from Sturman Industries, Inc. DRiV<sup>™</sup> systems feature electronically controlled dampers with hydraulic valves that can be used in a variety of vehicle damping applications.

In July 2015, we announced our intention to discontinue our Marzocchi motorcycle fork suspension product line and our mountain bike suspension product line, and liquidate our Marzocchi operations. In November 2015, we closed on the sale of certain assets related to our Marzocchi mountain bike suspension product line to the affiliates of Fox Factory Holding Corp.; and in December 2015, we closed on the sale of the Marzocchi motorcycle fork product line to an Italian company, VRM S.p.A.

We intend to continue to pursue strategic alliances, joint ventures, acquisitions and other transactions that complement or enhance our existing products, technology, systems development efforts, customer base and/or global presence. We will align with companies that have proven products, proprietary technology, advanced research capabilities, broad geographic reach, and/or strong market positions to further strengthen our product leadership, technology position, global reach and customer relationships.

### Adapt Cost Structure to Economic Realities

We aggressively respond to difficult economic environments, aligning our operations to any resulting reductions in production levels and replacement demand and executing comprehensive restructuring and cost-reduction initiatives. For example, on January 31, 2013, we announced our intent to reduce structural costs in Europe by approximately \$60 million annually. We still expect to reach our target annual savings rate in 2016, however the recent dramatic changes in exchange rates will likely have an impact on the actual savings achieved when translated from Euros to U.S. dollars. We incurred \$78 million in restructuring and related costs in 2013, of which \$69 million was related to this initiative including \$3 million for non-cash asset write downs. In 2014, we incurred \$49 million in restructuring and related costs, of which \$31 million was related to this initiative including \$3 million for non-cash asset write downs. In 2015, we incurred \$63 million in restructuring and related costs, of which \$22 million was related to this initiative. While we are nearing the completion of this initiative, we expect to incur additional restructuring and related costs in 2016 due to certain ongoing matters. For example, we closed a plant in Gijon Spain in 2013, but subsequently re-opened it in July 2014 with about half of its prior workforce after the employees' works council successfully filed suit challenging the closure decision. Pursuant to an agreement we entered into with employee representatives, we are currently engaged in a sale process to identify potential purchasers for the facility and intend to continue operating it until a complete transfer of ownership takes place. In November 2015, we closed on the sale of certain assets related to our Marzocchi mountain bike suspension product line to the affiliates of Fox Factory Holding Corp.; and in December 2015, we closed on the sale of the Marzocchi motorcycle fork product line to an Italian company, VRM S.p.A. We recorded charges of \$29 million in 2015 related to severance and other employee related costs, asset write-downs and other expenses related to the closure.

### Strengthen Operational Excellence

We will continue to focus on operational excellence by optimizing our manufacturing footprint, enhancing our Six Sigma processes and Lean productivity tools, developing further our engineering capabilities, managing the

complexities of our global supply chain to realize purchasing economies of scale while satisfying diverse and global requirements, and supporting our businesses with robust information technology systems. We will make investments in our operations and infrastructure as required to achieve our strategic goals. We will be mindful of the changing market conditions that might necessitate adjustments to our resources and manufacturing capacity around the world. We will remain committed to protecting the environment as well as the health and safety of our employees.

#### Environmental Matters

We estimate that we and our subsidiaries will make expenditures for plant, property and equipment for environmental matters of approximately \$6 million in 2016 and \$2 million in 2017.

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For additional information regarding environmental matters, see Item 3, “Legal Proceedings,” Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations — Liquidity and Capital Resources” and Note 12 to the consolidated financial statements of Tenneco Inc. included in Item 8.

Employees

As of December 31, 2015, we had approximately 30,000 employees of whom approximately 45 percent were covered by collective bargaining agreements. European works councils cover 16 percent of our total employees, a majority of whom are also included under collective bargaining agreements. Several of our existing labor agreements in Mexico and the United States are scheduled for renegotiation in 2016. In addition, agreements covering plants in Argentina, Brazil and Thailand are expiring in 2016. We regard our employee relations as satisfactory.

Other

The principal raw material that we use is steel. We obtain steel from a number of sources pursuant to various contractual and other arrangements. We believe that an adequate supply of steel can presently be obtained from a number of different domestic and foreign suppliers. We address price increases by evaluating alternative materials and processes, reviewing material substitution opportunities, increasing component and assembly to best cost countries, as well as strategically pursuing regional and global purchasing strategies for specific commodities, and aggressively negotiating with our customers to allow us to recover these higher costs from them.

We hold a number of domestic and foreign patents and trademarks relating to our products and businesses. We manufacture and distribute our aftermarket products primarily under the Walker® and Monroe® brand names, which are well-recognized in the marketplace and are registered trademarks. We also market certain of our clean air products to OE manufacturers under the names Solid SCR™ and XNOx®. The patents, trademarks and other intellectual property owned by or licensed to us are important in the manufacturing, marketing and distribution of our products.

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ITEM 1A.RISK FACTORS.

Future deterioration or prolonged difficulty in economic conditions could have a material adverse impact on our business, financial position and liquidity.

We are a global company and, as such, our businesses are affected by economic conditions in the various geographic regions in which we do business. Economic difficulties generally lead to tightening of credit and liquidity. These conditions often lead to low consumer confidence, which in turn results in delayed and reduced purchases of durable goods such as automobiles and other vehicles. As a result, during difficult economic times our OEM customers can significantly reduce their production schedules. For example, light vehicle production declined significantly during the economic crisis in 2008 and 2009 in North America and Europe, and European production remains below pre-crisis levels. More recently, light vehicle and commercial truck production has declined significantly in South America in 2014 and 2015 and persistent challenges in the Chinese economy going into 2016 may result in lower-than-anticipated growth in both light and commercial vehicles in the region. Additionally, production of off-highway equipment with our content on them continues to be weak in certain product applications, such as agricultural and construction equipment in the United States and Europe. Any deterioration or prolonged difficulty in economic conditions in any region in which we do business could have a material adverse effect on our business, financial position and liquidity. In addition, economic difficulties often lead to disruptions in the financial markets, which may adversely impact the availability and cost of credit which could materially and negatively affect our company. Future disruptions in the capital and credit markets could adversely affect our customers' and our ability to access the liquidity that is necessary to fund operations on terms that are acceptable to us or at all.

In addition, financial or other difficulties at any of our major customers could have a material adverse impact on us, including as a result of lost revenues, significant write downs of accounts receivable, significant impairment charges or additional restructurings beyond our current global plans. Severe financial or other difficulties at any of our major suppliers could have a material adverse effect on us if we are unable to obtain on a timely basis on similar economic terms the quantity and quality of components we require to produce our products.

Moreover, severe financial or operating difficulties at any automotive, commercial truck and off-highway vehicle manufacturer or other supplier could have a significant disruptive effect on the entire industry, leading to supply chain disruptions and labor unrest, among other things. These disruptions could force original equipment manufacturers and, in turn, other suppliers, including us, to shut down production at plants. While the issues that our customers and suppliers face during economic difficulties may be primarily financial in nature, other difficulties, such as an inability to meet increased demand as conditions recover, could also result in supply chain and other disruptions.

We are subject to investigations by antitrust regulators and developments in these investigations and related matters could have a material adverse effect on our consolidated financial position, results of operations or liquidity.

We are subject to a variety of laws and regulations that govern our business both in the United States and internationally, including antitrust laws. Violations of antitrust laws can result in significant penalties being imposed by antitrust authorities. Costs, charges and liabilities arising out of or related to these investigations and related claims can also be significant.

Antitrust authorities are investigating possible violations of antitrust laws by multiple automotive parts suppliers, including Tenneco. At this point, we cannot estimate the ultimate impact on our company from investigations into our antitrust compliance and related matters but, in light of the uncertainties and many variables involved in such investigations and potential related claims, we cannot assure you that the outcome of these and other investigations and related claims will not be material to Tenneco's consolidated financial position, results of operations or liquidity. Factors that reduce demand for our products or reduce prices could materially and adversely impact our financial condition and results of operations.

Demand for and pricing of our products are subject to economic conditions and other factors present in the various domestic and international markets where our products are sold. Demand for our OE products is subject to the level of consumer demand for new vehicles that are equipped with our parts. The level of new light vehicle, commercial truck and off-highway vehicle purchases is cyclical, affected by such factors as general economic conditions, interest rates and availability of credit, consumer confidence, patterns of consumer spending, industrial construction levels, fuel costs, government incentives and vehicle replacement cycles. Consumer preferences also impact the demand for new



light vehicle purchases. For example, if consumers increasingly prefer electric vehicles, demand for the vehicles equipped with our clean air products would decrease.

Demand for our aftermarket, or replacement, products varies based upon such factors as general economic conditions; the level of new vehicle purchases, which initially displaces demand for aftermarket products; the severity of winter weather, which increases the demand for certain aftermarket products; and other factors, including the average useful life of parts and number of miles driven.

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The highly cyclical nature of the automotive and commercial vehicle industry presents a risk that is outside our control and that cannot be accurately predicted. Decreases in demand for automobiles and commercial vehicles and vehicle parts generally, or in the demand for our products in particular, could materially and adversely impact our financial condition and results of operations.

In addition, we believe that increasingly stringent environmental standards for emissions have presented and will continue to present an important opportunity for us to grow our clean air product line. We cannot assure you, however, that environmental standards for emissions will continue to become more stringent or that the adoption of any new standards will not be delayed beyond our expectations.

We are dependent on large customers for future revenue. The loss of all or a substantial portion of our sales to any of these customers or the loss of market share by these customers could have a material adverse impact on us.

We depend on major vehicle manufacturers for a substantial portion of our net sales. For example, during fiscal year ended December 31, 2015, GM and Ford accounted for 15 percent and 13 percent of our net sales, respectively. The loss of all or a substantial portion of our sales to any of our large-volume customers could have a material adverse effect on our financial condition and results of operations by reducing cash flows and our ability to spread costs over a larger revenue base. We may make fewer sales to these customers for a variety of reasons, including but not limited to: (1) loss of awarded business; (2) reduced or delayed customer requirements; (3) strikes or other work stoppages affecting production by the customers; or (4) reduced demand for our customers' products.

In addition, our OE customers compete intensively against each other and other OE manufacturers. The loss of market share by any of our significant OE customers could have a material adverse effect on our business unless we are able to achieve increased sales to other OE manufacturers.

We may be unable to realize sales represented by our awarded business, which could materially and adversely impact our financial condition and results of operations.

The realization of future sales from awarded business is inherently subject to a number of important risks and uncertainties, including the number of vehicles that our OE customers will actually produce, the timing of that production and the mix of options that our OE customers and consumers may choose. For example, light vehicle production declined significantly during the economic crisis in 2008 and 2009 in North America and Europe, and European production remains below pre-crisis levels. More recently, light vehicle and commercial truck production has declined significantly in South America in 2014 and 2015 and persistent challenges in the Chinese economy going into 2016 may result in lower-than-anticipated growth in both light and commercial vehicles in the region. In addition to the risks inherent in the cyclicity of vehicle production, our customers generally have the right to replace us with another supplier at any time for a variety of reasons and have demanded price decreases over the life of awarded business. Accordingly, we cannot assure you that we will in fact realize any or all of the future sales represented by our awarded business. Any failure to realize these sales could have a material adverse effect on our financial condition, results of operations, and liquidity.

In many cases, we must commit substantial resources in preparation for production under awarded OE business well in advance of the customer's production start date. In certain instances, the terms of our OE customer arrangements permit us to recover these pre-production costs if the customer cancels the business through no fault of our company. Although we have been successful in recovering these costs under appropriate circumstances in the past, we can give no assurance that our results of operations will not be materially impacted in the future if we are unable to recover these types of pre-production costs in the event of an OE customer's cancellation of awarded business.

Our level of debt makes us more sensitive to the effects of economic downturns; and provisions in our debt agreements could constrain our ability to react to changes in the economy or our industry.

Our level of debt makes us more vulnerable to changes in our results of operations because a significant portion of our cash flow from operations is dedicated to servicing our debt and is not available for other purposes and our level of debt could impair our ability to raise additional capital if necessary. Further, under the terms of our existing senior secured credit facility, the indentures governing our notes and the agreements governing our other indebtedness, we are able to incur significant additional indebtedness in the future. The more we become leveraged, the more we, and in turn our security holders, become exposed to many of the risks described herein.

Our ability to make payments on our indebtedness depends on our ability to generate cash in the future. If we do not generate sufficient cash flow to meet our debt service, capital investment and working capital requirements, we may need to seek additional financing or sell assets. Without such financing, we could be forced to sell assets under unfavorable circumstances and we may not be able to sell assets quickly enough or for sufficient amounts to enable us to meet our obligations.

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In addition, our senior credit facility and our other debt agreements contain covenants that limit our flexibility in planning for or reacting to changes in our business and our industry, including limitations on incurring additional indebtedness, making investments, granting liens, selling assets and merging or consolidating with other companies. Our failure to comply with the covenants contained in our debt instruments, including as a result of events beyond our control, could result in an event of default, which could materially and adversely affect our operating results and our financial condition.

Our senior credit facility and receivables securitization program in the U.S. require us to maintain certain financial ratios. Our senior credit facility and our other debt instruments require us to comply with various operational and other covenants. If there were an event of default under any of our debt instruments that was not cured or waived, the holders of the defaulted debt could cause all amounts outstanding with respect to that debt to be due and payable immediately (which, in turn, could also result in an event of default under one or more of our other financing arrangements). If such event occurs, the lenders under our senior credit facility could elect to terminate their commitments, cease making further loans and institute foreclosure proceedings against our assets and we could lose access to our securitization program. We cannot assure you that our assets or cash flow would be sufficient to fully repay borrowings under our outstanding debt instruments, either upon maturity or if accelerated, upon an event of default, or that we would be able to refinance or restructure the payments on those debt instruments. This would have a material adverse impact on our liquidity, financial position and results of operations. For example, as a result of the economic downturn in 2008 and 2009, we needed to amend our senior credit agreement to revise the financial ratios we are required to maintain. Even though we were able to obtain that amendment, we cannot assure you that we would be able to obtain an amendment on commercially reasonable terms, or at all, if required in the future.

Our working capital requirements may negatively affect our liquidity and capital resources.

Our working capital requirements can vary significantly, depending in part on the level, variability and timing of our customers' worldwide vehicle production and the payment terms with our customers and suppliers. If our working capital needs exceed our cash flows from operations, we would look to our cash balances and availability for borrowings under our borrowing arrangements to satisfy those needs, as well as potential sources of additional capital, which may not be available on satisfactory terms and in adequate amounts, if at all.

We may be unable to realize our business strategy of improving operating performance and generating savings and improvements.

We regularly implement strategic and other initiatives designed to improve our operating performance. For example, in 2013 we announced a cost reduction initiative in Europe to significantly reduce our annual structural costs in the region. Our inability to implement these initiatives in accordance with our plans or our failure to achieve the goals of these initiatives could have a material adverse effect on our business, particularly since we rely on these initiatives to offset pricing pressures from our suppliers and our customers, as described above, as well as to manage the impacts of production cuts, such as the significant production decreases we experienced during 2008 and 2009 as a result of the global economic crisis, and the lingering effects this crisis had in Europe in particular, where light vehicle production declined in 2012 and continues to remain below pre-crisis level. Our implementation of announced initiatives is from time to time subject to legal challenge in certain non-U.S. jurisdictions (where applicable employment laws differ from those in the United States). Furthermore, the terms of our senior credit facility and the indentures governing our notes may restrict the types of initiatives we undertake. In the past we have been successful in obtaining the consent of our senior lenders where appropriate in connection with our initiatives. We cannot assure you, however, that we will be able to pursue, successfully implement or realize the expected benefits of any initiative or that we will be able to sustain improvements made to date.

Exchange rate fluctuations could cause a decline in our financial condition and results of operations.

As a result of our international operations, we are subject to increased risk because we generate a significant portion of our net sales and incur a significant portion of our expenses in currencies other than the U.S. dollar. For example, where we have a greater portion of costs than revenues generated in a foreign currency, we are subject to risk if the foreign currency in which our costs are paid appreciates against the currency in which we generate revenue because the appreciation effectively increases our cost in that country.

The financial condition and results of operations of some of our operating entities are reported in foreign currencies and then translated into U.S. dollars at the applicable exchange rate for inclusion in our consolidated financial statements. As a result, appreciation of the U.S. dollar against these foreign currencies generally will have a negative impact on our reported revenues and operating profit while depreciation of the U.S. dollar against these foreign currencies will generally have a positive effect on reported revenues and operating profit. For example, our consolidated results of operations were negatively impacted in 2015 primarily due to the strengthening of the U.S. dollar against the Euro, Chinese Yuan, Canadian dollar, Argentine Peso, and the Brazilian Real.

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We do not generally seek to mitigate the impact of currency through the use of derivative financial instruments. To the extent we are unable to match revenues received in foreign currencies with costs paid in the same currency, exchange rate fluctuations in that currency could have a material adverse effect on our business.

The hourly workforce in the industries in which we participate is highly unionized and our business could be adversely affected by labor disruptions.

A portion of our hourly workforce in North America and the majority of our hourly workforce in other regions are unionized. Although we consider our current relations with our employees to be satisfactory, if major work disruptions were to occur, our business could be adversely affected by, for instance, a loss of revenues, increased costs or reduced profitability. We have not experienced a material labor disruption in our recent history, but there can be no assurance that we will not experience a material labor disruption at one of our facilities in the future in the course of renegotiation of our labor arrangements or otherwise.

In addition, substantially all of the hourly employees of General Motors, Ford and Chrysler in North America and many of their other suppliers are represented by the United Automobile, Aerospace and Agricultural Implement Workers of America under collective bargaining agreements. Vehicle manufacturers, their suppliers and their respective employees in other countries are also subject to labor agreements. A work stoppage or strike at one of our production facilities, at those of a customer, or impacting a supplier of ours or any of our customers, such as the 2008 strike at American Axle which resulted in 30 GM facilities in North America being idled for several months, could have an adverse impact on us by disrupting demand for our products and/or our ability to manufacture our products. In the past, we have experienced significant increases and fluctuations in raw materials pricing; and future changes in the prices of raw materials or utility services could have a material adverse impact on us without proportionate recovery from our customers.

Significant increases in the cost of certain raw materials used in our products, mainly steel, oil and rubber, or the cost of utility services required to produce our products, to the extent they are not timely reflected in the price we charge our customers or are otherwise mitigated, could materially and adversely impact our results. We attempt to mitigate price increases by evaluating alternative materials and processes, reviewing material substitution opportunities, increasing component sourcing and parts assembly in best cost countries as well as by strategically pursuing regional and global purchasing strategies for specific commodities, and aggressively negotiating to recover these higher costs from our customers. We also continue to pursue productivity initiatives and other opportunities to reduce costs through restructuring activities. During periods of economic recovery, the cost of raw materials and utility services generally rise. Accordingly, we cannot ensure that we will not face increased prices in the future or, if we do, whether these actions will be effective in containing them.

With Tenneco entering into new product lines and employing new technologies, our ability to produce certain of these products may be constrained due to longer lead times for our facilities, as well as those of our suppliers. We attempt to mitigate the negative effects of these longer lead times by improving the accuracy of our long term planning; however, we cannot provide any certainty that we will always be successful in avoiding disruptions to our delivery schedules.

We may incur costs related to product warranties, environmental and regulatory matters, legal proceedings and other claims, which could have a material adverse impact on our financial condition and results of operations.

From time to time, we receive product warranty claims from our customers, pursuant to which we may be required to bear costs of repair or replacement of certain of our products. Vehicle manufacturers require their outside suppliers to guarantee or warrant their products and to be responsible for the operation of these component products in new vehicles sold to consumers. Warranty claims may range from individual customer claims to full recalls of all products in the field. We cannot assure you that costs associated with providing product warranties will not be material, or that those costs will not exceed any amounts reserved in our consolidated financial statements. For a description of our accounting policies regarding warranty reserves, see "Management's Discussion and Analysis of Financial Condition and Results of Operations — Critical Accounting Policies" included in Item 7.

We are subject to extensive government regulations worldwide. Foreign, federal, state and local laws and regulations may change from time to time and our compliance with new or amended laws and regulations in the future may materially increase our costs and could adversely affect our results of operations and competitive position. For example, we are subject to a variety of environmental and pollution control laws and regulations in all jurisdictions in

which we operate. Soil and groundwater remediation activities are being conducted at certain of our current and former real properties. We record liabilities for these activities when environmental assessments indicate that the remedial efforts are probable and the costs can be reasonably estimated. On this basis, we have established reserves that we believe are adequate for the remediation activities at our current and former real properties for which we could be held responsible. Although we believe our estimates of remediation costs are reasonable and are based on the latest available information, the cleanup costs are estimates and are subject to revision as more information becomes available about the extent of remediation required. In future periods, we could incur cash costs or charges

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to earnings if we are required to undertake remediation efforts as the result of ongoing analysis of the environmental status of our properties. In addition, violations of the laws and regulations we are subject to could result in civil and criminal fines, penalties and sanctions against us, our officers or our employees, as well as prohibitions on the conduct of our business, and could also materially affect our reputation, business and results of operations.

We also from time to time are involved in a variety of legal proceedings, claims or investigations. These matters typically are incidental to the conduct of our business. Some of these matters involve allegations of damages against us relating to environmental liabilities, intellectual property matters, personal injury claims, taxes, employment matters or commercial or contractual disputes or allegations relating to legal compliance by us or our employees. For example, we are subject to a number of lawsuits initiated by a significant number of claimants alleging health problems as a result of exposure to asbestos. Many of these cases involve significant numbers of individual claimants. Many of these cases also involve numerous defendants, with the number of defendants in some cases exceeding 100 defendants from a variety of industries. As major asbestos manufacturers or other companies that used asbestos in their manufacturing processes continue to go out of business, we may experience an increased number of these claims. We vigorously defend ourselves in connection with all of the matters described above. We cannot, however, assure you that the costs, charges and liabilities associated with these matters will not be material, or that those costs, charges and liabilities will not exceed any amounts reserved for them in our consolidated financial statements. In future periods, we could be subject to cash costs or charges to earnings if any of these matters are resolved unfavorably to us. See “Management’s Discussion and Analysis of Financial Condition and Results of Operations — Environmental and Legal Contingencies” included in Item 7.

Developments relating to our intellectual property could materially impact our business.

We and others in our industry hold a number of patents and other intellectual property rights, including licenses, that are critical to our respective businesses and competitive positions. Notwithstanding our intellectual property portfolio, our competitors may develop similar or superior proprietary technologies. Further, as we expand into regions where the protection of intellectual property rights is less robust, the risk of others replicating our proprietary technologies increases, which could result in a deterioration of our competitive position. On occasion, we may assert claims against third parties who are taking actions that we believe are infringing on our intellectual property rights. Similarly, third parties may assert claims against us and our customers and distributors alleging our products infringe upon third party intellectual property rights. These claims, regardless of their merit or resolution, are frequently costly to prosecute, defend or settle and divert the efforts and attention of our management and employees. Claims of this sort also could harm our relationships with our customers and might deter future customers from doing business with us. If any such claim were to result in an adverse outcome, we could be required to take actions which may include: expending significant resources to develop or license non-infringing products; paying substantial damages to third parties, including to customers to compensate them for their discontinued use or replacing infringing technology with non-infringing technology; or cessation of the manufacture, use or sale of the infringing products. Any of the foregoing results could have a material adverse effect on our business, financial condition, results of operations or our competitive position.

We are increasingly dependent on information technology, and if we are unable to protect against service interruptions or security breaches, our business could be adversely affected.

Our operations rely on a number of information technologies to manage, store, and support business activities. We have put in place a number of systems, processes, and practices designed to protect against the failure of our systems, as well as the misappropriation, exposure or corruption of the information stored thereon. Unintentional service disruptions or intentional actions such as intellectual property theft, cyber-attacks, unauthorized access or malicious software, may lead to such misappropriation, exposure or corruption if our protective measures prove to be inadequate. Further, these events may cause operational impediments or otherwise adversely affect our product sales, financial condition and/or results of operations. We could also encounter violations of applicable law or reputational damage from the disclosure of confidential information belonging to us or our employees, customers or suppliers. In addition, the disclosure of non-public information could lead to the loss of our intellectual property and/or diminished competitive advantages. Should any of the foregoing events occur, we may be required to incur significant costs to protect against damage caused by these disruptions or security breaches in the future.



We may have difficulty competing favorably in the highly competitive automotive parts industry. The automotive parts industry is highly competitive. Although the overall number of competitors has decreased due to ongoing industry consolidation, we face significant competition within each of our major product areas, including from new competitors entering the markets which we serve. The principal competitive factors include price, quality, service, product performance, design and engineering capabilities, new product innovation, global presence and timely delivery. As a result, many suppliers have established or are establishing themselves in emerging, low-cost markets to reduce their costs of

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production and be more conveniently located for customers. Although we are also pursuing a best-cost country production strategy and otherwise continue to seek process improvements to reduce costs, we cannot assure you that we will be able to continue to compete favorably in this competitive market or that increased competition will not have a material adverse effect on our business by reducing our ability to increase or maintain sales or profit margins. Furthermore, due to the cost focus of our major customers, we have been, and expect to continue to be, requested to reduce prices as part of our initial business quotations and over the life of vehicle platforms we have been awarded. We cannot be certain that we will be able to generate cost savings and operational improvements in the future that are sufficient to offset price reductions requested by existing customers and necessary to win additional business. The decreasing number of automotive parts customers and suppliers could make it more difficult for us to compete favorably.

Our financial condition and results of operations could be adversely affected because the customer base for automotive parts is decreasing in both the original equipment market and aftermarket. As a result, we are competing for business from fewer customers. Furthermore, consolidation and bankruptcies among automotive parts suppliers has resulted in fewer, larger suppliers who benefit from purchasing and distribution economies of scale. If we cannot achieve cost savings and operational improvements sufficient to allow us to compete favorably in the future with these larger companies, our financial condition and results of operations could be adversely affected due to a reduction of, or inability to increase, sales.

Our aftermarket sales may be negatively impacted by increasing competition from lower cost, private-label products. Distribution channels in the aftermarket have continued to consolidate and, as a result, our sales to large retail customers represent a significant portion of our aftermarket business. Private-label aftermarket products, which are typically manufactured at a lower cost, often containing little or no premium technology, and are branded with a store or other private-label brand, are increasingly available to these large retail customers. Our aftermarket business is facing increasing competition from these lower cost, private-label products and there is growing pressure to expand our entry-level product lines so that retailers may offer a greater range of price points to their consumer customers. We cannot assure you that we will be able to maintain or increase our aftermarket sales to these large retail customers or that increased competition from these lower cost, private-label aftermarket products will not have an adverse impact on our aftermarket business.

Longer product lives of automotive parts are adversely affecting aftermarket demand for some of our products. The average useful life of automotive parts has steadily increased in recent years due to innovations in products and technologies. The longer product lives allow vehicle owners to replace parts of their vehicles less often. As a result, a portion of sales in the aftermarket has been displaced. This has adversely impacted, and could continue to adversely impact, our aftermarket sales. Also, any additional increases in the average useful lives of automotive parts would further adversely affect the demand for our aftermarket products. Aftermarket sales represented approximately 15 percent of our net sales in both the fiscal years ended December 31, 2015 and 2014.

Any acquisitions we make could disrupt our business and seriously harm our financial condition.

We may, from time to time, consider acquisitions of complementary companies, products or technologies.

Acquisitions involve numerous risks, including difficulties in the assimilation of the acquired businesses, the diversion of our management's attention from other business concerns and potential adverse effects on existing business relationships with customers and suppliers. In addition, any acquisitions could involve the incurrence of substantial additional indebtedness. We cannot assure you that we will be able to successfully integrate any acquisitions that we pursue or that such acquisitions will perform as planned or prove to be beneficial to our operations and cash flow. Any such failure could seriously harm our business, financial condition and results of operations.

Certain of our operations are conducted through joint ventures, which have unique risks.

Certain of our operations, particularly in China, are conducted through joint ventures. Our joint ventures are governed by mutually established agreements that we entered into with our partners, and, as such, we do not unilaterally control the joint ventures. There is a risk that our partners' objectives for the joint ventures may not be aligned with ours, leading to potential disagreements over management of the joint ventures. At some of our joint ventures, our joint venture partner is also affiliated with the largest customer of the joint venture, which may create a conflict between the interests of our partner and the joint venture. Also, our ability to sell our interest in a joint venture may be subject to

contractual and other limitations.

Additional risks associated with joint ventures include our partners failing to satisfy contractual obligations, conflicts arising between us and any of our partners, a change in the ownership of any of our partners and our limited ability to control compliance with applicable rules and regulations. Accordingly, any such occurrences could adversely affect our financial condition, operating results and cash flows.

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We are subject to risks related to our international operations.

We have manufacturing and distribution facilities in many regions and countries, including Australia, Asia, North America, Europe, South Africa and South America, and sell our products worldwide. For the fiscal year ended December 31, 2015, approximately 49 percent of our net sales were derived from operations outside North America. International operations are subject to various risks which could have a material adverse effect on those operations or our business as a whole, including:

- currency exchange rate fluctuations;
- exposure to local economic conditions and labor issues;
- exposure to local political conditions, including the risk of seizure of assets by a foreign government;
- exposure to local social unrest, including any resultant acts of war, terrorism or similar events;
- exposure to local public health issues and the resultant impact on economic and political conditions;
- hyperinflation in certain foreign countries;
- controls on the repatriation of cash, including imposition or increase of withholding and other taxes on remittances and other payments by foreign subsidiaries;
- export and import restrictions; and
- requirements for manufacturers to use locally produced goods.

Regulations related to conflict-free minerals may force us to incur additional expenses and otherwise adversely impact our business.

In August 2012, as mandated by the Dodd-Frank Wall Street Reform and Consumer Protection Act, the SEC adopted final rules regarding disclosure of the use of certain minerals, known as conflict minerals, originating from the Democratic Republic of Congo (DRC) or adjoining countries. These new requirements require ongoing due diligence efforts, with initial disclosure requirements that began in May 2014. Our supply chain is complex and we may incur significant costs to determine the source of any such minerals used in our products. We may also incur costs with respect to potential changes to products, processes or sources of supply as a consequence of our diligence activities. Further, the implementation of these rules and their effect on customer, supplier and/or consumer behavior could adversely affect the sourcing, supply and pricing of materials used in our products. As there may be only a limited number of suppliers offering conflict-free minerals, we cannot be sure that we will be able to obtain necessary minerals from such suppliers in sufficient quantities or at competitive prices. We may face reputational challenges if we determine that certain of our products contain minerals not determined to be conflict-free or if we are unable to sufficiently verify the origins for all conflict minerals used in our products through the procedures we implement. Accordingly, the implementation of these rules could have a material adverse effect on our business, results of operations and/or financial condition.

Entering new markets poses new competitive threats and commercial risks.

As we have expanded into markets beyond light vehicles, we expect to diversify our product sales by leveraging technologies being developed for the light vehicle segment. Such diversification requires investments and resources which may not be available as needed. We cannot guarantee that we will be successful in leveraging our capabilities into new markets and thus, in meeting the needs of these new customers and competing favorably in these new markets. Further, a significant portion of our growth potential is dependent on our ability to increase sales to commercial truck and off-highway vehicle customers. While we believe that we can achieve our growth targets with the production contracts that have been or will be awarded to us, our future prospects will be negatively affected if those customers underlying these contracts experience reduced demand for their products, or financial difficulties.

Impairment in the carrying value of long-lived assets and goodwill could negatively affect our operating results.

We have a significant amount of long-lived assets and goodwill on our consolidated balance sheet. Under generally accepted accounting principles, long-lived assets are required to be reviewed for impairment whenever adverse events or changes in circumstances indicate a possible impairment. If business conditions or other factors cause profitability and cash flows to decline, we may be required to record non-cash impairment charges. Goodwill must be evaluated for impairment annually or more frequently if events indicate it is warranted. If the carrying value of our reporting units

exceeds their current fair value as determined based on the discounted future cash flows of the related business, the goodwill is considered impaired and is reduced to fair value by a non-cash charge to earnings. Events and conditions that could result in impairment in the value of our long-lived assets and goodwill include changes in the industries in which we operate, particularly the impact of a downturn in the global economy, as well as competition and advances in technology, adverse changes in the regulatory environment, or other factors leading to reduction in expected long-term sales or profitability. We did not record any non-cash asset impairment charges during the fiscal years ended December 31, 2013, 2014 or 2015.

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The value of our deferred tax assets could become impaired, which could materially and adversely affect our operating results.

As of December 31, 2015, we had approximately \$211 million in net deferred tax assets. These deferred tax assets include net operating loss carryovers and tax credits that can be used to offset taxable income in future periods and reduce income taxes payable in those future periods. Each quarter, we determine the probability of the realization of deferred tax assets, using significant judgments and estimates with respect to, among other things, historical operating results and expectations of future earnings and tax planning strategies. If we determine in the future that there is not sufficient positive evidence to support the valuation of these assets, due to the risk factors described herein or other factors, we may be required to further adjust the valuation allowance to reduce our deferred tax assets. Such a reduction could result in material non-cash expenses in the period in which the valuation allowance is adjusted and could have a material adverse effect on our results of operations.

Our expected annual effective tax rate could be volatile and materially change as a result of changes in mix of earnings and other factors.

Our overall effective tax rate is equal to our total tax expense as a percentage of our total profit or loss before tax. However, tax expenses and benefits are determined separately for each tax paying entity or group of entities that is consolidated for tax purposes in each jurisdiction. Losses in certain jurisdictions may provide no current financial statement tax benefit. As a result, changes in the mix of profits and losses between jurisdictions, among other factors, could have a significant impact on our overall effective tax rate.

### ITEM 1B.UNRESOLVED STAFF COMMENTS.

None.

### ITEM 2.PROPERTIES.

We lease our principal executive offices, which are located at 500 North Field Drive, Lake Forest, Illinois, 60045. Our Clean Air product line operates 63 manufacturing facilities worldwide, of which 14 facilities are located in North America, 25 in Europe, South America and India, and 24 in Asia Pacific. Clean Air also operates five engineering and technical facilities worldwide and shares three other such facilities with Ride Performance. Twenty-five of these manufacturing plants are JIT facilities. In addition, two joint ventures in which we hold a noncontrolling interest operate a total of two manufacturing facilities in Europe, all of which are JIT facilities.

Our Ride Performance product line operates 30 manufacturing facilities worldwide, of which nine facilities are located in North America, 15 in Europe, South America and India, and six in Asia Pacific. Ride Performance also operates seven engineering and technical facilities worldwide and shares three other such facilities with Clean Air. Four of these manufacturing plants are JIT facilities located in Europe and India.

The above-described manufacturing locations are located in Argentina, Australia, Belgium, Brazil, Canada, China, Czech Republic, France, Germany, Hungary, India, Italy, Japan, Mexico, Poland, Portugal, Russia, Spain, South Africa, South Korea, Sweden, Thailand, the United Kingdom and the United States. We also have sales offices located in Singapore and Taiwan.

We own 49 and lease 64 of the properties described above. We hold 18 of the above-described international manufacturing facilities through nine joint ventures in which we own a controlling interest. In addition, two joint ventures in which we hold a noncontrolling interest operate a total of two manufacturing facilities in Europe. We also have distribution facilities at our manufacturing sites and at a few off-site locations, substantially all of which we lease.

We believe that substantially all of our plants and equipment are, in general, well maintained and in good operating condition. They are considered adequate for present needs and, as supplemented by planned construction, are expected to remain adequate for the near future.

We also believe that we have generally satisfactory title to the properties owned and used in our respective businesses.

### ITEM 3.LEGAL PROCEEDINGS.

We are involved in environmental remediation matters, legal proceedings, claims, investigations and warranty obligations. These matters are typically incidental to the conduct of our business and create the potential for contingent losses. We accrue for potential contingent losses when our review of available facts indicates that it is probable a loss has been incurred and the amount of the loss is reasonably estimable. Each quarter we assess our loss contingencies based upon currently available facts, existing technology, presently enacted laws and regulations and taking into consideration the likely effects of inflation and other societal and economic factors and record adjustments to these reserves as required. As an example, we consider all available evidence including prior experience in remediation of contaminated sites, other companies' cleanup experiences and data released by the United States Environmental Protection Agency or other organizations when we evaluate

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our environmental remediation contingencies. All of our loss contingency estimates are subject to revision in future periods based on actual costs or new information. With respect to our environmental liabilities, where future cash flows are fixed or reliably determinable, we have discounted those liabilities. We evaluate recoveries separately from the liability and, when they are assured, recoveries are recorded and reported separately from the associated liability in our consolidated financial statements.

### Environmental Matters

We are subject to a variety of environmental and pollution control laws and regulations in all jurisdictions in which we operate. We expense or capitalize, as appropriate, expenditures for ongoing compliance with environmental regulations that relate to current operations. We expense costs related to an existing condition caused by past operations that do not contribute to current or future revenue generation. As of December 31, 2015, we have the obligation to remediate or contribute towards the remediation of certain sites, including one Federal Superfund site. At December 31, 2015, our aggregated estimated share of environmental remediation costs for all these sites on a discounted basis was approximately \$14 million, of which \$2 million is recorded in other current liabilities and \$12 million is recorded in deferred credits and other liabilities in our consolidated balance sheet. For those locations where the liability was discounted, the weighted average discount rate used was 1.8 percent. The undiscounted value of the estimated remediation costs was \$17 million. Our expected payments of environmental remediation costs are estimated to be approximately \$2 million in 2016, \$1 million each year beginning 2017 through 2020 and \$11 million in aggregate thereafter.

Based on information known to us, we have established reserves that we believe are adequate for these costs. Although we believe these estimates of remediation costs are reasonable and are based on the latest available information, the costs are estimates and are subject to revision as more information becomes available about the extent of remediation required. At some sites, we expect that other parties will contribute to the remediation costs. In addition, certain environmental statutes provide that our liability could be joint and several, meaning that we could be required to pay in excess of our share of remediation costs. Our understanding of the financial strength of other potentially responsible parties at these sites has been considered, where appropriate, in our determination of our estimated liability. We do not believe that any potential costs associated with our current status as a potentially responsible party in the Federal Superfund site, or as a liable party at the other locations referenced herein, will be material to our consolidated financial position, results of operations, or liquidity.

### Antitrust Investigations

On March 25, 2014, representatives of the European Commission were at Tenneco GmbH's Edenkoben, Germany administrative facility to gather information in connection with an ongoing global antitrust investigation concerning multiple automotive suppliers. On March 25, 2014, we also received a related subpoena from the U.S. Department of Justice ("DOJ").

On November 5, 2014, the DOJ granted us conditional leniency pursuant to an agreement we entered into under the Antitrust Division's Corporate Leniency Policy. This agreement provides us with important benefits in exchange for our self reporting of matters to the DOJ and our continuing full cooperation with the DOJ's resulting investigation. For example, the DOJ will not bring any criminal antitrust prosecution against us, nor seek any criminal fines or penalties, in connection with the matters we reported to the DOJ. Additionally, there are limits on our liability related to any follow on civil antitrust litigation in the U.S. The limits include single rather than treble damages, as well as relief from joint and several antitrust liability with other relevant civil antitrust action defendants. These limits are subject to our satisfying the DOJ and any court presiding over such follow on civil litigation. We cannot provide any assurance as to when such actions will be filed in the future or how they will ultimately be resolved.

Certain other competition agencies are also investigating possible violations of antitrust laws relating to products supplied by our company. We have cooperated and continue to cooperate fully with all of these antitrust investigations, and take other actions to minimize our potential exposure.

Antitrust law investigations and related matters often continue for several years and can result in significant penalties and liability. At this point, we cannot estimate the ultimate impact on our company from investigations into our antitrust compliance and related matters in light of the uncertainties and many variables involved, and there can be no assurance that the ultimate resolution of these matters, including any civil litigation claims, will not have a material



adverse effect on our consolidated financial position, results of operations or liquidity.

**Other Legal Proceedings, Claims and Investigations**

We are also from time to time involved in other legal proceedings, claims or investigations. Some of these matters involve allegations of damages against us relating to environmental liabilities (including, toxic tort, property damage and remediation), intellectual property matters (including patent, trademark and copyright infringement, and licensing disputes), personal injury claims (including injuries due to product failure, design or warning issues, and other product liability related matters), taxes, employment matters, and commercial or contractual disputes, sometimes related to acquisitions or divestitures.

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Additionally, some of these matters involve allegations relating to legal compliance. For example, one of our Argentine subsidiaries is currently defending itself against a criminal complaint alleging the failure to comply with laws requiring the proceeds of export transactions to be collected, reported and/or converted to local currency within specified time periods. As another example, in the U.S. we are subject to an audit in 11 states with respect to the payment of unclaimed property to those states, spanning a period as far back as over 30 years. While we vigorously defend ourselves against all of these legal proceedings, claims and investigations and take other actions to minimize our potential exposure, in future periods, we could be subject to cash costs or charges to earnings if any of these matters are resolved on unfavorable terms. Although the ultimate outcome of any legal matter cannot be predicted with certainty, based on current information, including our assessment of the merits of the particular claim, except as described above under "Antitrust Investigations," we do not expect the legal proceedings, claims or investigations currently pending against us will have any material adverse impact on our consolidated financial position, results of operations or liquidity.

In addition, for many years we have been and continue to be subject to lawsuits initiated by claimants alleging health problems as a result of exposure to asbestos. Our current docket of active and inactive cases is less than 500 cases nationwide. A small number of claims have been asserted against one of our subsidiaries by railroad workers alleging exposure to asbestos products in railroad cars. The substantial majority of the remaining claims are related to alleged exposure to asbestos in our automotive products although a significant number of those claims appear also to involve occupational exposures sustained in industries other than automotive. We believe, based on scientific and other evidence, it is unlikely that claimants were exposed to asbestos by our former products and that, in any event, they would not be at increased risk of asbestos-related disease based on their work with these products. Further, many of these cases involve numerous defendants, with the number in some cases exceeding 100 defendants from a variety of industries. Additionally, the plaintiffs either do not specify any, or specify the jurisdictional minimum, dollar amount for damages. As major asbestos manufacturers and/or users continue to go out of business or file for bankruptcy, we may experience an increased number of these claims. We vigorously defend ourselves against these claims as part of our ordinary course of business. In future periods, we could be subject to cash costs or charges to earnings if any of these matters are resolved unfavorably to us. To date, with respect to claims that have proceeded sufficiently through the judicial process, we have regularly achieved favorable resolutions. Accordingly, we presently believe that these asbestos-related claims will not have a material adverse impact on our future consolidated financial position, results of operations or liquidity.

ITEM 4.MINE SAFETY DISCLOSURES.

Not applicable.

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## ITEM 4.1.EXECUTIVE OFFICERS OF THE REGISTRANT.

The following provides information concerning the persons who serve as our executive officers as of February 24, 2016.

Name and Age	Offices Held
Gregg M. Sherrill (63)	Chairman and Chief Executive Officer
Brian J. Kessler (49)	Chief Operating Officer
Josep Fornos (63)	Executive Vice President, Enterprise Business Initiatives
Timothy E. Jackson (59)	Executive Vice President, Technology, Strategy and Business Development
Kenneth R. Trammell (55)	Executive Vice President and Chief Financial Officer
Gregg Bolt (56)	Senior Vice President, Global Human Resources and Administration
Peng (Patrick) Guo (50)	Senior Vice President and General Manager, Asia Pacific
James D. Harrington (55)	Senior Vice President, General Counsel and Corporate Secretary
Henry Hummel (48)	Senior Vice President and General Manager, Clean Air Division
Enrique Orta (44)	Senior Vice President, Ride Performance Division
Joseph A. Pomaranski (60)	Senior Vice President and General Manager, Global Aftermarket
John E. Kunz (50)	Vice President and Controller

Gregg M. Sherrill — Mr. Sherrill was named the Chairman and Chief Executive Officer of Tenneco in January 2007.

Mr. Sherrill joined us from Johnson Controls Inc., where he served since 1998, most recently as President, Power Solutions. From 2002 to 2003, Mr. Sherrill served as the Vice President and Managing Director of Europe, South Africa and South America for Johnson Controls' Automotive Systems Group. Prior to joining Johnson Controls, Mr. Sherrill held various engineering and manufacturing assignments over a 22-year span at Ford Motor Company, including Plant Manager of Ford's Dearborn, Michigan engine plant, Chief Engineer, Steering Systems and Director of Supplier Technical Assistance. Mr. Sherrill became a director of our company in January 2007.

Brian J. Kessler - Mr. Kessler was named Chief Operating Officer in January 2015. Prior to joining Tenneco, he spent more than 20 years working for Johnson Controls Inc., most recently serving as President of the Johnson Controls Power Solutions business. In 2013, he was elected a corporate officer, and was a member of the Johnson Controls executive operating team. Mr. Kessler also served as the sponsor of Johnson Controls' Manufacturing Operations Council. Mr. Kessler joined JCI in 1994 and during his tenure held leadership positions in all of the company's business units, including serving as Vice President and General Manager, Service-North America, Systems and Services Europe, and Unitary Products Group, for the Building Efficiency business. He began his career with the Ford Motor Company in 1989 and worked in North America Assembly Operations for five years, specializing in manufacturing management.

Josep Fornos - Mr. Fornos was named Executive Vice President, Enterprise Business Initiatives in September 2015. He served as Executive Vice President, Clean Air Division from October 2014 to September 2015. Prior to that, Mr. Fornos served as Executive Vice President, Ride Performance Division from February 2013 to October 2014, as Executive Vice President and General Manager, Europe, South America and India from March 2012 to February 2013 and as Senior Vice President and General Manager, Europe, South America and India from July 2010 to March 2012. Prior to that, he had served as Vice President and General Manager, Europe Original Equipment Emission Control since March 2007. Mr. Fornos joined Tenneco in July 2000 as Vice President and General Manager, Europe Original Equipment Ride Control. Prior to joining Tenneco, Fornos spent a year at Lear Corporation as General Manager of the company's seating and wire and harness business in France, following Lear's acquisition of United Technologies Automotive. Mr. Fornos spent 16 years with United Technologies Automotive, holding several management positions in production, engineering and quality control in Spain and later having Europe-wide responsibility for engineering and quality control.

Timothy E. Jackson — Mr. Jackson has served as Executive Vice President, Technology, Strategy and Business Development since March 2012. He served as our Senior Vice President and Chief Technology Officer from March 2007 to March 2012. Prior to that, Mr. Jackson served as our Senior Vice President — Global Technology and General Manager, Asia Pacific since July 2005. From 2002 to 2005, Mr. Jackson served as Senior Vice President —

Manufacturing, Engineering, and Global Technology. In August 2000, he was named Senior Vice President — Global Technology, a role he served in after joining us as Senior Vice President and General Manager — North American Original Equipment and Worldwide Program Management in June 1999. Mr. Jackson came to Tenneco from ITT Industries where he was President of that company's Fluid Handling Systems Division. With over 30 years of management experience, 25 within the automotive industry, he had also served as Chief Executive Officer for HiSan, a joint venture between ITT Industries and Sanoh Industrial Company. Mr. Jackson has also held senior management positions at BF Goodrich Aerospace and General Motors Corporation.

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**Kenneth R. Trammell** — Mr. Trammell has served as our Chief Financial Officer since September 2003. Mr. Trammell was a Senior Vice President from September 2003 until January 2006 when he became an Executive Vice President. He was our Vice President and Controller from September 1999 to September 2003 and Corporate Controller of Tenneco Inc. from April 1997 to November 1999. He joined Tenneco Inc. in May 1996 as Assistant Controller. Before joining Tenneco Inc., Mr. Trammell spent 12 years with the international public accounting firm of Arthur Andersen LLP, last serving as a senior manager.

**Gregg Bolt** — Mr. Bolt was named our Senior Vice President, Global Human Resources and Administration in February 2013. Prior to joining Tenneco, Mr. Bolt worked for Quad/Graphics, Inc. as Executive Vice President, Human Resources and Administration from March 2009 to January 2013. Previously, he was with Johnson Controls Inc. for more than 10 years, serving most recently as Vice President, Human Resources for JCI's Building Efficiency division.

**Peng (Patrick) Guo** - Mr. Guo has served as Senior Vice President and General Manager, Asia Pacific since October 2014. Prior to this appointment, Mr. Guo served as Vice President and Managing Director, China since 2007. From 1996 to 2003, Mr. Guo served as General Manager, Asia Aftermarket Operations while based in Beijing, China. He left Tenneco in October 2003 to become president of the AGC Automotive China Operations for the Ashai Glass Company. He returned to Tenneco in July 2007. Before joining Tenneco, Mr. Guo was an engineer at the Ford Motor Company, which included assignments in manufacturing, quality and product design.

**James D. Harrington** — Mr. Harrington has served as our Senior Vice President, General Counsel and Corporate Secretary since June 2009 and is responsible for managing our worldwide legal affairs including corporate governance and compliance. Mr. Harrington joined us in January 2005 as Corporate Counsel and was named Vice President — Law in July 2007. Prior to joining Tenneco, he worked at Mayer Brown LLP in the firm's corporate and securities practice.

**Henry Hummel** - Mr. Hummel was named Senior Vice President and General Manager, Clean Air Division in September 2015. He is responsible for leading Tenneco's Clean Air product line. Mr. Hummel joined Tenneco from GE Healthcare where, since October 2014, he had been serving as President and CEO of molecular imaging and computed tomography, leading the company's \$3.5 billion global business focused on diagnostic imaging equipment and services. He had been with GE Healthcare for more than 20 years, managing global business and functions including operations, strategic planning, new product introductions, technology and business integration. In addition to his time with GE Healthcare, Mr. Hummel also spent time with Johnson Controls, Inc., serving as Vice President and General Manager Service North America and Covance, as Vice President and General Manager of the company's Madison, Wisconsin laboratories.

**Enrique Orta** - Mr. Orta was named Senior Vice President, Ride Performance Division in May 2015. He is responsible for leading Tenneco's Ride Performance product line. Prior to that, Mr. Orta serviced as Vice President and General Manager, Europe Clean Air from July 2010 to May 2015, as Executive Operations Director, Europe Emission Control from June 2008 to July 2010 and as Executive Operations Director, Europe Emission Control from February 2008 to June 2008. Mr. Orta joined Tenneco in 1995 as financial controller and HR manager at the company's newly acquired Valencia, Spain Clean Air plant.

**Joseph A. Pomaranski** - Mr. Pomaranski has served as our Senior Vice President and General Manager, Global Aftermarket since October 2014. Prior to this appointment, Mr. Pomaranski served as Vice President and General Manager, North America Aftermarket since November 2010. He served as Vice President, North America Aftermarket from August 2008 to November 2010. Prior to that, Mr. Pomaranski served as Vice President, North America Aftermarket Sales from May 1999 to August 2008. Mr. Pomaranski joined Tenneco in 1999 from Federal Mogul where he held the position of Director of Sales, Special Markets. Prior to that, he worked for Cooper Automotive as Vice President of Sales. He began his career with Champion Spark Plug where he held various positions from 1977 to 1998.

**John E. Kunz** — Mr. Kunz has served as our Vice President and Controller since March 2015 and is our company's principal accounting officer with responsibility for Tenneco's corporate accounting and financial reporting globally. Prior to assuming his role as Controller, Mr. Kunz served as Vice President, Treasurer and Tax, responsible for our company's global tax function. Mr. Kunz also oversaw our company's treasury, insurance and investment activities including building and managing relationships with the banking community and rating agencies. Mr. Kunz joined Tenneco in 2004 from Great Lakes Chemical Corporation, where he rose through responsibility to become vice

president and treasurer. Prior to joining Great Lakes in 1999, Mr. Kunz was director of corporate development at Weirton Steel Corporation, where he also held prior positions in capital planning, business development and financial analysis. Prior to that, Mr. Kunz spent four years with the international public accounting firm of KPMG.

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## PART II

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

Our outstanding shares of common stock, par value \$.01 per share, are listed on the New York and Chicago Stock Exchanges. The following table sets forth, for the periods indicated, the high and low sales prices of our common stock on the New York Stock Exchange Composite Transactions Tape.

Quarter	Sales Prices	
	High	Low
2015		
1st	\$59.87	\$49.14
2nd	61.73	55.01
3rd	58.20	39.13
4th	57.18	44.15
2014		
1st	\$62.75	\$52.21
2nd	67.69	56.10
3rd	69.22	52.20
4th	58.08	46.64

As of February 19, 2016, there were approximately 15,712 holders of record of our common stock, including brokers and other nominees.

The declaration of dividends on our common stock is at the discretion of our Board of Directors. The Board has not adopted a dividend policy as such; subject to legal and contractual restrictions, its decisions regarding dividends are based on all considerations that in its business judgment are relevant at the time. These considerations may include past and projected earnings, cash flows, economic, business and securities market conditions and anticipated developments concerning our business and operations.

Relative to many of our peers in the auto parts industry, we are more highly leveraged and our debt agreements contain certain restrictions on the payment of dividends depending upon the ratio of our earnings to our debt. We have not paid dividends on our common stock since the fourth quarter of 2000. There are no current plans to reinstate a dividend on our common stock. For additional information concerning our payment of dividends, see "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in Item 7.

See "Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters" included in Item 12 for information regarding securities authorized for issuance under our equity compensation plans.

Purchase of equity securities by the issuer and affiliated purchasers

The following table provides information relating to our purchase of shares of our common stock in the fourth quarter of 2015. These purchases include shares withheld upon vesting of restricted stock for minimum tax withholding obligations. We generally intend to continue to satisfy statutory minimum tax withholding obligations in connection with the vesting of outstanding restricted stock through the withholding of shares.

Period	Total Number of Shares Purchased	Average Price Paid	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Value of Shares That May Yet be Purchased Under These Plans or Programs (Millions)
October 2015	1,065,919	\$48.55	1,065,919	\$340
November 2015	58,345	\$56.13	57,951	\$337
December 2015	32	\$50.50	—	\$337

Total	1,124,296	1,123,870	\$337
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In October 2015, our Board of Directors expanded our company's share repurchase program, authorizing the repurchase of an additional \$200 million of our company's outstanding common stock. This authorization was in addition to the \$350 million share repurchase program our company announced in January 2015. We anticipate completing the additional \$200 million share repurchase program by the end of 2017.

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## Recent Sales of Unregistered Securities

None.

## Share Performance

The following graph shows a five year comparison of the cumulative total stockholder return on Tenneco's common stock as compared to the cumulative total return of two other indexes: a custom composite index ("Peer Group") and the Standard & Poor's 500 Composite Stock Price Index. The companies included in the Peer Group are: American Axle & Manufacturing Co., Borg Warner Inc., Cummins Inc., Johnson Controls Inc., Lear Corp., Magna International Inc., and Meritor, Inc. These comparisons assume an initial investment of \$100 and the reinvestment of dividends.

	12/31/2010	12/31/2011	12/31/2012	12/31/2013	12/31/2014	12/31/2015
Tenneco Inc.	100.00	72.35	85.30	137.44	137.54	111.54
S&P 500	100.00	102.11	118.45	156.82	178.29	180.75
Peer Group	100.00	78.45	92.10	145.18	156.60	123.67

The graph and other information furnished in the section titled "Share Performance" under this Part II, Item 5 of this Form 10-K shall not be deemed to be "soliciting" material or to be "filed" with the Securities and Exchange Commission or subject to Regulation 14A or 14C, or to the liabilities of Section 18 of the Securities Exchange Act of 1934, as amended.

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ITEM 6. SELECTED FINANCIAL DATA.

The following data should be read in conjunction with Item 7 — “Management’s Discussion and Analysis of Financial Condition and Operations” and our consolidated financial statements in Item 8 — “Financial Statements and Supplementary Data.” These items include discussions of factors affecting comparability of the information shown below.

We are organized and manage our business along our two major product lines (clean air and ride performance) and three geographic areas (North America; Europe, South America and India; and Asia Pacific), resulting in six operating segments (North America Clean Air, North America Ride Performance, Europe, South America and India Clean Air, Europe, South America and India Ride Performance, Asia Pacific Clean Air and Asia Pacific Ride Performance). Within each geographical area, each operating segment manufactures and distributes either clean air or ride performance products primarily for the original equipment and aftermarket industries. Each of the six operating segments constitutes a reportable segment. Costs related to other business activities, primarily corporate headquarter functions, are disclosed separately from the six operating segments as "Other."

Table of ContentsTENNECO INC. AND CONSOLIDATED SUBSIDIARIES  
SELECTED CONSOLIDATED FINANCIAL DATA

	Year Ended December 31,				
	2015(a)	2014(b)	2013(c)	2012(d)	2011(e)
	(Millions Except Share and Per Share Amounts)				
Statements of Income Data:					
Net sales and operating revenues —					
Clean Air Division					
North America	\$2,867	\$2,840	\$2,666	\$2,512	\$2,291
Europe, South America & India	1,935	2,088	2,045	1,827	1,952
Asia Pacific	1,037	1,022	853	695	625
Intergroup sales	(116 )	(139 )	(120 )	(108 )	(107 )
Total Clean Air Division	5,723	5,811	5,444	4,926	4,761
Ride Performance Division					
North America	1,323	1,361	1,265	1,223	1,135
Europe, South America & India	972	1,070	1,087	1,094	1,217
Asia Pacific	275	269	251	213	179
Intergroup sales	(84 )	(91 )	(83 )	(93 )	(87 )
Total Ride Performance Division	2,486	2,609	2,520	2,437	2,444
Total Tenneco Inc.	\$8,209	\$8,420	\$7,964	\$7,363	\$7,205
Earnings before interest expense, income taxes, and noncontrolling interests —					
Clean Air Division					
North America	\$244	\$237	\$229	\$202	\$172
Europe, South America & India	52	59	57	\$54	\$79
Asia Pacific	121	101	84	\$71	\$47
Total Clean Air Division	417	397	370	\$327	\$298
Ride Performance Division					
North America	155	143	124	\$122	\$76
Europe, South America & India	(5 )	40 )	(7 )	\$41	\$69
Asia Pacific	39	36	22	\$5	\$(6 )
Total Ride Performance Division	189	219	139	\$168	\$139
Other	(87 )	(124 )	(85 )	(67 )	(58 )
Total Tenneco Inc.	\$519	\$492	\$424	428	379
Interest expense (net of interest capitalized)	67	91	80	105	108
Income tax expense	149	131	122	19	88
Net income	303	270	222	304	183
Less: Net income attributable to noncontrolling interests	56	44	39	29	26
Net income attributable to Tenneco Inc.	\$247	\$226	\$183	\$275	\$157
Weighted average shares of common stock outstanding —					
Basic	59,678,309	60,734,022	60,474,492	59,985,677	59,884,139
Diluted	60,193,150	61,782,508	61,594,062	61,083,510	61,520,160
Basic earnings per share of common stock	\$4.14	\$3.72	\$3.03	\$4.58	\$2.62
Diluted earnings per share of common stock	\$4.11	\$3.66	\$2.97	\$4.50	\$2.55



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	Years Ended December 31,				
	2015	2014	2013	2012	2011
	(Millions Except Ratio and Percent Amounts)				
Balance Sheet Data (at year end):					
Total assets(f)	\$3,967	\$3,996	\$3,817	\$3,593	\$3,317
Short-term debt	86	60	83	113	66
Long-term debt(f)	1,124	1,055	1,006	1,052	1,138
Redeemable noncontrolling interests	43	35	20	15	12
Total Tenneco Inc. shareholders' equity	433	497	433	246	—
Noncontrolling interests	42	41	39	45	43
Total equity	475	538	472	291	43
Statement of Cash Flows Data:					
Net cash provided by operating activities	\$517	\$341	\$503	\$365	\$245
Net cash used by investing activities	(303)	) (339)	) (266)	) (273)	) (224)
Net cash provided (used) by financing activities	(172)	) 20	(175)	) (89)	) (26)
Cash payments for plant, property and equipment	(286)	) (328)	) (244)	) (256)	) (213)
Other Data:					
EBITDA including noncontrolling interests(g)	\$722	\$700	\$629	\$633	\$586
Ratio of EBITDA including noncontrolling interests to interest expense	10.78	7.69	7.86	6.03	5.43
Ratio of net debt (total debt less cash and cash equivalents) to EBITDA including noncontrolling interests(h)	1.28	1.19	1.29	1.49	1.69
Ratio of earnings to fixed charges(i)	5.85	4.41	4.34	3.55	3.10

NOTE: Our consolidated financial statements for the three years ended December 31, 2015, which are discussed in the following notes, are included in this Form 10-K under Item 8.

(a) 2015 includes \$63 million of restructuring and related costs primarily related to the European cost reduction efforts, exiting the Marzocchi suspension business, headcount reductions in Australia and South America, and the closure of a JIT plant in Australia. Of the total \$63 million we incurred in restructuring and related costs, \$10 million was related to asset write-downs. 2015 also includes \$4 million in charges related to pension benefits.

(b) 2014 includes \$49 million of restructuring and related costs primarily related to the European cost reduction efforts, headcount reductions in Australia and South America, the sale of a closed facility in Cozad, Nebraska and costs related to organizational changes. Of the total \$49 million we incurred in restructuring and related costs, \$3 million was related to non-cash asset write downs and \$2 million was related to a non-cash charge on the sale of a closed facility. 2014 also includes \$32 million in charges related to postretirement benefits, of which \$21 million was a non-cash charge related to payments made to retirement plan participants out of pension assets and \$11 million related to an adjustment to the postretirement medical liability.

(c) 2013 includes \$78 million of restructuring and related costs primarily related to European cost reduction efforts including the planned closing of the ride performance plant in Gijon, Spain and intended reductions to the workforce at our ride performance plant in Sint-Truiden, our exit from the distribution of aftermarket exhaust products and ending production of leaf springs in Australia, headcount reductions in various regions, and the net impact of freezing our defined benefit plans in the United Kingdom. Of the total \$78 million we incurred in restructuring and related costs, \$3 million was related to non-cash asset write downs.

(d) 2012 includes a \$7 million asset impairment charge related to certain assets of our European Ride Performance business and a benefit of \$5 million from property recoveries related to transactions originated by The Pullman

Company before being acquired by Tenneco in 1996.

(e) During the third quarter of 2011, we recorded a goodwill impairment charge of \$11 million related to our Australian reporting unit within the Asia Pacific segment.

In April 2015, the FASB issued Accounting Standard Update 2015-03, Simplifying the Presentation of Debt Issuance Costs, which requires debt issuance costs to be presented in the balance sheet as a direct deduction from the associated

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debt liability. For public business entities, the standard is effective for financial statements issued for fiscal years beginning after December 15, 2015, and interim periods within those fiscal years. Early adoption of the amendments in this update is permitted for financial statements that have not been previously issued. We adopted this standard for the first quarter of 2015 and applied retrospectively. The balance for unamortized debt issuance costs was \$12 million, \$14 million, \$13 million, \$15 million and \$20 million at December 31, 2015, 2014, 2013, 2012 and 2011, respectively.

EBITDA including noncontrolling interests is a non-GAAP measure defined as net income before extraordinary items, cumulative effect of changes in accounting principle, interest expense, income taxes, depreciation and amortization and noncontrolling interests. We use EBITDA including noncontrolling interests, together with GAAP measures, to evaluate and compare our operating performance on a consistent basis between time periods (g) and with other companies that compete in our markets but which may have different capital structures and tax positions, which can have an impact on the comparability of interest expense, noncontrolling interests and tax expense. We also believe that using this measure allows us to understand and compare operating performance both with and without depreciation expense. We believe EBITDA including noncontrolling interests is useful to our investors and other parties for these same reasons.

EBITDA including noncontrolling interests should not be used as a substitute for net income or for net cash provided by operating activities prepared in accordance with GAAP. It should also be noted that EBITDA including noncontrolling interests may not be comparable to similarly titled measures used by other companies and, furthermore, that it excludes expenditures for debt financing, taxes and future capital requirements that are essential to our ongoing business operations. For these reasons, EBITDA including noncontrolling interests is of value to management and investors only as a supplement to, and not in lieu of, GAAP results. EBITDA including noncontrolling interests are derived from the statements of income (loss) as follows:

	Year Ended December 31,				
	2015	2014	2013	2012	2011
	(Millions)				
Net income	\$247	\$226	\$183	\$275	\$157
Noncontrolling interests	56	44	39	29	26
Income tax expense	149	131	122	19	88
Interest expense, net of interest capitalized	67	91	80	105	108
Depreciation and amortization of other intangibles	203	208	205	205	207
Total EBITDA including noncontrolling interests	\$722	\$700	\$629	\$633	\$586

We present the ratio of net debt (total debt less cash and cash equivalents) to EBITDA including noncontrolling interests because management believes it is a useful measure of Tenneco's credit position and progress toward (h) reducing leverage. The calculation is limited in that we may not always be able to use cash to repay debt on a dollar-for-dollar basis. Net debt balances are derived from the balance sheets as follows:

	Year Ended December 31,				
	2015	2014	2013	2012	2011
	(Millions)				
Total Debt	\$1,210	\$1,115	\$1,089	\$1,165	\$1,204
Total Cash	288	285	280	223	214
Net Debt	\$922	\$830	\$809	\$942	\$990

For purposes of computing this ratio, earnings generally consist of income before income taxes and fixed charges (i) excluding capitalized interest. Fixed charges consist of interest expense, the portion of rental expense considered representative of the interest factor and capitalized interest. See Exhibit 12 to this Form 10-K for the calculation of this ratio.





Table of ContentsITEM MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF  
7. OPERATIONS.

As you read the following review of our financial condition and results of operations, you should also read our consolidated financial statements and related notes in Item 8.

## Executive Summary

We are one of the world's leading manufacturers of clean air and ride performance products and systems for light vehicle, commercial truck and off-highway applications. We serve both original equipment (OE) vehicle designers and manufacturers and the repair and replacement markets, or aftermarket, globally through leading brands, including Monroe®, Rancho®, Clevite® Elastomers, Axios,™ Kinetic® and Fric-Rot™ ride performance products and Walker®, XNOx®, Fonos,™ DynoMax® and Thrush® clean air products. We serve more than 80 different original equipment manufacturers and commercial truck and off-highway engine manufacturers, and our products are included on nine of the top 10 car models produced for sale in Europe and eight of the top 10 light truck models produced for sale in North America for 2015. Our aftermarket customers are comprised of full-line and specialty warehouse distributors, retailers, jobbers, installer chains and car dealers. As of December 31, 2015, we operated 93 manufacturing facilities worldwide and employed approximately 30,000 people to service our customers' demands.

Factors that continue to be critical to our success include winning new business awards, managing our overall global manufacturing footprint to ensure proper placement and workforce levels in line with business needs, maintaining competitive wages and benefits, maximizing efficiencies in manufacturing processes and reducing overall costs. In addition, our ability to adapt to key industry trends, such as a shift in consumer preferences to other vehicles in response to higher fuel costs and other economic and social factors, increasing technologically sophisticated content, changing aftermarket distribution channels, increasing environmental standards and extended product life of automotive parts, also play a critical role in our success. Other factors that are critical to our success include adjusting to economic challenges such as increases in the cost of raw materials and our ability to successfully reduce the impact of any such cost increases through material substitutions, cost reduction initiatives and other methods.

For 2015, light vehicle production continued to improve from recent years in some of the geographic regions in which we operate. Light vehicle production was up three percent in North America, six percent in India, and four percent in both Europe and China. South America light vehicle production was down 21 percent and Australia was down two percent from 2014 levels.

We are organized and manage our business along our two major product lines (clean air and ride performance) and three geographic areas (North America; Europe, South America and India; and Asia Pacific), resulting in six operating segments (North America Clean Air, North America Ride Performance, Europe, South America and India Clean Air, Europe, South America and India Ride Performance, Asia Pacific Clean Air and Asia Pacific Ride Performance). Within each geographical area, each operating segment manufactures and distributes either clean air or ride performance products primarily for the original equipment and aftermarket industries. Each of the six operating segments constitutes a reportable segment. Costs related to other business activities, primarily corporate headquarter functions, are disclosed separately from the six operating segments as "Other."

Total revenue for 2015 was \$8,209 million, a three percent decrease from \$8,420 million in 2014. Excluding the impact of currency and substrate sales, revenue was up \$315 million from \$6,486 million to \$6,801 million, driven primarily by stronger OE light vehicle volumes in North America, Europe, India and China, increased aftermarket sales in North America and South America and new platforms in Europe, China and Japan, which were partially offset by lower commercial truck, off-highway and other revenue mainly in South America and China.

Cost of sales: Cost of sales for 2015 was \$6,845 million, or 83.4 percent of sales, compared to \$7,025 million, or 83.4 percent of sales in 2014. The following table lists the primary drivers behind the change in cost of sales (\$ millions).

Year ended December 31, 2014	\$7,025	
Volume and mix	471	
Material	(120	)
Currency exchange rates	(521	)
Restructuring	—	

Other Costs	(10 )
Year ended December 31, 2015	\$6,845

The decrease in cost of sales was due to the impact of currency exchange rates, lower net material costs, and lower other costs, mainly manufacturing, partially offset by the year-over-year increase in volume.

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Gross margin: Revenue less cost of sales for 2015 was \$1,364 million, or 16.6 percent of sales, versus \$1,395 million, or 16.6 percent of sales in 2014. The effect on gross margin resulting from year-over-year increase in volume, lower net material costs and lower other costs, mainly manufacturing, was more than offset by unfavorable currency.

Engineering, research and development: Engineering, research and development expense was \$146 million and \$169 million in 2015 and 2014, respectively, mainly due to currency impact and the timing of customers' recoveries.

Selling, general and administrative (SG&A): Selling, general and administrative expense was down \$28 million in 2015, at \$491 million, compared to \$519 million in 2014, mainly due to currency impact.

Depreciation and amortization: Depreciation and amortization expense was \$203 million and \$208 million for 2015 and 2014, respectively.

Earnings before interest expense, taxes and noncontrolling interests ("EBIT") was \$519 million for 2015, an increase of \$27 million, when compared to \$492 million in the prior year. Higher OE light vehicle volumes in North America, Europe, India and China, increased aftermarket sales in North America and South America, new platforms in Europe, China and Japan, the benefit of our product cost leadership initiatives and savings from previous restructuring activities were partially offset by lower commercial truck, off-highway and other revenue mainly in South America and China, unfavorable mix, higher restructuring costs and \$64 million of negative currency. EBIT for 2015 also benefited from the timing of a customer recovery in China Clean Air of \$5 million. EBIT for 2014 included a \$7 million adjustment to workers' compensation reserves.

#### Results from Operations

##### Net Sales and Operating Revenues for Years 2015 and 2014

The tables below reflect our revenues for 2015 and 2014. We show the component of our OE revenue represented by substrate sales. While we generally have primary design, engineering and manufacturing responsibility for OE emission control systems, we do not manufacture substrates. Substrates are porous ceramic filters coated with a catalyst - typically, precious metals such as platinum, palladium and rhodium. These are supplied to us by Tier 2 suppliers generally as directed by our OE customers. We generally earn a small margin on these components of the system. As the need for more sophisticated emission control solutions increases to meet more stringent environmental regulations, and as we capture more diesel aftertreatment business, these substrate components have been increasing as a percentage of our revenue. While these substrates dilute our gross margin percentage, they are a necessary component of an emission control system.

Our value-add content in an emission control system includes designing the system to meet environmental regulations through integration of the substrates into the system, maximizing use of thermal energy to heat up the catalyst quickly, efficiently managing airflow to reduce back pressure as the exhaust stream moves past the catalyst, managing the expansion and contraction of the emission control system components due to temperature extremes experienced by an emission control system, using advanced acoustic engineering tools to design the desired exhaust sound, minimizing the opportunity for the fragile components of the substrate to be damaged when we integrate it into the emission control system and reducing unwanted noise, vibration and harshness transmitted through the emission control system. We present these substrate sales separately in the following table because we believe investors utilize this information to understand the impact of this portion of our revenues on our overall business and because it removes the impact of potentially volatile precious metals pricing from our revenues. While our original equipment customers generally assume the risk of precious metals pricing volatility, it impacts our reported revenues. Presenting revenues that exclude "substrates" used in catalytic converters and diesel particulate filters removes this impact.

Additionally, we present these reconciliations of revenues in order to reflect value-add revenues without the effect of changes in foreign currency rates. We have not reflected any currency impact in the 2014 table since this is the base period for measuring the effects of currency during 2015 on our operations. We believe investors find this information useful in understanding period-to-period comparisons in our revenues.

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	Year Ended December 31, 2015				
	Revenues	Substrate Sales	Value-add Revenues	Currency Impact on Value-add Revenues	Value-add Revenues excluding Currency
	(Millions)				
Clean Air Division					
North America	\$2,851	\$1,007	\$1,844	\$(5 )	\$1,849
Europe, South America & India	1,835	664	1,171	(236 )	1,407
Asia Pacific	1,037	245	792	(28 )	820
Total Clean Air Division	5,723	1,916	3,807	(269 )	4,076
Ride Performance Division					
North America	1,313	—	1,313	(29 )	1,342
Europe, South America & India	944	—	944	(195 )	1,139
Asia Pacific	229	—	229	(15 )	244
Total Ride Performance Division	2,486	—	2,486	(239 )	2,725
Total Tenneco Inc.	\$8,209	\$1,916	\$6,293	\$(508 )	\$6,801
	Year Ended December 31, 2014				
	Revenues	Substrate Sales	Value-add Revenues	Currency Impact on Value-add Revenues	Value-add Revenues excluding Currency
	(Millions)				
Clean Air Division					
North America	\$2,815	\$1,045	\$1,770	\$—	\$1,770
Europe, South America & India	1,974	668	1,306	—	1,306
Asia Pacific	1,022	221	801	—	801
Total Clean Air Division	5,811	1,934	3,877	—	3,877
Ride Performance Division					
North America	1,351	—	1,351	—	1,351
Europe, South America & India	1,032	—	1,032	—	1,032
Asia Pacific	226	—	226	—	226
Total Ride Performance Division	2,609	—	2,609	—	2,609
Total Tenneco Inc.	\$8,420	\$1,934	\$6,486	\$—	\$6,486

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Year Ended December 31, 2015

Versus Year Ended December 31, 2014

Dollar and Percent Increase (Decrease)

	Revenues	Percent	Value-add		Percent
			Revenues excluding Currency	Percent	
(Millions Except Percent Amounts)					
Clean Air Division					
North America	\$36	1	% \$79	4	%
Europe, South America & India	(139)	) (7	)% 101	8	%
Asia Pacific	15	1	% 19	2	%
Total Clean Air Division	(88)	) (2	)% 199	5	%
Ride Performance Division					
North America	(38)	) (3	)% (9	) (1	)%
Europe, South America & India	(88)	) (9	)% 107	10	%
Asia Pacific	3	1	% 18	8	%
Total Ride Performance Division	(123)	) (5	)% 116	4	%
Total Tenneco Inc.	\$(211)	) (3	)% \$315	5	%

Light Vehicle Industry Production by Region for Years Ended December 31, 2015 and 2014 (According to IHS Automotive, January 2016)

	Year Ended December 31,		Increase (Decrease)	% Increase (Decrease)
	2015	2014		
(Number of Vehicles in Thousands)				
North America	17,497	17,029	468	3 %
Europe	20,918	20,151	767	4 %
South America	3,034	3,818	(784)	(21)%
India	3,805	3,594	211	6 %
Total Europe, South America & India	27,757	27,563	194	1 %
China	23,580	22,610	970	4 %
Australia	172	175	(3)	(2)%

Clean Air revenue was down \$88 million in 2015 compared to 2014. In North America, higher OE light vehicle and aftermarket volumes were partially offset by lower commercial truck and off-highway vehicle volumes and unfavorable mix, which accounted for \$81 million of the year-over-year increase in revenues. Currency had a \$5 million unfavorable impact on North American revenues. In the European, South American and Indian region, higher volumes drove a \$230 million increase in revenues mainly due to higher light vehicle volumes, higher commercial truck, off-highway and other vehicle volumes and new platforms in Europe, partially offset by lower year-over-year volumes in South America and lower aftermarket volumes in Europe. Currency had a \$358 million unfavorable impact on European, South American and Indian revenues. The increase in Asia Pacific revenues was primarily driven by higher volumes of \$70 million, mostly due to higher light vehicle production in China and new programs in China and Japan, partially offset by lower commercial truck vehicle volumes in China. Currency had a \$36 million unfavorable impact on Asia Pacific revenues.

Ride Performance revenue was down \$123 million in 2015 compared to 2014. In North America, lower volumes of \$2 million driven by lower light vehicle and commercial truck, off-highway and other vehicle volumes, were partially offset by higher aftermarket sales. Currency had a \$29 million unfavorable impact on North American revenues. In the European, South American and Indian region, higher volumes of \$104 million were driven by light vehicle and aftermarket increases in the region and higher commercial truck and off-highway vehicle revenues and new platforms

in Europe. Currency had a \$195 million unfavorable impact on European, South American and Indian revenues. In the Asia Pacific region, higher volumes of \$19 million, mostly due to higher light vehicle production volumes in China, were partially offset by lower volumes in Australia. Currency had a \$15 million unfavorable impact on Asia Pacific revenues.

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## Net Sales and Operating Revenues for Years 2014 and 2013

The following tables reflect our revenues for the years of 2014 and 2013. See “Net Sales and Operating Revenues for Years 2015 and 2014” for a description of why we present these reconciliations of revenue.

## Year Ended December 31, 2014

	Revenues	Substrate Sales	Value-add Revenues	Currency Impact on Value-add Revenues	Value-add Revenues excluding Currency
	(Millions)				
Clean Air Division					
North America	\$2,815	\$1,045	\$1,770	\$(3)	) \$1,773
Europe, South America & India	1,974	668	1,306	(36)	) 1,342
Asia Pacific	1,022	221	801	(9)	) 810
Total Clean Air Division	5,811	1,934	3,877	(48)	) 3,925
Ride Performance Division					
North America	1,351	—	1,351	(14)	) 1,365
Europe, South America & India	1,032	—	1,032	(59)	) 1,091
Asia Pacific	226	—	226	(5)	) 231
Total Ride Performance Division	2,609	—	2,609	(78)	) 2,687
Total Tenneco Inc.	\$8,420	\$1,934	\$6,486	\$(126)	) \$6,612

## Year Ended December 31, 2013

	Revenues	Substrate Sales	Value-add Revenues	Currency Impact on Value-add Revenues	Value-add Revenues excluding Currency
	(Millions)				
Clean Air Division					
North America	\$2,658	\$1,030	\$1,628	\$—	\$1,628
Europe, South America & India	1,934	663	1,271	—	1,271
Asia Pacific	852	142	710	—	710
Total Clean Air Division	5,444	1,835	3,609	—	3,609
Ride Performance Division					
North America	1,255	—	1,255	—	1,255
Europe, South America & India	1,046	—	1,046	—	1,046
Asia Pacific	219	—	219	—	219
Total Ride Performance Division	2,520	—	2,520	—	2,520
Total Tenneco Inc.	\$7,964	\$1,835	\$6,129	\$—	\$6,129

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Year Ended December 31, 2014  
Versus Year Ended December 31, 2013  
Dollar and Percent Increase (Decrease)

	Revenues	Percent	Value-add Revenues excluding Currency	Percent	
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(Millions Except Percent Amounts)

Clean Air Division					
North America	\$157	6%	\$145	9	%
Europe, South America & India	40	2%	71	6	%
Asia Pacific	170	20%	100	14	%
Total Clean Air Division	367	7%	316	9	%
Ride Performance Division					
North America	96	8%	110	9	%
Europe, South America & India	(14	) (1)%	45	4	%
Asia Pacific	7	3%	12	5	%
Total Ride Performance Division	89	4%	167	7	%
Total Tenneco Inc.	\$456	6%	\$483	8	%

Light Vehicle Industry Production by Region for Years Ended December 31, 2014 and 2013 (Updated according to IHS Automotive, January 2016)

	Year Ended December 31,		Increase	% Increase
	2014	2013	(Decrease)	(Decrease)

(Number of Vehicles in Thousands)

North America	17,029	16,177	852	5%
Europe	20,151	19,502	649	3%
South America	3,818	4,534	(716)	) (16)%
India	3,594	3,655	(61)	) (2)%
Total Europe, South America & India	27,563	27,691	(128)	) —%
China	22,610	20,920	1,690	8%
Australia	175	210	(35)	) (17)%

Clean Air revenue was up \$367 million in 2014 compared to 2013, driven by higher sales in all the regions. The increase in North American revenues was driven by higher light vehicle volumes, new platform launches and increased aftermarket revenues, which accounted for \$174 million of the year-over-year change in revenues. Currency had a \$3 million unfavorable impact on North American revenues. The increase in European, South American and Indian revenues was mostly driven by higher volumes of \$91 million, mainly due to higher year-over-year light vehicle and commercial truck and off-highway vehicle revenues in Europe partially offset by lower revenues in South America and India and lower aftermarket volumes in Europe. Currency had a \$43 million unfavorable impact on European, South American and Indian revenues. The increase in Asia Pacific revenues was primarily driven by higher volumes of \$194 million, mostly due to higher light vehicle production, new programs and commercial truck and off-highway vehicle volumes in China and Japan partially offset by lower volumes in Australia and Thailand. Currency had a \$10 million unfavorable impact on Asia Pacific revenues.

Ride Performance revenue was up \$89 million in 2014 compared to 2013, primarily driven by higher volumes in all the regions. The increase in North American revenues was primarily driven by higher volumes and mix of \$108 million due to light vehicle and commercial truck volume growth and higher volumes and favorable mix in the aftermarket. Currency had a \$14 million unfavorable impact on North American revenues. In European, South American and Indian region, higher volumes of \$28 million was driven by increased light vehicle and commercial truck volumes in Europe and higher aftermarket volumes in South America and India. Currency had a \$59 million



unfavorable impact on European, South American and Indian revenues. The increase in Asia Pacific revenues was driven by higher volumes of \$16 million, mostly due to higher light vehicle production volumes in China, partially offset by lower volumes in Australia. Currency had a \$5 million unfavorable impact on Asia Pacific revenues.

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Earnings before Interest Expense, Income Taxes and Noncontrolling Interests (“EBIT”) for Years 2015 and 2014

	Year Ended December 31,		Change
	2015	2014	
	(Millions)		
Clean Air Division			
North America	\$244	\$237	\$7
Europe, South America & India	52	59	(7 )
Asia Pacific	121	101	20
Total Clean Air Division	417	397	20
Ride Performance Division			
North America	155	143	12
Europe, South America & India	(5 )	40	(45 )
Asia Pacific	39	36	3
Total Ride Performance Division	189	219	(30 )
Other	(87 )	(124 )	37
Total Tenneco Inc.	\$519	\$492	\$27

The EBIT results shown in the preceding table include the following items, certain of which are discussed below under “Restructuring and Other Charges,” which have an effect on the comparability of EBIT results between periods:

	Year Ended December 31,	
	2015	2014
	(Millions)	
Clean Air Division		
North America		
Restructuring and related expenses	\$—	\$1
Europe, South America & India		
Restructuring and related expenses	6	10
Bad debt charge (1)	—	4
Asia Pacific		
Restructuring and related expenses	4	6
Total Clean Air Division	\$10	\$21
Ride Performance Division		
North America		
Restructuring and related expenses	\$2	\$5
Pension/Postretirement charges (2)	—	1
Europe, South America & India		
Restructuring and related expenses	49	22
Asia Pacific		
Restructuring and related expenses	2	1
Total Ride Performance Division	\$53	\$29
Other		
Restructuring and related expenses	\$—	\$4
Pension/Postretirement charges (2)	4	31
Total Other	\$4	\$35

(1) Charge related to the bankruptcy of an aftermarket customer in Europe.

(2) Charges related to pension derisking and the correction of postretirement census data.

EBIT for the Clean Air division was \$417 million in 2015 compared to \$397 million in 2014. EBIT for North America increased \$7 million to \$244 million in 2015 versus 2014. The benefit from higher light vehicle and aftermarket sales and operational cost management was partially offset by lower volumes in commercial truck and off-highway vehicle, unfavorable mix and negative currency. Europe, South America and India's EBIT was \$52 million in 2015 compared

to \$59 million in 2014.

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The benefit from higher light vehicle volumes, higher commercial truck, off-highway and other vehicle volumes and new platforms in the Europe, lower restructuring and related expenses, year-over-year restructuring savings and a charge related to the bankruptcy of an European aftermarket customer in prior year was more than offset by lower volumes in South America, lower aftermarket volumes in Europe, unfavorable mix, higher SG&A and engineering expenses and negative currency. EBIT for Asia Pacific increased \$20 million to \$121 million in 2015 from \$101 million in 2014. EBIT benefited from higher light vehicle volumes in China, new platforms in China and Japan, strong operational cost management, lower restructuring and related expenses and year-over-year savings from prior restructuring activities, partially offset by lower commercial truck revenue in China. For the Clean Air division, restructuring and related expenses of \$10 million were included in EBIT for 2015 and \$17 million in 2014. EBIT for Clean Air division also benefited from the timing of a customer recovery in China of \$5 million in 2015. EBIT for Clean Air division included a charge of \$4 million related to the bankruptcy of an aftermarket customer in Europe in 2014. Currency had a \$22 million unfavorable impact on EBIT of the Clean Air division in 2015 when compared to last year.

EBIT for the Ride Performance division was \$189 million in 2015 compared to \$219 million in 2014. EBIT for North America increased \$12 million in 2015 to \$155 million from \$143 million in 2014. The benefit from increased aftermarket volumes, lower restructuring and related expenses and improved operational cost management was partially offset by lower light vehicle volumes, lower commercial truck, off-highway and other vehicle volumes and negative currency. Europe, South America and India's EBIT was a loss of \$5 million in 2015 compared to an income of \$40 million in 2014. The benefit from higher light vehicle and aftermarket volumes in the region, higher commercial truck, off-highway and other vehicle volumes and new platforms in Europe and savings from prior restructuring activities was more than offset by higher restructuring and related expenses, higher SG&A and engineering expenses, unfavorable mix and negative currency. EBIT for Asia Pacific increased \$3 million to \$39 million in 2015 from \$36 million in 2014. EBIT benefited from higher light vehicle volumes in China and operational cost management, partially offset by lower volumes in Australia and unfavorable currency. For the Ride Performance division, restructuring and related expenses of \$53 million were included in EBIT in 2015 and \$28 million in 2014. EBIT for the Ride Performance division included a charge of \$1 million related to postretirement medical true-up in 2014. Currency had a \$42 million unfavorable impact on EBIT of the Ride Performance division for 2015 when compared to last year. EBIT for the Ride Performance division also included a \$7 million expense to adjust workers' compensation reserves in 2014.

Currency had a \$64 million unfavorable impact on overall company EBIT in 2015 as compared to 2014.

## EBIT for Years 2014 and 2013

	Year Ended December 31,		Change
	2014	2013	
	(Millions)		
Clean Air Division			
North America	\$237	\$229	\$8
Europe, South America & India	59	57	2
Asia Pacific	101	84	17
Total Clean Air Division	397	370	27
Ride Performance Division			
North America	143	124	19
Europe, South America & India	40	(7)	) 47
Asia Pacific	36	22	14
Total Ride Performance Division	219	139	80
Other	(124)	) (85)	) (39)
Total Tenneco Inc.	\$492	\$424	\$68



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The EBIT results shown in the preceding table include the following items, certain of which are discussed below under “Restructuring and Other Charges,” which have an effect on the comparability of EBIT results between periods:

	Year Ended December 31,	
	2014	2013
	(Millions)	
Clean Air Division		
North America		
Restructuring and related expenses	\$ 1	\$—
Europe, South America & India		
Restructuring and related expenses	10	8
Bad debt charge (1)	4	—
Asia Pacific		
Restructuring and related expenses	6	3
Total Clean Air Division	\$21	\$11
Ride Performance Division		
North America		
Restructuring and related expenses	\$5	\$1
Pension/Postretirement charges (2)	1	—
Europe, South America & India		
Restructuring and related expenses	22	62
Asia Pacific		
Restructuring and related expenses	1	2
Total Ride Performance Division	\$29	\$65
Other		
Restructuring and related expenses	\$4	\$2
Pension/Postretirement charges (2)	31	—
Total Other	\$35	\$2

(1) Charge related to the bankruptcy of an aftermarket customer in Europe.

(2) Charges related to pension derisking and the correction of postretirement census data.

EBIT for the Clean Air division was \$397 million in 2014 compared to \$370 million in 2013. EBIT for North America increased \$8 million to \$237 million in 2014 versus \$229 million in 2013. EBIT benefited from higher light vehicle and aftermarket revenues, a ramp up on new platforms and positive currency, partially offset by higher engineering investments. Europe, South America and India's EBIT increased \$2 million in 2014 to \$59 million from \$57 million in 2013. The increase was driven by higher OE revenue, new platforms in Europe and year-over-year savings from prior restructuring activities, partially offset by higher year-over-year restructuring and related expenses, a charge related to the bankruptcy of an European aftermarket customer in 2014 and negative currency. EBIT for Asia Pacific increased \$17 million to \$101 million in 2014 from \$84 million in 2013. EBIT benefited from higher light vehicle production volumes, new platforms and higher commercial truck and off-highway vehicle revenues in China and Japan, and restructuring savings in Australia, partially offset by lower volumes in Australia and Thailand, higher engineering expenses and higher restructuring and related expenses. For the Clean Air division, EBIT included restructuring and related expenses of \$17 million in 2014 and \$11 million in 2013. EBIT for the Clean Air division included a charge of \$4 million related to the bankruptcy of an aftermarket customer in Europe in 2014. Currency had a \$2 million unfavorable impact on EBIT of the Clean Air division for 2014 when compared to 2013.

EBIT for the Ride Performance division was \$219 million in 2014 compared to \$139 million in 2013. EBIT for North America increased \$19 million in 2014 to \$143 million from \$124 million in 2013. The benefits of increased light vehicle and commercial truck volumes and positive aftermarket product mix were partially offset by higher restructuring and related expenses and unfavorable currency. Europe, South America and India's EBIT was \$40 million in 2014, compared to a loss of \$7 million in 2013. The increase was driven by lower year-over-year restructuring and related expenses, increased light vehicle and commercial truck volumes in Europe, higher

aftermarket revenues in South America and India and year-over-year savings from prior restructuring activities, partially offset by lower light vehicle sales in South America and negative currency. EBIT from Asia Pacific increased \$14 million in 2014 to \$36 million from 2013. EBIT benefited from higher light vehicle production volumes in China, savings from prior restructuring activities in Australia and positive currency, partially offset by lower volumes in Australia. For the Ride Performance division, EBIT included restructuring and related expenses of \$28 million in

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2014 and \$65 million in 2013. EBIT for the Ride Performance division included a charge of \$1 million related to postretirement medical true-up in 2014. Currency had an \$8 million unfavorable impact on EBIT of the Ride Performance division for 2014 when compared to 2013. EBIT for the Ride Performance division also included a \$7 million expense to adjust workers' compensation reserves in 2014.

Currency had a \$10 million unfavorable impact on overall company EBIT in 2014 as compared to 2013.

EBIT as a Percentage of Revenue for Years 2015, 2014 and 2013

	Year Ended December 31,		
	2015	2014	2013
Clean Air Division			
North America	9%	8%	9%
Europe, South America & India	3%	3%	3%
Asia Pacific	12%	10%	10%
Total Clean Air Division	7%	7%	7%
Ride Performance Division			
North America	12%	11%	10%
Europe, South America & India	(1)%	4%	(1)%
Asia Pacific	17%	16%	10%
Total Ride Performance Division	8%	8%	6%
Total Tenneco Inc.	6%	6%	5%

In the Clean Air division, EBIT as a percentage of revenues in 2015 was even compared to last year. In North America, EBIT as a percentage of revenues in 2015 was up one percentage point compared to last year. The benefit from higher light vehicle and aftermarket sales and operational cost management was partially offset by lower volumes in commercial truck and off-highway vehicle, unfavorable mix and negative currency. Europe, South America and India's EBIT as a percentage of revenues in 2015 was even compared to the prior year. The benefit from higher light vehicle volumes, higher commercial truck, off-highway and other vehicle volumes and new platforms in Europe, lower restructuring and related expenses, year-over-year restructuring savings and a charge related to the bankruptcy of an European aftermarket customer in prior year was offset by lower volumes in South America, lower aftermarket volumes in Europe, unfavorable mix, higher SG&A and engineering expenses and negative currency. EBIT as a percentage of revenues for Asia Pacific in 2015 was up two percentage points compared to 2014. The benefit from higher light vehicle volumes in China, new platforms in China and Japan, strong operational cost management, lower restructuring and related expenses, year-over-year savings from prior restructuring activities and the timing of a customer recovery in China was partially offset by lower commercial truck revenue in China.

In the Ride Performance division, EBIT as a percentage of revenues was even compared to the prior year. In 2015, EBIT as a percentage of revenues for North America was up one percentage point compared to last year. The benefit from increased aftermarket volumes, lower restructuring and related expenses and improved operational cost management was partially offset by lower light vehicle volumes, lower commercial truck, off-highway and other vehicle volumes and negative currency. EBIT as a percentage of revenues in Europe, South America and India was down five percentage points compared to the prior year. The benefit from higher light vehicle and aftermarket volumes in the region, higher commercial truck, off-highway and other vehicle volumes and new platforms in Europe and savings from prior restructuring activities was more than offset by higher restructuring and related expenses, higher SG&A and engineering expenses, unfavorable mix and negative currency. In Asia Pacific, EBIT as a percentage of revenues in 2015 was up one percentage point from the prior year. The benefit from higher light vehicle volumes in China and operational cost management was partially offset by lower volumes in Australia and unfavorable currency.

In the Clean Air division, EBIT as a percentage of revenues in 2014 was even compared to 2013. In North America, EBIT as a percentage of revenues in 2014 was down one percentage point compared to 2013. The benefit from higher light vehicle and aftermarket revenues, a ramp-up on new platforms and positive currency was more than offset by higher engineering investments for customer programs. Europe, South America and India's EBIT as a percentage of revenues in 2014 was even compared to 2013. Higher OE revenue, new platforms in Europe and year-over-year



savings from prior restructuring activities were offset by higher year-over-year restructuring and related expenses, a charge related to the bankruptcy of an European aftermarket customer in 2014 and negative currency. EBIT as a percentage of revenues for Asia Pacific in 2014 was even when compared to 2013. The benefit from higher light vehicle production volumes, new platforms and higher commercial truck and off-highway vehicle revenues in China and Japan and restructuring savings in Australia was offset by lower volumes in Australia and Thailand, higher engineering expenses and higher restructuring and related expenses.

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In the Ride Performance division, EBIT as a percentage of revenues in 2014 was up two percentage points compared to the 2013. In 2014, EBIT as a percentage of revenues for North America was up one percentage point compared to 2013. The benefits of increased light vehicle and commercial truck volumes and positive aftermarket product mix were partially offset by higher restructuring and related expenses and unfavorable currency. EBIT as a percentage of revenues in Europe, South America and India was up five percentage points in 2014 when compared to 2013. The increase was driven by lower year-over-year restructuring and related expenses, increased light vehicle and commercial truck volumes in Europe, higher aftermarket revenues in South America and India and year-over-year savings from prior restructuring activities, partially offset by lower light vehicle sales in South America and negative currency. In Asia Pacific, EBIT as a percentage of revenues in 2014 was up six percentage points from 2013. EBIT benefited from higher light vehicle production volumes in China, savings from prior restructuring activities in Australia and positive currency, partially offset by lower volumes in Australia.

**Interest Expense, Net of Interest Capitalized**

We reported interest expense in 2015 of \$67 million (substantially all in our U.S. operations) net of interest capitalized of \$6 million, and \$91 million (substantially all in our U.S. operations) net of interest capitalized of \$5 million in 2014. Included in 2014 was \$13 million of expense related to our refinancing activities. The decrease was due to lower interest rates from the refinancing completed in December 2014 where we extended maturities, increased the size of our senior secured credit facility and reduced the rates on the credit facility and refinanced the senior unsecured notes with new maturity dates bearing lower interest rates.

We reported interest expense in 2014 of \$91 million (substantially all in our U.S. operations) net of interest capitalized of \$5 million, up from \$80 million (substantially all in our U.S. operations) net of interest capitalized of \$4 million in 2013. Included in 2014 was \$13 million of expense related to our refinancing activities. Excluding the refinancing expenses, interest expense decreased by \$2 million in 2014 compared to 2013.

On December 31, 2015, we had \$758 million in long-term debt obligations that have fixed interest rates. Of that amount, \$500 million is fixed through December 2020, \$225 million is fixed through December 2024 and the remainder is fixed from 2015 through 2025. We also have \$382 million in long-term debt obligations that are subject to variable interest rates. For more detailed explanations on our debt structure and senior credit facility refer to “Liquidity and Capital Resources — Capitalization” later in this Management’s Discussion and Analysis.

**Income Taxes**

We reported income tax expense of \$149 million in 2015. The tax expense recorded in 2015 included a net tax benefit of \$15 million primarily relating to prior year U.S. research and development tax credits, changes to uncertain tax positions, and prior year income tax adjustments. We reported an income tax expense of \$131 million for 2014. The tax expense recorded in 2014 includes a net tax benefit of \$11 million for prior year tax adjustments primarily relating to changes to uncertain tax positions and prior year income tax estimates. We reported an income tax expense of \$122 million for 2013. The tax expense recorded in 2013 includes a net tax benefit of \$25 million for tax adjustments primarily related to recognizing a U.S. tax benefit for foreign taxes and changes to prior year estimates including changes to uncertain tax positions. The U.S. tax benefit for foreign taxes is driven by our ability to claim a U.S. foreign tax credit beginning in 2013. The U.S. foreign tax credit regime provides for a credit against U.S. taxes otherwise payable for foreign taxes paid with regard to dividends, interest and royalties paid to us in the U.S. We believe it is reasonably possible that up to \$10 million in unrecognized tax benefits related to the expiration of foreign statute of limitations and the conclusion of income tax examinations may be recognized within the next twelve months.

Our federal net operating loss ("NOL") at December 31, 2013 totaled \$37 million. We had fully utilized our NOL as of June 30, 2014. The state NOLs expire in various tax years through 2032.

**Restructuring and Other Charges**

Over the past several years, we have adopted plans to restructure portions of our operations. These plans were approved by our Board of Directors and were designed to reduce operational and administrative overhead costs throughout the business. In 2013, we incurred \$78 million in restructuring and related costs, primarily related to European cost reduction efforts, including non-cash asset write downs of \$3 million, the costs to exit the distribution of aftermarket exhaust products and ending production of leaf springs in Australia, headcount reductions in various

regions, and the net impact of freezing our defined benefit plans in the United Kingdom, of which \$70 million was recorded in cost of sales, \$6 million in SG&A, \$1 million in engineering expense and \$1 million in other expense. In 2014, we incurred \$49 million in restructuring and related costs including non-cash charges of \$5 million, primarily related to European cost reduction efforts, headcount reductions in Australia and South America, the sale of a closed facility in Cozad, Nebraska and costs related to organizational changes, of which \$28 million was recorded in cost of sales, \$9 million in SG&A, \$7 million in engineering expense, \$4 million in other expenses and \$1 million in depreciation and amortization. In 2015, we incurred \$63 million in restructuring and related costs

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including asset write-downs of \$10 million, primarily related to European cost reduction efforts, exiting the Marzocchi suspension business, headcount reductions in Australia and South America, and the closure of a JIT plant in Australia, of which \$46 million was recorded in cost of sales, \$11 million in SG&A, \$1 million in engineering expense, \$1 million in other expense and \$4 million in depreciation and amortization expense.

Amounts related to activities that are part of our restructuring plans are as follows:

	December 31, 2014	2015 Expenses	2015 Cash Payments	Impact of Exchange Rates	December 31, 2015 Restructuring Reserve
Employee Severance, Termination Benefits and Other Related Costs	\$40	53	(59	) (4	) \$30

On January 31, 2013, we announced our intent to reduce structural costs in Europe by approximately \$60 million annually. We still expect to reach our target annual savings rate in 2016, however the recent dramatic changes in exchange rates will likely have an impact on the actual savings achieved when translated from Euros into U.S. dollars. We incurred \$78 million in restructuring and related costs in 2013, of which \$69 million was related to this initiative including \$3 million for non-cash asset write downs. In 2014, we incurred \$49 million in restructuring and related costs, of which \$31 million was related to this initiative including \$3 million for non-cash asset write downs. In 2015, we incurred \$63 million in restructuring and related costs, of which \$22 million was related to this initiative. While we are nearing the completion of this initiative, we expect to incur additional restructuring and related costs in 2016 due to certain ongoing matters. For example, we closed a plant in Gijon Spain in 2013, but subsequently re-opened it in July 2014 with about half of its prior workforce after the employees' works council successfully filed suit challenging the closure decision. Pursuant to an agreement we entered into with employee representatives, we are currently engaged in a sale process to identify potential purchasers for the facility and intend to continue operating it until a complete transfer of ownership takes place.

On July 22, 2015, we announced our intention to discontinue our Marzocchi motorcycle fork suspension product line and our mountain bike suspension product line, and liquidate our Marzocchi operations. These actions were subject to a consultation process with the employee representatives and in total eliminated approximately 138 jobs. We employed 127 people at the Marzocchi plant in Bologna, Italy and an additional 11 people in our operations in North America and Taiwan. In November 2015, we closed on the sale of certain assets related to our Marzocchi mountain bike suspension product line to the affiliates of Fox Factory Holding Corp.; and in December 2015, we closed on the sale of the Marzocchi motorcycle fork product line to an Italian company, VRM S.p.A. These actions were a part of our ongoing efforts to optimize our Ride Performance product line globally while continuously improving our operations and increasing profitability. We recorded charges of \$29 million in 2015 related to severance and other employee related costs, asset write-downs and other expenses related to the closure. We anticipate improving financial results by approximately \$7 million annually, beginning in 2016.

Under the terms of our amended and restated senior credit agreement that took effect on December 8, 2014, we are allowed to exclude up to \$150 million in the aggregate of all costs, expenses, fees, fines, penalties, judgments, legal settlements and other amounts associated with any restructuring, litigation, claim, proceeding or investigation related to or undertaken by us or any of our subsidiaries, together with any related provision for taxes, incurred after December 8, 2014 in the calculation of the financial covenant ratios required under our senior credit facility. As of December 31, 2015, we had excluded \$53 million of allowable charges relating to restructuring initiatives against the \$150 million available under the terms of the senior credit facility.

#### Earnings Per Share

We reported net income attributable to Tenneco Inc. of \$247 million or \$4.11 per diluted common share for 2015. Included in the results for 2015 were negative impacts from expenses related to our restructuring activities and charges related to pension derisking, which were partially offset by net tax benefits. The total impact of these items decreased earnings per diluted share by \$0.76. We reported net income attributable to Tenneco Inc. of \$226 million or \$3.66 per diluted common share for 2014. Included in the results for 2014 were negative impacts from expenses

related to our restructuring activities, a bad debt charge, costs related to our refinancing activities and charges related to pension derisking and postretirement medical true-up, which were partially offset by net tax benefits. The net impact of these items decreased earnings per diluted share by \$0.99. We reported net income attributable to Tenneco Inc. of \$183 million or \$2.97 per diluted common share for 2013. Included in the results for 2013 were negative impacts from expenses related to our restructuring activities, which were partially offset by net tax benefits. The net impact of these items decreased earnings per diluted share by \$0.81.

**Dividends on Common Stock**

We do not currently pay a dividend on our common stock.

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## Cash Flows for 2015 and 2014

	Year Ended December 31,	
	2015	2014
	(Millions)	
Cash provided (used) by:		
Operating activities	\$517	\$341
Investing activities	(303)	(339)
Financing activities	(172)	20
Operating Activities		

For 2015, operating activities provided \$517 million in cash compared to \$341 million cash provided during last year. The higher cash from operations was primarily driven by higher earnings, working capital improvements, lower interest payments and lower tax payments. For 2015, cash used for working capital was \$9 million versus \$137 million of cash used for working capital in 2014. Receivables were a use of cash of \$90 million for 2015 compared to a use of cash of \$83 million in the prior year. Inventory represented a cash outflow of \$36 million for 2015 and a cash outflow of \$74 million during 2014. Accounts payable provided \$90 million of cash for the year ended December 31, 2015, compared to \$94 million of cash provided for the year ended December 31, 2014. Cash taxes were \$105 million for 2015, net of a US tax refund of \$25 million for overpayment in 2014, compared to \$136 million in the prior year.

## Investing Activities

Cash used for investing activities was \$36 million lower in 2015 compared to 2014. Cash payments for plant, property and equipment were \$286 million in 2015 versus payments of \$328 million in 2014, a decrease of \$42 million. Cash payments for software-related intangible assets were \$23 million in 2015 compared to \$13 million in 2014. Change in restricted cash was a source of cash of \$2 million in each 2015 and 2014.

## Financing Activities

Cash flow from financing activities was an outflow of \$172 million for the year ended December 31, 2015 compared to an inflow of \$20 million for the year ended December 31, 2014. During 2015, we repurchased 4,228,633 shares of our outstanding common stock for \$213 million at an average price of \$50.32 per share as part of the previously announced stock buyback plan of up to \$350 million. Taking into account our operating performance, we now anticipate completing this initial share repurchase program by the end of 2016. Additionally, on October 23, 2015, we announced that our Board of Directors has expanded our repurchase program, authorizing the repurchase of an additional \$200 million of common stock which we anticipate completing by the end of 2017. During 2014, we completed a previously announced stock buyback plan, repurchasing 400,000 shares of our outstanding common stock for \$22 million, at an average price of \$56.06 per share.

In 2014, refinancing activities included raising a new senior secured credit facility consisting of a 5-year revolving credit facility and a 5-year Tranche A Term Facility. Proceeds from the new credit facility were used to refinance our existing senior secured credit facility, which included an \$850 million revolving credit facility due 2017 and a \$213 million Tranche A Term Facility due 2017. In conjunction with this transaction, we also raised \$225 million of new 10-year senior unsecured notes priced at 5 <sup>3</sup>/<sub>8</sub> percent to refinance the existing 7 <sup>3</sup>/<sub>4</sub> percent notes due 2018. Borrowings under our revolving credit facility were \$105 million at December 31, 2015 and no borrowings at December 31, 2014. There was \$30 million borrowed under the North American accounts receivable securitization programs at December 31, 2015 and no borrowings at December 31, 2014. In 2014, we received \$4 million for selling a 45 percent equity interest in Tenneco Fusheng (Chengdu) Automobile Parts Co., Ltd. to a third party partner.

## Cash Flows for 2014 and 2013

	Year Ended December 31,	
	2014	2013
	(Millions)	
Cash provided (used) by:		

Operating activities	\$341	\$503	
Investing activities	(339)	(266)	)
Financing activities	20	(175)	)

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### Operating Activities

For 2014, operating activities provided \$341 million in cash compared to \$503 million in cash provided during 2013. The decrease was mainly from working capital requirements to fund growth. Higher cash flow in 2013 was the result of significant year-over-year improvements in working capital versus 2012. For 2014, cash used for working capital was \$137 million versus \$77 million of cash provided by working capital in 2013. Receivables were a use of cash of \$83 million in 2014 compared to a cash use of \$88 million in 2013. Inventory represented a cash outflow of \$74 million during 2014, compared to a cash inflow of \$3 million for 2013. Accounts payable provided cash of \$94 million for the year ended December 31, 2014, compared to cash provided of \$161 million for the year ended December 31, 2013. Cash taxes were \$136 million for 2014 compared to \$109 million in 2013.

### Investing Activities

Cash used for investing activities was \$73 million higher in 2014 compared to 2013. Cash payments for plant, property and equipment were \$328 million in 2014 versus payments of \$244 million in 2013, an increase of \$84 million. The majority of spending was to support continued growth in OE Clean Air and Ride Performance programs in Europe, China and North America. Cash payments for software-related intangible assets were \$13 million in 2014 compared to \$25 million in 2013. Change in restricted cash was a source of cash of \$2 million in 2014 compared to a use of cash of \$5 million in 2013.

### Financing Activities

Cash flow from financing activities was an inflow of \$20 million for the year ended December 31, 2014 compared to an outflow of \$175 million for the year ended December 31, 2013. During 2014, we completed a previously announced stock buyback plan, repurchasing 400,000 shares of our outstanding common stock for \$22 million, at an average price of \$56.06 per share. During 2013, we completed a previously announced stock buyback plan, repurchasing 550,000 shares of our outstanding common stock for \$27 million, at an average price of \$49.33 per share. In 2013, we paid \$69 million to acquire the remaining 20 percent equity interest in Tenneco Tongtai (Dalian) Exhaust System Co. Ltd. ("TTEC"), our joint venture in Dalian, China, and an additional \$9 million to the partner in lieu of receiving its pro-rata share of dividends owed from the joint venture. As a result of this purchase, TTEC is now a wholly owned indirect subsidiary of Tenneco. In 2014, refinancing activities included raising a new senior secured credit facility consisting of a 5-year revolving credit facility and a 5-year Tranche A Term Facility. Proceeds from the new credit facility were used to refinance our existing senior secured credit facility, which included an \$850 million revolving credit facility due 2017 and a \$213 million Tranche A Term Facility due 2017. In conjunction with this transaction, we also raised \$225 million of new 10-year senior unsecured notes priced at 5<sup>3</sup>/<sub>8</sub> percent to refinance the existing 7<sup>3</sup>/<sub>4</sub> percent notes due 2018. We had no borrowings under our revolving credit facility at December 31, 2014 versus \$58 million borrowed at December 31, 2013. At December 31, 2014, there was no borrowing under the North American accounts receivable securitization programs, whereas at December 31, 2013, there was \$10 million outstanding. In 2014, we received \$4 million for selling a 45 percent equity interest in Tenneco Fusheng (Chengdu) Automobile Parts Co., Ltd. to a third party partner.

### Outlook

#### First Quarter 2016

For the first quarter of 2016, we expect total revenue growth of five percent excluding currency, outpacing aggregate industry production growth of two percent. The revenue increase will be driven by higher light vehicle volumes and the ramp up of recently launched programs, additional content on commercial truck and off-highway programs to meet emissions regulations, and year-over-year growth in the aftermarket. We anticipate a currency headwind in the first quarter of approximately two percent based on current exchange rates.

Aggregate industry production growth of two percent in the quarter includes global light vehicle production growth of two percent and combined commercial truck and off-highway equipment production flat compared with a year ago.

#### Full Year 2016

For the full year 2016, we expect total revenue to grow five percent over 2015, excluding the impact of currency, driven by:

- Incremental light vehicle Clean Air revenue from 2015 launches and new launches in 2016;



- Incremental revenue from Monroe® Intelligent Suspension programs with four new launches in 2016 and the continued ramp-up on programs launched in 2015;
- Commercial truck and off-highway emissions regulations with additional content on off-highway Tier 4f and Stage 4 programs in North America and Europe, incremental revenue from 2015 launches of a North America medium-duty

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commercial truck and an off-highway program in Japan, increasing market share with commercial truck customers in China, and initial launches with commercial truck customers in India to comply with BS IV regulations.

Our revenue growth estimate for 2016 assumes aggregate industry production growth of three percent including a three percent increase in global light vehicle production, and an one percent decline in commercial truck and off-highway equipment production.

In January 2015, our Board of Directors approved a share repurchase program, authorizing our company to repurchase up to \$350 million of our outstanding common stock over a three-year period. Based on our operating performance, current industry production forecasts and the anticipated requirements for capital expenditures and working capital to continue funding growth, we expect to complete it by the end of 2016. Additionally, on October 23, 2015, we announced that our Board of Directors has expanded our share repurchase program, authorizing the repurchase of an additional \$200 million of common stock which we anticipate completing by the end of 2017.

The revenue estimates presented in this “Outlook” are based on projected customer production schedules, IHS Automotive and Power Systems Research forecasts as of January 2016; original equipment manufacturers’ programs that have been formally awarded to us; programs where we are highly confident that we will be awarded business based on informal customer indications consistent with past practices; and our status as supplier for the existing programs and our relationships and experience with our customers. The revenue estimates are also based on anticipated vehicle production levels and pricing, including precious metals pricing and the impact of material cost changes. Finally, for our foreign operations, our revenue estimate assumes fixed foreign currency values relative to the U.S. dollar. See “Cautionary Statement for Purposes of the ‘Safe Harbor’ Provisions of the Private Securities Litigation Reform Act of 1995” and Item 1A, “Risk Factors”.

We expect our capital expenditures for 2016 to be between \$300 million and \$330 million, our 2016 interest expense to be about \$75 million, our 2016 cash taxes to be between \$140 million and \$160 million and our 2016 tax rate to be between 31 percent to 32 percent.

## Liquidity and Capital Resources

## Capitalization

	Year Ended		% Change	
	December 31, 2015	2014		
	(Millions)			
Short-term debt and maturities classified as current	\$86	\$60	43	%
Long-term debt	1,124	1,055	7	
Total debt	1,210	1,115	9	
Total redeemable noncontrolling interests	43	35	23	
Total noncontrolling interests	42	41	2	
Tenneco Inc. shareholders’ equity	433	497	(13)	)
Total equity	475	538	(12)	)
Total capitalization	\$1,728	\$1,688	2	%

General. Short-term debt, which includes maturities classified as current, borrowings by parent company and foreign subsidiaries, and borrowings under our North American accounts receivable securitization program, were \$86 million and \$60 million as of December 31, 2015 and December 31, 2014, respectively. Borrowings under our revolving credit facilities, which are classified as long-term debt, were \$105 million and \$58 million at December 31, 2015 and December 31, 2014, respectively.

The 2015 year-to-date decrease in Tenneco Inc. shareholders' equity primarily resulted from a \$131 million decrease caused by the impact of changes in foreign exchange rates on the translation of financial statements of our foreign subsidiaries into U.S. dollars and a \$213 million increase in treasury stock as a result of purchases of common stock under our share purchase program, partially offset by net income attributable to Tenneco Inc. of \$247 million, a \$22 million increase in premium on common stock and other capital surplus relating to common stock issued pursuant to benefit plans and a \$11 million increase related to pension and postretirement benefits.

Overview. Our financing arrangements are primarily provided by a committed senior secured financing arrangement with a syndicate of banks and other financial institutions. The arrangement is secured by substantially all our domestic assets and pledges of up to 66 percent of the stock of certain first-tier foreign subsidiaries, as well as guarantees by our material domestic subsidiaries.

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In April 2015, the Financial Accounting Standards Board (“FASB”) issued Accounting Standard Update 2015-03, Simplifying the Presentation of Debt Issuance Costs, which requires debt issuance costs to be presented in the balance sheet as a direct deduction from the associated debt liability. For public business entities, the standard is effective for financial statements issued for fiscal years beginning after December 15, 2015, and interim periods within those fiscal years. Early adoption of the amendments in this update is permitted for financial statements that have not been previously issued. We adopted this standard for the first quarter of 2015 and applied retrospectively. The balance for unamortized debt issuance costs was \$12 million and \$14 million at December 31, 2015 and December 31, 2014, respectively.

On December 8, 2014, we completed an amendment and restatement of our senior credit facility by increasing the amounts and extending the maturity dates of our revolving credit facility and our Tranche A Term Facility. The amended and restated facility replaces our former \$850 million revolving credit facility and \$213 million Tranche A Term Facility. The proceeds from this refinancing transaction were used to repay the \$213 million Tranche A Term Facility, to fund the fees and expenses associated with the purchase and redemption of our \$225 million 7<sup>3</sup>/<sub>4</sub> percent senior notes due in 2018 and for general corporate purposes. As of December 31, 2015, the senior credit facility provides us with a total revolving credit facility size of \$1,200 million and a \$285 million Tranche A Term Facility, both of which will mature on December 8, 2019. Funds may be borrowed, repaid and re-borrowed under the revolving credit facility without premium or penalty (subject to any customary LIBOR breakage fees). The revolving credit facility is reflected as debt on our balance sheet only if we borrow money under this facility or if we use the facility to make payments for letters of credit. Outstanding letters of credit reduce our availability to borrow revolving loans under the facility. We are required to make quarterly principal payments under the Tranche A Term Facility of \$3.75 million through December 31, 2016, \$5.625 million beginning March 31, 2017 through December 31, 2017, \$7.5 million beginning March 31, 2018 through September 30, 2019 and a final payment of \$195 million is due on December 8, 2019. We have excluded the required payments, within the next twelve months, under the Tranche A Term Facility totaling \$15 million from current liabilities as of December 31, 2015, because we have the intent and ability to refinance the obligations on a long-term basis by using our revolving credit facility.

On November 20, 2014, we announced a cash tender offer to purchase our outstanding \$225 million 7<sup>3</sup>/<sub>4</sub> percent senior notes due in 2018 and a solicitation of consents to certain proposed amendments to the indenture governing these notes. We received tenders and consents representing \$181 million aggregate principal amount of the notes and, on December 5, 2014, we purchased the tendered notes at a price of 104.35 percent of the principal amount (which includes a consent payment of three percent of the principal amount), plus accrued and unpaid interest, and amended the related indenture. On December 22, 2014, we redeemed the remaining outstanding \$44 million aggregate principal amount of senior notes that were not purchased pursuant to the tender offer at a price of 103.88 percent of the principal amount, plus accrued and unpaid interest. The additional liquidity provided by the new \$1,200 million revolving credit facility and the new \$300 million Tranche A Term Facility was used in part to fund the fees and expenses of the tender offer and redemption.

We recorded \$13 million of pre-tax charges in December 2014 related to the refinancing of our senior credit facility, the repurchase and redemption of our 7<sup>3</sup>/<sub>4</sub> percent senior notes due in 2018 and the write-off of deferred debt issuance costs relating to those notes.

At December 31, 2015, of the \$1,200 million available under the revolving credit facility, we had unused borrowing capacity of \$1,095 million with \$105 in outstanding borrowings and zero in outstanding letters of credit. As of December 31, 2015, our outstanding debt also included (i) \$285 million of a term loan which consisted of a \$283 million net carrying amount including a \$2 million debt issuance cost related to our Tranche A Term Facility which is subject to quarterly principal payments as described above through December 8, 2019, (ii) \$225 million of notes which consisted of a \$221 million net carrying amount including a \$4 million debt issuance cost of 5<sup>3</sup>/<sub>8</sub> percent senior notes due December 15, 2024, (iii) \$500 million of notes which consisted of a \$494 million net carrying amount including a \$6 million debt issuance cost of 6<sup>7</sup>/<sub>8</sub> percent senior notes due December 15, 2020, and (iv) \$107 million of other debt.

Senior Credit Facility — Interest Rates and Fees. Beginning December 8, 2014, our Tranche A Term Facility and revolving credit facility bear interest at an annual rate equal to, at our option, either (i) London Interbank Offered Rate

(“LIBOR”) plus a margin of 175 basis points, or (ii) a rate consisting of the greater of (a) the JPMorgan Chase prime rate plus a margin of 75 basis points, (b) the Federal Funds rate plus 50 basis points plus a margin of 75 basis points, and (c) the one month LIBOR plus 100 basis points plus a margin of 75 basis points. The margin we pay on these borrowings will be increased by a total of 25 basis points above the original margin following each fiscal quarter for which our consolidated net leverage ratio is equal to or greater than 2.25 and less than 3.25, and will be increased by a total of 50 basis points above the original margin following each fiscal quarter for which our consolidated net leverage ratio is equal to or greater than 3.25. In addition, the margin we pay on these borrowings will be reduced by a total of 25 basis points below the original margin if our consolidated net leverage ratio is less than 1.25. We also pay a commitment fee equal to 30 basis points that will be reduced to 25 basis points or increased to up to 40 basis points depending on consolidated net leverage ratio changes as set forth in the senior credit facility.

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Senior Credit Facility — Other Terms and Conditions. Our senior credit facility requires that we maintain financial ratios equal to or better than the following consolidated net leverage ratio (consolidated indebtedness net of cash divided by consolidated EBITDA, as defined in the senior credit facility agreement), and consolidated interest coverage ratio (consolidated EBITDA divided by consolidated interest expense, as defined in the senior credit facility agreement) at the end of each period indicated. Failure to maintain these ratios will result in a default under our senior credit facility. The financial ratios required under the amended and restated senior credit facility (or the predecessor facility, as applicable) and the actual ratios we achieved for the four quarters of 2015, are as follows:

	Quarter Ended							
	December 31, 2015		September 30, 2015		June 30, 2015		March 31, 2015	
	Req.	Act.	Req.	Act.	Req.	Act.	Req.	Act.
Leverage Ratio (maximum)	3.50	1.32	3.50	1.51	3.50	1.36	3.50	1.41
Interest Coverage Ratio (minimum)	2.75	13.99	2.75	13.07	2.75	12.43	2.75	11.95

The senior credit facility includes a maximum leverage ratio covenant of 3.50 and a minimum interest coverage ratio of 2.75, in each case through December 8, 2019.

The covenants in our senior credit facility agreement generally prohibit us from repaying or refinancing our senior notes. So long as no default existed, we would, however, under our senior credit facility agreement, be permitted to repay or refinance our senior notes (i) with the net cash proceeds of permitted refinancing indebtedness (as defined in the senior credit facility agreement) or with the net cash proceeds of our common stock, in each case issued within 180 days prior to such repayment; (ii) with the net cash proceeds of the incremental facilities (as defined in the senior credit facility agreement) and certain indebtedness incurred by our foreign subsidiaries; (iii) with the proceeds of the revolving loans (as defined in the senior credit facility agreement); (iv) with the cash generated by our operations; (v) in an amount equal to the net cash proceeds of qualified capital stock (as defined in the senior credit facility agreement) issued by us after December 8, 2014; and (vi) in exchange for permitted refinancing indebtedness or in exchange for shares of our common stock; provided that such purchases are capped as follows (with respect to clauses (iii), (iv) and (v) based on a pro forma consolidated leverage ratio after giving effect to such purchase, cancellation or redemption):

Pro forma Consolidated Leverage Ratio	Aggregate Senior Note Maximum Amount (Millions)
Greater than or equal to 3.0x	\$20
Greater than or equal to 2.5x	\$100
Greater than or equal to 2.0x	\$200
Less than 2.0x	no limit

Although the senior credit facility agreement would permit us to repay or refinance our senior notes under the conditions described above, any repayment or refinancing of our outstanding notes would be subject to market conditions and either the voluntary participation of note holders or our ability to redeem the notes under the terms of the applicable note indenture. For example, while the senior credit facility agreement would allow us to repay our outstanding notes via a direct exchange of the notes for either permitted refinancing indebtedness or for shares of our common stock, we do not, under the terms of the agreements governing our outstanding notes, have the right to refinance the notes via any type of direct exchange.

The senior credit facility agreement also contains other restrictions on our operations that are customary for similar facilities, including limitations on: (i) incurring additional liens; (ii) sale and leaseback transactions (except for the permitted transactions as described in the senior credit facility agreement); (iii) liquidations and dissolutions; (iv) incurring additional indebtedness or guarantees; (v) investments and acquisitions; (vi) dividends and share repurchases; (vii) mergers and consolidations; and (viii) refinancing of the senior notes. Compliance with these

requirements and restrictions is a condition for any incremental borrowings under the senior credit facility agreement and failure to meet these requirements enables the lenders to require repayment of any outstanding loans.

As of December 31, 2015, we were in compliance with all the financial covenants and operational restrictions of the senior credit facility. Our senior credit facility does not contain any terms that could accelerate payment of the facility or affect pricing under the facility as a result of a credit rating agency downgrade.

Senior Notes. As of December 31, 2015, our outstanding senior notes also included \$225 million of  $5\frac{3}{8}$  percent senior notes due December 15, 2024 which consisted of \$221 million net carrying amount including a \$4 million debt issuance cost and \$500 million of  $6\frac{7}{8}$  percent senior notes due December 15, 2020 which consisted of \$494 million net carrying amount

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including a \$6 million debt issuance cost. Under the indentures governing the notes, we are permitted to redeem some or all of the remaining senior notes at specified prices that decline to par over a specified period, (a) on or after December 15, 2019, in the case of the senior notes due 2024, and (b) on or after December 15, 2015, in the case of the senior notes due 2020. In addition, the notes may also be redeemed at a price generally equal to 100 percent of the principal amount thereof plus a premium based on the present values of the remaining payments due to the note holders. Further, the indentures governing the notes also permit us to redeem up to 35 percent of the senior notes due 2024, with the proceeds of certain equity offerings completed on or before December 15, 2017. If we sell certain of our assets or experience specified kinds of changes in control, we must offer to repurchase the notes due 2024 and 2020 at 101 percent of the principal amount thereof plus accrued and unpaid interest.

Our senior notes require that, as a condition precedent to incurring certain types of indebtedness not otherwise permitted, our consolidated fixed charge coverage ratio, as calculated on a pro forma basis, be greater than 2.00. The indentures also contain restrictions on our operations, including limitations on: (i) incurring additional indebtedness or liens; (ii) dividends; (iii) distributions and stock repurchases; (iv) investments; (v) asset sales and (vi) mergers and consolidations. Subject to limited exceptions, all of our existing and future material domestic wholly owned subsidiaries fully and unconditionally guarantee these notes on a joint and several basis. There are no significant restrictions on the ability of the subsidiaries that have guaranteed these notes to make distributions to us. As of December 31, 2015, we were in compliance with the covenants and restrictions of these indentures.

**Accounts Receivable Securitization.** We securitize some of our accounts receivable on a limited recourse basis in North America and Europe. As servicer under these accounts receivable securitization programs, we are responsible for performing all accounts receivable administration functions for these securitized financial assets including collections and processing of customer invoice adjustments. In North America, we have an accounts receivable securitization program with three commercial banks comprised of a first priority facility and a second priority facility. We securitize original equipment and aftermarket receivables on a daily basis under the bank program. In March 2015, the North American program was amended and extended to April 30, 2017. The first priority facility continues to provide financing of up to \$130 million and the second priority facility, which is subordinated to the first priority facility, provides up to an additional \$50 million of financing. Both facilities monetize accounts receivable generated in the U.S. and Canada that meet certain eligibility requirements. The second priority facility also monetizes certain accounts receivable generated in the U.S. or Canada that would otherwise be ineligible under the first priority securitization facility. The amount of outstanding third-party investments in our securitized accounts receivable under the North American program was \$30 million at December 31, 2015 and zero at December 31, 2014.

Each facility contains customary covenants for financings of this type, including restrictions related to liens, payments, mergers or consolidations and amendments to the agreements underlying the receivables pool. Further, each facility may be terminated upon the occurrence of customary events (with customary grace periods, if applicable), including breaches of covenants, failure to maintain certain financial ratios, inaccuracies of representations and warranties, bankruptcy and insolvency events, certain changes in the rate of default or delinquency of the receivables, a change of control and the entry or other enforcement of material judgments. In addition, each facility contains cross-default provisions, where the facility could be terminated in the event of non-payment of other material indebtedness when due and any other event which permits the acceleration of the maturity of material indebtedness.

We also securitize receivables in our European operations with regional banks in Europe under various separate facilities. The commitments for these arrangements are generally for one year, but some may be cancelled with notice 90 days prior to renewal. In some instances, the arrangement provides for cancellation by the applicable financial institution at any time upon notification. The amount of outstanding third-party investments in our securitized accounts receivable in Europe was \$174 million and \$153 million at December 31, 2015 and December 31, 2014, respectively.

If we were not able to securitize receivables under either the North American or European securitization programs, our borrowings under our revolving credit agreement might increase. These accounts receivable securitization programs provide us with access to cash at costs that are generally favorable to alternative sources of financing, and allow us to reduce borrowings under our revolving credit agreement.



In our North American accounts receivable securitization programs, we transfer a partial interest in a pool of receivables and the interest that we retain is subordinate to the transferred interest. Accordingly, we account for our North American securitization program as a secured borrowing. In our European programs, we transfer accounts receivables in their entirety to the acquiring entities and satisfy all of the conditions established under ASC Topic 860, "Transfers and Servicing," to report the transfer of financial assets in their entirety as a sale. The fair value of assets received as proceeds in exchange for the transfer of accounts receivable under our European securitization programs approximates the fair value of such receivables. We recognized \$2 million in interest expense for each years ended 2015, 2014 and 2013, relating to our North American securitization program. In addition, we recognized a loss of \$4 million for each of the years ended 2015, 2014 and 2013, on the sale of trade accounts receivable in our European accounts receivable securitization programs, representing the discount from book values at which these receivables were sold to our banks. The discount rate varies based on funding costs incurred by our

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banks, which averaged approximately two percent for both years ended 2015 and 2014 and three percent for the year ended 2013.

**Financial Instruments.** One of our European subsidiaries receives payment from one of its customers whereby the accounts receivable are satisfied through the early delivery of financial instruments. We may collect these financial instruments before their maturity date by either selling them at a discount or using them to satisfy accounts receivable that have previously been sold to a European bank. Any of these financial instruments which are not sold are classified as other current assets. Such financial instruments held by our European subsidiary totaled less than \$1 million and \$1 million as of December 31, 2015 and December 31, 2014, respectively.

In certain instances, several of our Chinese subsidiaries receive payment from customers through the receipt of financial instruments on the date the customer payments are due. Several of our Chinese subsidiaries also satisfy vendor payments through the delivery of financial instruments on the date the payments are due. Financial instruments issued to satisfy vendor payables and not redeemed totaled \$15 million and \$24 million at December 31, 2015 and December 31, 2014, respectively, and were classified as notes payable. Financial instruments received from OE customers and not redeemed totaled \$8 million and \$17 million at December 31, 2015 and December 31, 2014, respectively. We classify financial instruments received from our customers as other current assets if issued by a financial institution of our customers or as customer notes and accounts if issued by our customer. We classified \$8 million and \$17 million in other current assets at December 31, 2015 and December 31, 2014, respectively.

The financial instruments received by one of our European subsidiaries and some of our Chinese subsidiaries are drafts drawn that are payable at a future date and, in some cases, are negotiable and/or are guaranteed by banks of the customers. The use of these instruments for payment follows local commercial practice. Because certain of such financial instruments are guaranteed by our customers' banks, we believe they represent a lower financial risk than the outstanding accounts receivable that they satisfy which are not guaranteed by a bank.

**Supply Chain Financing.** Certain of our suppliers in the U.S. participate in a supply chain financing program under which they securitize their accounts receivables from Tenneco. Financial institutions participate in the supply chain financing program on an uncommitted basis and can cease purchasing receivables from Tenneco's suppliers at any time. If the financial institutions did not continue to purchase receivables from Tenneco's suppliers under this program, the participating vendors may have a need to renegotiate their payment terms with Tenneco which in turn would cause our borrowings under our revolving credit facility to increase.

**Capital Requirements.** We believe that cash flows from operations, combined with our cash on hand, subject to any applicable withholding taxes upon repatriation of cash balances from our foreign operations where most of our cash balances are located, and available borrowing capacity described above, assuming that we maintain compliance with the financial covenants and other requirements of our loan agreement, will be sufficient to meet our future capital requirements, including debt amortization, capital expenditures, pension contributions, and other operational requirements, for the following year. Our ability to meet the financial covenants depends upon a number of operational and economic factors, many of which are beyond our control. In the event that we are unable to meet these financial covenants, we would consider several options to meet our cash flow needs. Such actions include additional restructuring initiatives and other cost reductions, sales of assets, reductions to working capital and capital spending, issuance of equity and other alternatives to enhance our financial and operating position. Should we be required to implement any of these actions to meet our cash flow needs, we believe we can do so in a reasonable time frame.

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## Contractual Obligations.

Our remaining required debt principal amortization and payment obligations under lease and certain other financial commitments as of December 31, 2015 are shown in the following table:

	Payments due in:						Total
	2016	2017	2018	2019	2020	Beyond 2020	
	(Millions)						
Obligations:							
Revolver borrowings	\$—	\$—	\$—	\$105	\$—	\$—	\$105
Senior term loans	15	23	30	217	—	—	285
Senior notes	—	—	—	—	—	725	725
Other long term debt	—	—	—	15	—	—	15
Other subsidiary debt and capital lease obligations	—	1	—	1	1	4	7
Short-term debt	85	—	—	—	—	—	85
Debt and capital lease obligations	100	24	30	338	1	729	1,222
Operating leases	38	28	18	13	13	15	125
Purchase obligations	117	43	1	—	—	—	161
Interest payments	56	54	64	64	46	12	296
Capital commitments	89	—	—	—	—	—	89
Total payments	\$400	\$149	\$113	\$415	\$60	\$756	\$1,893

If we do not maintain compliance with the terms of our senior credit facility or senior notes indentures described above, all amounts under those arrangements could, automatically or at the option of the lenders or other debt holders, become due. Additionally, each of those facilities contains provisions that certain events of default under one facility will constitute a default under the other facility, allowing the acceleration of all amounts due. We currently expect to maintain compliance with the terms of all of our various credit agreements for the foreseeable future.

Included in our contractual obligations is the amount of interest to be paid on our long-term debt. As our debt structure contains both fixed and variable rate obligations, we have made assumptions in calculating the amount of future interest payments. Interest on our senior notes is calculated using the fixed rates of 5 <sup>3</sup>/<sub>8</sub> percent and 6 <sup>7</sup>/<sub>8</sub> percent, respectively. Interest on our variable rate debt is calculated as LIBOR plus the applicable margin in effect at December 31, 2015 for the Eurodollar and Term Loan A loan and prime plus the applicable margin in effect on December 31, 2015 on the prime-based loans. We have assumed that both LIBOR and the prime rate will remain unchanged for the outlying years. See “— Capitalization.”

We have also included an estimate of expenditures required after December 31, 2015 to complete the projects authorized at December 31, 2015, in which we have made substantial commitments in connection with purchasing plant, property and equipment for our operations. For 2016, we expect our capital expenditures to be between \$300 million and \$330 million.

We have included an estimate of the expenditures necessary after December 31, 2015 to satisfy purchase requirements pursuant to certain ordinary course supply agreements that we have entered into. With respect to our other supply agreements, they generally do not specify the volumes we are required to purchase. In many cases, if any commitment is provided, the agreements state only the minimum percentage of our purchase requirements we must buy from the supplier. As a result, these purchase obligations fluctuate from year-to-year and we are not able to quantify the amount of our future obligations.

We have not included material cash requirements for unrecognized tax benefits or taxes. It is difficult to estimate taxes to be paid as changes in where we generate income can have a significant impact on future tax payments. We have also not included cash requirements for funding pension and postretirement benefit costs. Based upon current estimates, we believe we will be required to make contributions of approximately \$15 million to those plans in 2016. Pension and postretirement contributions beyond 2016 will be required but those amounts will vary based upon many factors, including the performance of our pension fund investments during 2016 and future discount rate changes. For

additional information relating to the funding of our pension and other postretirement plans, refer to Note 10 of our consolidated financial statements. In addition, we have not included cash requirements for environmental remediation. Based upon current estimates we believe we will be required to spend approximately \$17 million over the next 30 years. However, due to possible modifications in remediation processes and other factors, it is difficult to determine the actual timing of the payments. See “— Environmental and Other Matters.”

We occasionally provide guarantees that could require us to make future payments in the event that the third party primary obligor does not make its required payments. We are not required to record a liability for any of these guarantees.

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Additionally, we have from time to time issued guarantees for the performance of obligations by some of our subsidiaries, and some of our subsidiaries have guaranteed our debt. All of our existing and future material domestic subsidiaries fully and unconditionally guarantee our senior credit facility and our senior notes on a joint and several basis. The senior credit facility is also secured by first-priority liens on substantially all our domestic assets and pledges of up to 66 percent of the stock of certain first-tier foreign subsidiaries. No assets or capital stock secure our senior notes. You should also read Note 13 of the consolidated financial statements of Tenneco Inc., where we present the Supplemental Guarantor Consolidating Financial Statements.

We have two performance guarantee agreements in the U.K. between Tenneco Management (Europe) Limited (“TMEL”) and the two Walker Group Retirement Plans, the Walker Group Employee Benefit Plan and the Walker Group Executive Retirement Benefit Plan (the “Walker Plans”), whereby TMEL will guarantee the payment of all current and future pension contributions in event of a payment default by the sponsoring or participating employers of the Walker Plans. The Walker Plans are comprised of employees from Tenneco Walker (U.K.) Limited and our Futaba-Tenneco U.K. joint venture. Employer contributions are funded by both Tenneco Walker (U.K.) Limited, as the sponsoring employer and Futaba-Tenneco U.K., as a participating employer. The performance guarantee agreements are expected to remain in effect until all pension obligations for the Walker Plans’ sponsoring and participating employers have been satisfied. The maximum amount payable for these pension performance guarantees that is not attributable to Tenneco is approximately \$7 million as of December 31, 2015 which is determined by taking 105 percent of the liability of the Walker Plans calculated under section 179 of the U.K. Pension Act of 2004 offset by plan assets multiplied by the ownership percentage in Futaba-Tenneco U.K. that is attributable to Futaba Industrial Co. Ltd. We did not record an additional liability for this performance guarantee since Tenneco Walker (U.K.) Limited, as the sponsoring employer of the Walker Plans, already recognizes 100 percent of the pension obligation calculated based on U.S. GAAP, for all of the Walker Plans’ participating employers on its balance sheet, which was \$11 million and \$17 million at December 31, 2015 and December 31, 2014, respectively. At December 31, 2015, all pension contributions under the Walker Plans were current for all of the Walker Plans’ sponsoring and participating employers.

In June 2011, we entered into an indemnity agreement between TMEL and Futaba Industrial Co. Ltd. which requires Futaba to indemnify TMEL for any cost, loss or liability which TMEL may incur under the performance guarantee agreements relating to the Futaba-Tenneco U.K. joint venture. The maximum amount reimbursable by Futaba to TMEL under this indemnity agreement is equal to the amount incurred by TMEL under the performance guarantee agreements multiplied by Futaba’s shareholder ownership percentage of the Futaba-Tenneco U.K. joint venture. At December 31, 2015, the maximum amount reimbursable by Futaba to TMEL is approximately \$7 million.

We have issued guarantees through letters of credit in connection with some obligations of our affiliates. As of December 31, 2015, we have \$32 million in letters of credit to support some of our subsidiaries’ insurance arrangements, foreign employee benefit programs, environmental remediation activities and cash management and capital requirements.

### Critical Accounting Policies and Estimates

We prepare our consolidated financial statements in accordance with accounting principles generally accepted in the United States of America. Preparing our consolidated financial statements in accordance with generally accepted accounting principles requires us 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 consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. The following paragraphs include a discussion of some critical areas where estimates are required.

### Revenue Recognition

We recognize revenue for sales to our original equipment and aftermarket customers when title and risk of loss passes to the customers under the terms of our arrangements with those customers, which is usually at the time of shipment from our plants or distribution centers. Generally, in connection with the sale of exhaust systems to certain original equipment manufacturers, we purchase catalytic converters and diesel particulate filters or components thereof including precious metals (“substrates”) on behalf of our customers which are used in the assembled system. These substrates are included in our inventory and “passed through” to the customer at our cost, plus a small margin, since we

take title to the inventory and are responsible for both the delivery and quality of the finished product. Revenues recognized for substrate sales were \$1,916 million, \$1,934 million and \$1,835 million in 2015, 2014 and 2013, respectively. For our aftermarket customers, we provide for promotional incentives and returns at the time of sale. Estimates are based upon the terms of the incentives and historical experience with returns. Certain taxes assessed by governmental authorities on revenue producing transactions, such as value added taxes, are excluded from revenue and recorded on a net basis. Shipping and handling costs billed to customers are included in revenues and the related costs are included in cost of sales in our Statements of Income.

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## Warranty Reserves

Where we have offered product warranty, we also provide for warranty costs. Provisions for estimated expenses related to product warranty are made at the time products are sold or when specific warranty issues are identified on OE products. These estimates are established using historical information about the nature, frequency, and average cost of warranty claims and upon specific warranty issues as they arise. The warranty terms vary but range from one year up to limited lifetime warranties on some of our premium aftermarket products. We actively study trends of our warranty claims and take action to improve product quality and minimize warranty claims. While we have not experienced any material differences between these estimates and our actual costs, it is reasonably possible that future warranty issues could arise that could have a significant impact on our consolidated financial statements.

## Engineering, Research and Development

We expense engineering, research, and development costs as they are incurred. Engineering, research, and development expenses were \$146 million for 2015, \$169 million for 2014 and \$144 million for 2013, net of reimbursements from our customers. Of these amounts, \$17 million in 2015, \$26 million in 2014 and \$19 million in 2013 relate to research and development, which includes the research, design, and development of a new unproven product or process. Additionally, \$111 million, \$118 million and \$101 million of engineering, research, and development expense for 2015, 2014 and 2013, respectively, relates to engineering costs we incurred for application of existing products and processes to vehicle platforms. The remainder of the expenses in each year relate to improvements and enhancements to existing products and processes. Further, our customers reimburse us for engineering, research, and development costs on some platforms when we prepare prototypes and incur costs before platform awards. Our engineering, research, and development expense for 2015, 2014 and 2013 has been reduced by \$145 million, \$159 million and \$169 million, respectively, for these reimbursements.

## Pre-production Design and Development and Tooling Assets

We expense pre-production design and development costs as incurred unless we have a contractual guarantee for reimbursement from the original equipment customer. Unbilled pre-production design and development costs recorded in prepayments and other and long-term receivables totaled \$21 million and \$23 million on December 31, 2015 and 2014, respectively. In addition, plant, property and equipment included \$64 million and \$59 million at December 31, 2015 and 2014, respectively, for original equipment tools and dies that we own, and prepayments and other included \$107 million and \$98 million at December 31, 2015 and 2014, respectively, for in-process tools and dies that we are building for our original equipment customers.

## Income Taxes

We recognize deferred tax assets and liabilities on the basis of the future tax consequences attributable to temporary differences that exist between the financial statement carrying value of assets and liabilities and their respective tax values, and net operating losses (“NOL”) and tax credit carryforwards on a taxing jurisdiction basis. We measure deferred tax assets and liabilities using enacted tax rates that will apply in the years in which we expect the temporary differences to be recovered or paid.

We evaluate our deferred income taxes quarterly to determine if valuation allowances are required or should be adjusted. U.S. GAAP requires that companies assess whether valuation allowances should be established against their deferred tax assets based on consideration of all available evidence, both positive and negative, using a “more likely than not” standard. This assessment considers, among other matters, the nature, frequency and amount of recent losses, the duration of statutory carryforward periods, and tax planning strategies. In making such judgments, significant weight is given to evidence that can be objectively verified.

Valuation allowances are established for deferred tax assets based on a “more likely than not” threshold. The ability to realize deferred tax assets depends on our ability to generate sufficient taxable income within the carryforward periods provided for in the tax law for each tax jurisdiction. We consider the following possible sources of taxable income when assessing the realization of our deferred tax assets and the need for a valuation allowance:

- ▣ Future reversals of existing taxable temporary differences;
- ▣ Taxable income or loss, based on recent results, exclusive of reversing temporary differences and carryforwards;
- ▣ Tax-planning strategies; and
- ▣ Taxable income in prior carryback years if carryback is permitted under the relevant tax law.

The valuation allowances recorded against deferred tax assets in certain foreign jurisdictions will impact our provision for income taxes until the valuation allowances are released. Our provision for income taxes will include no tax benefit for losses incurred and no tax expense with respect to income generated in these jurisdictions until the respective valuation allowance is eliminated.



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## Goodwill, net

We evaluate goodwill for impairment in the fourth quarter of each year, or more frequently if events indicate it is warranted. The goodwill impairment test consists of a two-step process. In step one, we compare the estimated fair value of our reporting units with goodwill to the carrying value of the unit's assets and liabilities to determine if impairment exists within the recorded balance of goodwill. We estimate the fair value of each reporting unit using the income approach which is based on the present value of estimated future cash flows. The income approach is dependent on a number of factors, including estimates of market trends, forecasted revenues and expenses, capital expenditures, weighted average cost of capital and other variables. A separate discount rate derived by a combination of published sources, internal estimates and weighted based on our debt to equity ratio, was used to calculate the discounted cash flows for each of our reporting units. These estimates are based on assumptions that we believe to be reasonable, but which are inherently uncertain and outside of the control of management. If the carrying value of the reporting unit is higher than its fair value, there is an indication that impairment may exist which requires step two to be performed to measure the amount of the impairment loss. The amount of impairment is determined by comparing the implied fair value of a reporting unit's goodwill to its carrying value.

At December 31, 2015, accumulated goodwill impairment charges include \$306 million related to our North America Ride Performance reporting unit, \$32 million related to our Europe, South America & India Ride Performance reporting unit and \$11 million related to our Asia Pacific Ride Performance reporting unit.

In the fourth quarter of 2015, 2014 and 2013, as a result of our annual goodwill impairment testing, the estimated fair value of each of our reporting units exceeded the carrying value of their assets and liabilities as of the testing date.

## Pension and Other Postretirement Benefits

We have various defined benefit pension plans that cover some of our employees. We also have postretirement health care and life insurance plans that cover some of our domestic employees. Our pension and postretirement health care and life insurance expenses and valuations are dependent on assumptions used by our actuaries in calculating those amounts. These assumptions include discount rates, health care cost trend rates, long-term return on plan assets, retirement rates, mortality rates and other factors. Health care cost trend rate assumptions are developed based on historical cost data and an assessment of likely long-term trends. Retirement rates are based primarily on actual plan experience while mortality rates are based upon the general population experience which is not expected to differ materially from our experience.

Our approach to establishing the discount rate assumption for both our domestic and foreign plans is generally based on the yield on high-quality corporate fixed-income investments. At the end of each year, the discount rate is determined using the results of bond yield curve models based on a portfolio of high quality bonds matching the notional cash inflows with the expected benefit payments for each significant benefit plan. Based on this approach, we raised the weighted average discount rate for all our pension plans to 3.9 percent in 2015 from 3.7 percent in 2014. The discount rate for postretirement benefits was raised to 4.3 percent in 2015 from 4.1 percent in 2014.

Our approach to determining expected return on plan asset assumptions evaluates both historical returns as well as estimates of future returns, and is adjusted for any expected changes in the long-term outlook for the equity and fixed income markets. As a result, our estimate of the weighted average long-term rate of return on plan assets for all of our pension plans was lowered to 6.6 percent in 2015 from 6.7 percent in 2014.

Except in the U.K., our pension plans generally do not require employee contributions. Our policy is to fund our pension plans in accordance with applicable U.S. and foreign government regulations and to make additional payments as funds are available to achieve full funding of the accumulated benefit obligation. At December 31, 2015, all legal funding requirements had been met.

Refer to Note 10 of our consolidated financial statements for more information regarding our pension and other postretirement employee benefit costs and assumptions.

## New Accounting Pronouncements

Note 1 in our notes to the consolidated financial statements of Tenneco Inc. located in Item 8 — Financial Statements and Supplemental Data is incorporated herein by reference.

Note 11 in our notes to condensed consolidated financial statements located in Part I Item 1 — Business is incorporated herein by reference.

Derivative Financial Instruments

Foreign Currency Exchange Rate Risk

We use derivative financial instruments, principally foreign currency forward purchase and sale contracts with terms of less than one year, to hedge our exposure to changes in foreign currency exchange rates. Our primary exposure to changes in

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foreign currency rates results from intercompany loans made between affiliates to minimize the need for borrowings from third parties. Additionally, we enter into foreign currency forward purchase and sale contracts to mitigate our exposure to changes in exchange rates on certain intercompany and third-party trade receivables and payables. We manage counter-party credit risk by entering into derivative financial instruments with major financial institutions that can be expected to fully perform under the terms of such agreements. We do not enter into derivative financial instruments for speculative purposes.

In managing our foreign currency exposures, we identify and aggregate existing offsetting positions and then hedge residual exposures through third-party derivative contracts. The fair value of our foreign currency forward contracts was a net asset position of \$1 million at December 31, 2015 and is based on an internally developed model which incorporates observable inputs including quoted spot rates, forward exchange rates and discounted future expected cash flows utilizing market interest rates with similar quality and maturity characteristics. The following table summarizes by major currency the notional amounts for our foreign currency forward purchase and sale contracts as of December 31, 2015. All contracts in the following table mature in 2016.

	Notional Amount in Foreign Currency (Millions)
Australian dollars	—Purchase 1
British pounds	—Purchase 45
	—Sell (43 )
Canadian dollars	—Sell (2 )
European euro	—Sell (16 )
Japanese yen	—Purchase 50
	—Sell (1,153 )
South African rand	—Purchase 80
U.S. dollars	—Purchase 93
	—Sell (71 )

**Interest Rate Risk**

Our financial instruments that are sensitive to market risk for changes in interest rates are primarily our debt securities. We use our revolving credit facilities to finance our short-term and long-term capital requirements. We pay a current market rate of interest on these borrowings. Our long-term capital requirements have been financed with long-term debt with original maturity dates ranging from four to ten years. On December 31, 2015, we had \$758 million in long-term debt obligations that have fixed interest rates. Of that amount, \$500 million is fixed through December 2020, \$225 million is fixed through December 2024 and the remainder is fixed from 2015 through 2025. We also have \$382 million in long-term debt obligations that are subject to variable interest rates. For more detailed explanations on our debt structure and senior credit facility refer to “Liquidity and Capital Resources — Capitalization” earlier in this Management’s Discussion and Analysis.

We estimate that the fair value of our long-term debt at December 31, 2015 was about 102 percent of its book value. A one percentage point increase or decrease in interest rates would increase or decrease the annual interest expense we recognize in the income statement and the cash we pay for interest expense by about \$5 million.

**Environmental Matters, Legal Proceedings and Product Warranties**

Note 12 to the consolidated financial statements of Tenneco Inc. located in Part II Item 8 — Financial Statements and Supplemental Data is incorporated herein by reference.

We expect to continue to incur legal and related costs in 2016 pertaining to the ongoing antitrust investigation. Such costs may not be evenly distributed throughout the year.

**Tenneco 401(k) Retirement Savings Plans**

Effective January 1, 2012, the Tenneco Employee Stock Ownership Plan for Hourly Employees and the Tenneco Employee Stock Ownership Plan for Salaried Employees were merged into one plan called the Tenneco 401(k) Retirement Savings Plan (the “Retirement Savings Plan”). Under the plan, subject to limitations in the Internal Revenue Code, participants may elect to defer up to 75 percent of their salary through contributions to the plan, which are

invested in selected mutual funds or used to buy our common stock. We match 100 percent of an employee's contributions up to three percent of the employee's salary and 50 percent of an employee's contributions that are between three percent and five percent of the employee's salary. In connection with freezing the defined benefit pension plans for nearly all U.S. based salaried and non-union hourly employees effective December 31, 2006, and the related replacement of those defined benefit plans with defined contribution plans, we are making additional contributions to the Employee Stock Ownership Plans. We recorded expense for these contributions of

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approximately \$27 million, \$25 million and \$23 million in 2015, 2014, and 2013, respectively. Matching contributions vest immediately. Defined benefit replacement contributions fully vest on the employee's third anniversary of employment.

**ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.**

The section entitled "Derivative Financial Instruments" in Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations" is incorporated herein by reference.

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ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA.  
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AND CONSOLIDATED SUBSIDIARIES

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MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Management of Tenneco Inc. is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rule 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934). Management's internal control system is designed to provide reasonable assurance regarding the preparation and fair presentation of published financial statements. All internal control systems, no matter how well designed, have inherent limitations, including the possibility of human error or circumvention or overriding of controls. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation and may not prevent or detect misstatements in financial reporting. Further, due to changing conditions and adherence to established policies and controls, internal control effectiveness may vary over time.

Management assessed the company's effectiveness of internal controls over financial reporting. In making this assessment, it used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") in Internal Control-Integrated Framework (2013).

Based on our assessment we have concluded that the company's internal control over financial reporting was effective as of December 31, 2015.

Our internal control over financial reporting as of December 31, 2015 has been audited by PricewaterhouseCoopers LLP, our independent registered public accounting firm, as stated in their report, which is included herein.

February 24, 2016

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of Tenneco Inc.:

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of income, comprehensive income, cash flows, and changes in shareholders' equity present fairly, in all material respects, the financial position of Tenneco Inc. and its subsidiaries at December 31, 2015, and 2014 and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2015 in conformity with accounting principles generally accepted in the United States of America. In addition, in our opinion, the financial statement schedule listed in the accompanying index presents fairly, in all material respects, the information set forth therein when read in conjunction with the related consolidated financial statements. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2015, based on criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements and financial statement schedule, 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 these financial statements, on the financial statement schedule, and on the Company's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. 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 discussed in note 7 to the accompanying consolidated financial statements, the Company changed the manner in which it classifies deferred taxes in 2015.

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

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

/S/ PRICEWATERHOUSECOOPERS LLP

Milwaukee, Wisconsin  
February 24, 2016





Table of ContentsTENNECO INC.  
CONSOLIDATED STATEMENTS OF INCOME

	Year Ended December 31,		
	2015	2014	2013
	(Millions Except Share and Per Share Amounts)		
Revenues			
Net sales and operating revenues	\$8,209	\$8,420	\$7,964
Costs and expenses			
Cost of sales (exclusive of depreciation and amortization shown below)	6,845	7,025	6,734
Engineering, research, and development	146	169	144
Selling, general, and administrative	491	519	453
Depreciation and amortization of other intangibles	203	208	205
	7,685	7,921	7,536
Other income (expense)			
Loss on sale of receivables	(4	) (4	) (4
Other expense	(1	) (3	) —
	(5	) (7	) (4
Earnings before interest expense, income taxes, and noncontrolling interests	519	492	424
Interest expense	67	91	80
Earnings before income taxes and noncontrolling interests	452	401	344
Income tax expense	149	131	122
Net income	303	270	222
Less: Net income attributable to noncontrolling interests	56	44	39
Net income attributable to Tenneco Inc.	\$247	\$226	\$183
Earnings per share			
Weighted average shares of common stock outstanding —			
Basic	59,678,309	60,734,022	60,474,492
Diluted	60,193,150	61,782,508	61,594,062
Basic earnings per share of common stock	\$4.14	\$3.72	\$3.03
Diluted earnings per share of common stock	\$4.11	\$3.66	\$2.97

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

Table of ContentsTENNECO INC.  
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	Year Ended December 31, 2015					
	Tenneco Inc. Accumulated Other Comprehensive Income (Loss) (Millions)		Noncontrolling interests Accumulated Other Comprehensive Income (Loss)		Total Accumulated Other Comprehensive Income (Loss)	
Net Income		\$ 247			\$ 56	\$ 303
Accumulated Other Comprehensive Income (Loss) Cumulative Translation Adjustment						
Balance January 1	\$ (166	)	\$ 3		\$ (163	)
Translation of foreign currency statements	(131	) (131	) (4	) (4	) (135	) (135
Balance December 31	(297	)	(1	)	(298	)
Adjustment to the Liability for Pension and Postretirement Benefits						
Balance January 1	(379	)	—		(379	)
Adjustment to the Liability for Pension and Postretirement benefits, net of tax	11	11			11	11
Balance December 31	(368	)	—		(368	)
Balance December 31	\$(665	)	\$(1	)	\$(666	)
Other comprehensive loss		(120	)		(4	)
Comprehensive Income		\$ 127			\$ 52	\$ 179

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

Table of ContentsTENNECO INC.  
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	Year Ended December 31, 2014					
	Tenneco Inc. Accumulated Other Comprehensive Income (Loss) (Millions)		Noncontrolling interests Accumulated Other Comprehensive Income (Loss) (Loss)		Total Accumulated Other Comprehensive Income (Loss)	
Net Income		\$ 226			\$ 44	\$ 270
Accumulated Other Comprehensive Income (Loss) Cumulative Translation Adjustment						
Balance January 1	\$ (61	)	\$ 5		\$ (56	)
Translation of foreign currency statements	(105	) (105	) (2	) (2	) (107	) (107
Balance December 31	(166	)	3		(163	)
Adjustment to the Liability for Pension and Postretirement Benefits						
Balance January 1	(299	)	—		(299	)
Adjustment to the Liability for Pension and Postretirement benefits, net of tax	(80	) (80	)		(80	) (80
Balance December 31	(379	)	—		(379	)
Balance December 31	\$ (545	)	\$ 3		\$ (542	)
Other comprehensive loss		(185	)		(2	) (187
Comprehensive Income		\$ 41			\$ 42	\$ 83

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

Table of ContentsTENNECO INC.  
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	Year Ended December 31, 2013						
	Tenneco Inc. Accumulated Other Comprehensive Income (Loss) (Millions)		Noncontrolling interests Accumulated Other Comprehensive Income (Loss)		Total Accumulated Other Comprehensive Income (Loss)		
Net Income		\$ 183		\$ 39		\$ 222	
Accumulated Other Comprehensive Income (Loss)							
Cumulative Translation Adjustment							
Balance January 1	\$ (24	)	\$ 5		\$ (19	)	
Translation of foreign currency statements	(37	)	(37	)	—	(37	)
Balance December 31	(61	)	5		(56	)	
Adjustment to the Liability for Pension and Postretirement Benefits							
Balance January 1	(384	)	—		(384	)	
Adjustment to the Liability for Pension and Postretirement benefits, net of tax	85	85			85	85	
Balance December 31	(299	)	—		(299	)	
Balance December 31	\$(360	)	\$ 5		\$(355	)	
Other comprehensive income		48		—		48	
Comprehensive Income		\$ 231		\$ 39		\$ 270	

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

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## TENNECO INC.

## CONSOLIDATED BALANCE SHEETS

	December 31,	
	2015	2014
	(Millions)	
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$287	\$282
Restricted cash	1	3
Receivables —		
Customer notes and accounts, net	1,102	1,064
Other	10	24
Inventories	682	688
Deferred income taxes	—	81
Prepayments and other	229	284
Total current assets	2,311	2,426
Other assets:		
Long-term receivables, net	13	12
Goodwill	60	65
Intangibles, net	22	26
Deferred income taxes	218	143
Other	100	106
	413	352
Plant, property, and equipment, at cost	3,418	3,490
Less — Accumulated depreciation and amortization	(2,175)	(2,272)
	1,243	1,218
Total Assets	\$3,967	\$3,996
<b>LIABILITIES AND SHAREHOLDERS' EQUITY</b>		
Current liabilities:		
Short-term debt (including current maturities of long-term debt)	\$86	\$60
Accounts payable	1,376	1,372
Accrued taxes	37	40
Accrued interest	4	3
Accrued liabilities	250	258
Other	41	66
Total current liabilities	1,794	1,799
Long-term debt	1,124	1,055
Deferred income taxes	7	18
Postretirement benefits	318	339
Deferred credits and other liabilities	206	212
Commitments and contingencies		
Total liabilities	3,449	3,423
Redeemable noncontrolling interests	43	35
Tenneco Inc. Shareholders' equity:		
Common stock	1	1
Premium on common stock and other capital surplus	3,081	3,059
Accumulated other comprehensive loss	(665)	(545)
Retained earnings (accumulated deficit)	(1,448)	(1,695)
	969	820

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Less — Shares held as treasury stock, at cost	536	323
Total Tenneco Inc. shareholders' equity	433	497
Noncontrolling interests	42	41
Total equity	475	538
Total liabilities, redeemable noncontrolling interests and equity	\$3,967	\$3,996

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

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Table of ContentsTENNECO INC.  
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended December 31,		
	2015	2014	2013
	(Millions)		
Operating Activities			
Net income	\$ 303	\$ 270	\$ 222
Adjustments to reconcile net income to cash provided by operating activities —			
Depreciation and amortization of other intangibles	203	208	205
Deferred income taxes	—	(1	) 5
Stock-based compensation	15	13	13
Loss on sale of assets	4	6	1
Changes in components of working capital —			
(Increase) decrease in receivables	(90	) (83	) (88
(Increase) decrease in inventories	(36	) (74	) 3
(Increase) decrease in prepayments and other current assets	37	(81	) (53
Increase (decrease) in payables	90	94	161
Increase (decrease) in accrued taxes	(1	) —	(10
Increase (decrease) in accrued interest	1	(6	) —
Increase (decrease) in other current liabilities	(10	) 13	64
Change in long-term assets	3	12	7
Change in long-term liabilities	(2	) (13	) (32
Other	—	(17	) 5
Net cash provided by operating activities	517	341	503
Investing Activities			
Proceeds from sale of assets	4	3	8
Cash payments for plant, property, and equipment	(286	) (328	) (244
Cash payments for software related intangible assets	(23	) (13	) (25
Cash payments for net assets purchased	—	(3	) —
Change in restricted cash	2	2	(5
Net cash used by investing activities	(303	) (339	) (266
Financing Activities			
Retirement of long-term debt	(37	) (462	) (16
Issuance of long-term debt	1	570	—
Debt issuance costs of long-term debt	(1	) (12	) —
Purchase of common stock under the share repurchase program	(213	) (22	) (27
Issuance of common stock	6	19	20
Tax benefit from stock-based compensation	6	26	24
Increase (decrease) in bank overdrafts	(22	) 6	(6
Net increase (decrease) in revolver borrowings and short-term debt excluding current maturities of long-term debt and short-term borrowings secured by accounts receivable	102	(70	) (22
Net increase (decrease) in short-term borrowings secured by accounts receivable	30	(10	) (40
Capital contribution from noncontrolling interest partner	—	5	—
Purchase of noncontrolling equity interest	—	—	(69
Distribution to noncontrolling interest partners	(44	) (30	) (39



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Net cash provided (used) by financing activities	(172	) 20	(175	)
Effect of foreign exchange rate changes on cash and cash equivalents	(37	) (15	) (10	)
Increase in cash and cash equivalents	5	7	52	
Cash and cash equivalents, January 1	282	275	223	
Cash and cash equivalents, December 31 (Note)	\$287	\$282	\$275	

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Supplemental Cash Flow Information

Cash paid during the year for interest	\$68	\$93	\$79
Cash paid during the year for income taxes (net of refunds)	105	136	109
Non-cash Investing and Financing Activities			
Period end balance of trade payables for plant, property, and equipment	\$50	\$41	\$52

Note: Cash and cash equivalents include highly liquid investments with a maturity of three months or less at the date of purchase.

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

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## TENNECO INC.

## CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY

	Year Ended December 31,					
	2015		2014		2013	
	Shares	Amount	Shares	Amount	Shares	Amount
	(Millions Except Share Amounts)					
<b>Common Stock</b>						
Balance January 1	64,454,248	\$1	63,714,728	\$1	62,789,382	\$1
Issued pursuant to benefit plans	335,766	—	62,334	—	156,213	—
Stock options exercised	277,118	—	677,186	—	769,133	—
Balance December 31	65,067,132	1	64,454,248	1	63,714,728	1
<b>Premium on Common Stock and Other Capital Surplus</b>						
Balance January 1		3,059		3,014		3,031
Purchase of noncontrolling equity interest		—		—		(68 )
Premium on common stock issued pursuant to benefit plans		22		45		51
Balance December 31		3,081		3,059		3,014
<b>Accumulated Other Comprehensive Loss</b>						
Balance January 1		(545 )		(360 )		(408 )
Other comprehensive income (loss)		(120 )		(185 )		48
Balance December 31		(665 )		(545 )		(360 )
<b>Retained Earnings (Accumulated Deficit)</b>						
Balance January 1		(1,695 )		(1,921 )		(2,104 )
Net income attributable to Tenneco Inc.		247		226		183
Balance December 31		(1,448 )		(1,695 )		(1,921 )
<b>Less — Common Stock Held as Treasury Stock, at Cost</b>						
Balance January 1	3,244,692	323	2,844,692	301	2,294,692	274
Purchase of common stock through stock repurchase program	4,228,633	213	400,000	22	550,000	27
Balance December 31	7,473,325	536	3,244,692	323	2,844,692	301
Total Tenneco Inc. shareholders' equity		\$433		\$497		\$433
<b>Noncontrolling interests:</b>						
Balance January 1		41		39		45
Net income		24		21		24
Sale of noncontrolling equity interest		—		—		(1 )
Other comprehensive income (loss)		(3 )		(1 )		—
Dividends declared		(20 )		(18 )		(29 )
Balance December 31		\$42		\$41		\$39
Total equity		\$475		\$538		\$472

The accompanying notes to consolidated financial statements are an integral part of these statements of changes in shareholders' equity.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

## 1. Summary of Accounting Policies

## Consolidation and Presentation

Our consolidated financial statements include all majority-owned subsidiaries. We carry investments in 20 percent to 50 percent owned companies in which the Company does not have a controlling interest, as equity method investments, at cost plus equity in undistributed earnings since the date of acquisition and cumulative translation adjustments. We have eliminated intercompany transactions. We have evaluated all subsequent events through the date our financial statements were issued.

## Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires us 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 consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. These estimates include among others, allowances for doubtful receivables, promotional and product returns, pension and postretirement benefit plans, income taxes, and contingencies. These items are covered in more detail elsewhere in Note 1, Note 7, Note 10, and Note 12 of the consolidated financial statements of Tenneco Inc. Actual results could differ from those estimates.

## Redeemable Noncontrolling Interests

We have noncontrolling interests in five joint ventures with redemption features that could require us to purchase the noncontrolling interests at fair value in the event of a change in control of Tenneco Inc. or certain of our subsidiaries. We do not believe that it is probable that the redemption features in any of these joint venture agreements will be triggered. However, the redemption of these shares is not solely within our control. Accordingly, the related noncontrolling interests are presented as "Redeemable noncontrolling interests" in the temporary equity section of our consolidated balance sheets.

In May 2014, we sold a 45 percent equity interest in Tenneco Fusheng (Chengdu) Automobile Parts Co., Ltd., to a third party for \$4 million. As a result of the sale, our equity ownership of Tenneco Fusheng (Chengdu) Automobile Parts Co., Ltd. changed to 55 percent from 100 percent.

The following is a rollforward of activity in our redeemable noncontrolling interests for the years ending December 31, 2015, 2014 and 2013, respectively:

	2015	2014	2013
	(Millions)		
Balance January 1	\$35	\$20	\$15
Net income attributable to redeemable noncontrolling interests	33	23	14
Sale of 45 percent equity interest from Tenneco Inc	—	4	—
Capital Contributions	—	1	—
Dividends declared	(24	) (13	) (9
Balance December 31	\$43	\$35	\$20

## Inventories

At December 31, 2015 and 2014, inventory by major classification was as follows:

	2015	2014
	(Millions)	
Finished goods	\$257	\$272
Work in process	233	221
Raw materials	135	137
Materials and supplies	57	58
	\$682	\$688

Our inventories are stated at the lower of cost or market value using the first-in, first-out (“FIFO”) or average cost methods. Work in process includes purchased parts such as substrates coated with precious metals.

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

## Goodwill and Intangibles, net

We evaluate goodwill for impairment in the fourth quarter of each year, or more frequently if events indicate it is warranted. The goodwill impairment test consists of a two-step process. In step one, we compare the estimated fair value of our reporting units with goodwill to the carrying value of the unit's assets and liabilities to determine if impairment exists within the recorded balance of goodwill. We estimate the fair value of each reporting unit using the income approach which is based on the present value of estimated future cash flows. The income approach is dependent on a number of factors, including estimates of market trends, forecasted revenues and expenses, capital expenditures, weighted average cost of capital and other variables. A separate discount rate derived by a combination of published sources, internal estimates and weighted based on our debt to equity ratio, was used to calculate the discounted cash flows for each of our reporting units. These estimates are based on assumptions that we believe to be reasonable, but which are inherently uncertain and outside of the control of management. If the carrying value of the reporting unit is higher than its fair value, there is an indication that impairment may exist which requires step two to be performed to measure the amount of the impairment loss. The amount of impairment is determined by comparing the implied fair value of a reporting unit's goodwill to its carrying value.

At December 31, 2015, accumulated goodwill impairment charges include \$306 million related to our North America Ride Performance reporting unit, \$32 million related to our Europe, South America & India Ride Performance reporting unit and \$11 million related to our Asia Pacific Ride Performance reporting unit.

In the fourth quarter of 2015, 2014 and 2013, as a result of our annual goodwill impairment testing, the estimated fair value of each of our reporting units exceeded the carrying value of their assets and liabilities as of the testing date.

The changes in the net carrying amount of goodwill for the years ended December 31, 2015, 2014 and 2013 were as follows:

	Clean Air Division			Ride Performance Division			Total
	North America	Europe, South America & India	Asia Pacific	North America	Europe, South America & India	Asia Pacific	
(Millions)							
Balance at December 31, 2013	\$ 14	\$ 14	\$—	\$ 10	\$ 31	\$—	\$ 69
Translation Adjustment	—	(2 )	—	—	(2 )	—	(4 )
Balance at December 31, 2014	14	12	—	10	29	—	65
Translation Adjustment	—	(1 )	—	—	(4 )	—	(5 )
Balance at December 31, 2015	14	11	—	10	25	—	60

We have capitalized certain intangible assets, primarily technology rights, trademarks and patents, based on their estimated fair value at the date we acquired them. We amortize our finite useful life intangible assets on a straight-line basis over periods ranging from 5 to 50 years. Amortization of intangibles amounted to \$5 million in 2015, \$4 million in 2014, and \$5 million in 2013, and are included in the statements of income caption "Depreciation and amortization of intangibles." The carrying amount and accumulated amortization of our finite useful life intangible assets were as follows:

December 31, 2015		December 31, 2014	
Gross Carrying Value	Accumulated Amortization	Gross Carrying Value	Accumulated Amortization
(Millions)		(Millions)	

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Customer contract	\$8	\$(4	) \$8	\$(4	)
Patents	2	(2	) 3	(2	)
Technology rights	29	(19	) 26	(15	)
Other	10	(2	) 11	(2	)
Total	\$49	\$(27	) \$48	\$(23	)

Estimated amortization of intangible assets over the next five years is expected to be \$3 million in 2016, \$2 million in 2017 and \$1 million in 2018, 2019 and 2020.

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

## Plant, Property, and Equipment, at Cost

At December 31, 2015 and 2014, plant, property, and equipment, at cost, by major category were as follows:

	2015	2014
	(Millions)	
Land, buildings, and improvements	\$561	\$569
Machinery and equipment	2,569	2,655
Other, including construction in progress	288	266
	\$3,418	\$3,490

We depreciate these properties excluding land on a straight-line basis over the estimated useful lives of the assets. Useful lives range from 10 to 50 years for buildings and improvements and from 3 to 25 years for machinery and equipment.

## Notes and Accounts Receivable and Allowance for Doubtful Accounts

Receivables consist of amounts billed and currently due from customers and unbilled pre-production design and development costs. Short and long-term accounts receivable outstanding were \$1,126 million and \$1,088 million at December 31, 2015 and 2014, respectively. The allowance for doubtful accounts on short-term and long-term accounts receivable was \$16 million at both December 31, 2015 and 2014. Short and long-term notes receivable outstanding was \$5 million at both December 31, 2015 and 2014. The allowance for doubtful accounts on short-term and long-term notes receivable was zero at both December 31, 2015 and 2014.

## Pre-production Design and Development and Tooling Assets

We expense pre-production design and development costs as incurred unless we have a contractual guarantee for reimbursement from the original equipment customer. Unbilled pre-production design and development costs recorded in prepayments and other and long-term receivables were \$21 million and \$23 million at December 31, 2015 and 2014, respectively. In addition, plant, property and equipment included \$64 million and \$59 million at December 31, 2015 and 2014, respectively, for original equipment tools and dies that we own, and prepayments and other included \$107 million and \$98 million at December 31, 2015 and 2014, respectively, for in-process tools and dies that we are building for our original equipment customers.

## Internal Use Software Assets

We capitalize certain costs related to the purchase and development of software that we use in our business operations. We amortize the costs attributable to these software systems over their estimated useful lives, ranging from 3 to 12 years, based on various factors such as the effects of obsolescence, technology, and other economic factors. Capitalized software development costs, net of amortization, were \$58 million and \$54 million at December 31, 2015 and 2014, respectively, and are recorded in other long-term assets. Amortization of software development costs was approximately \$13 million for the year ended December 31, 2015 and \$15 million for both years ended December 31, 2014 and 2013, and is included in the statements of income (loss) caption "Depreciation and amortization of intangibles." Additions to capitalized software development costs, including payroll and payroll-related costs for those employees directly associated with developing and obtaining the internal use software, are classified as investing activities in the statements of cash flows.

## Accounts Payable

Accounts payable included \$93 million and \$91 million at December 31, 2015 and December 31, 2014, respectively, for accrued compensation and \$17 million and \$39 million at December 31, 2015 and December 31, 2014, respectively, for bank overdrafts at our European subsidiaries.

## Income Taxes

We recognize deferred tax assets and liabilities on the basis of the future tax consequences attributable to temporary differences that exist between the financial statement carrying value of assets and liabilities and their respective tax values, and net operating losses ("NOL") and tax credit carryforwards on a taxing jurisdiction basis. We measure deferred tax assets and liabilities using enacted tax rates that will apply in the years in which we expect the temporary differences to be recovered or paid.



We evaluate our deferred income taxes quarterly to determine if valuation allowances are required or should be adjusted. U.S. GAAP requires that companies assess whether valuation allowances should be established against their deferred tax assets based on consideration of all available evidence, both positive and negative, using a “more likely than not” standard. This assessment considers, among other matters, the nature, frequency and amount of recent losses, the duration of statutory

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

carryforward periods, and tax planning strategies. In making such judgments, significant weight is given to evidence that can be objectively verified.

Valuation allowances have been established in certain foreign jurisdictions for deferred tax assets based on a “more likely than not” threshold. The ability to realize deferred tax assets depends on our ability to generate sufficient taxable income within the carryforward periods provided for in the tax law for each tax jurisdiction. We have considered the following possible sources of taxable income when assessing the realization of our deferred tax assets:

- Future reversals of existing taxable temporary differences;
- Taxable income or loss, based on recent results, exclusive of reversing temporary differences and carryforwards;
- Tax-planning strategies; and
- Taxable income in prior carryback years if carryback is permitted under the relevant tax law.

The valuation allowances recorded against deferred tax assets generated by taxable losses in foreign jurisdictions will impact our provision for income taxes until the valuation allowances are released. Our provision for income taxes will include no tax benefit for losses incurred and no tax expense with respect to income generated in these jurisdictions until the respective valuation allowance is eliminated.

**Revenue Recognition**

We recognize revenue for sales to our original equipment and aftermarket customers when title and risk of loss passes to the customers under the terms of our arrangements with those customers, which is usually at the time of shipment from our plants or distribution centers. Generally, in connection with the sale of exhaust systems to certain original equipment manufacturers, we purchase catalytic converters and diesel particulate filters or components thereof including precious metals (“substrates”) on behalf of our customers which are used in the assembled system. These substrates are included in our inventory and “passed through” to the customer at our cost, plus a small margin, since we take title to the inventory and are responsible for both the delivery and quality of the finished product. Revenues recognized for substrate sales were \$1,916 million, \$1,934 million and \$1,835 million in 2015, 2014 and 2013, respectively. For our aftermarket customers, we provide for promotional incentives and returns at the time of sale. Estimates are based upon the terms of the incentives and historical experience with returns. Certain taxes assessed by governmental authorities on revenue producing transactions, such as value added taxes, are excluded from revenue and recorded on a net basis. Shipping and handling costs billed to customers are included in revenues and the related costs are included in cost of sales in our consolidated statements of income (loss).

**Warranty Reserves**

Where we have offered product warranty, we also provide for warranty costs. Provisions for estimated expenses related to product warranty are made at the time products are sold or when specific warranty issues are identified on OE products. These estimates are established using historical information about the nature, frequency, and average cost of warranty claims and upon specific warranty issues as they arise. The warranty terms vary but range from one year up to limited lifetime warranties on some of our premium aftermarket products. We actively study trends of our warranty claims and take action to improve product quality and minimize warranty claims. While we have not experienced any material differences between these estimates and our actual costs, it is reasonably possible that future warranty issues could arise that could have a significant impact on our consolidated financial statements.

**Earnings Per Share**

We compute basic earnings per share by dividing income available to common shareholders by the weighted-average number of common shares outstanding. The computation of diluted earnings per share is similar to the computation of basic earnings per share, except that we adjust the weighted-average number of shares outstanding to include estimates of additional shares that would be issued if potentially dilutive common shares had been issued. In addition, we adjust income available to common shareholders to include any changes in income or loss that would result from the assumed issuance of the dilutive common shares. See Note 2 to the consolidated financial statements of Tenneco Inc.

Engineering, Research and Development

We expense engineering, research, and development costs as they are incurred. Engineering, research, and development expenses were \$146 million for 2015, \$169 million for 2014, and \$144 million for 2013, net of reimbursements from our customers. Our customers reimburse us for engineering, research, and development costs on some platforms when we prepare prototypes and incur costs before platform awards. Our engineering, research, and development expense for 2015, 2014 and 2013 has been reduced by \$145 million, \$159 million and \$169 million, respectively, for these reimbursements.

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Advertising and Promotion Expenses

We expense advertising and promotion expenses as they are incurred. Advertising and promotion expenses were \$54 million, \$57 million, and \$53 million for the years ended December 31, 2015, 2014, and 2013, respectively.

Foreign Currency

We translate the consolidated financial statements of foreign subsidiaries into U.S. dollars using the exchange rate at each balance sheet date for assets and liabilities and a weighted-average exchange rate for revenues and expenses in each period. We record translation adjustments for those subsidiaries whose local currency is their functional currency as a component of accumulated other comprehensive income (loss) in shareholders' equity. We recognize transaction gains and losses arising from fluctuations in currency exchange rates on transactions denominated in currencies other than the functional currency in earnings as incurred, except for those intercompany balances which are designated as long-term investments. Our results include foreign currency transaction losses of \$6 million in 2015, of \$1 million in 2014 and \$13 million in 2013. The amounts are recorded in cost of sales.

We use derivative financial instruments, principally foreign currency forward purchase and sales contracts with terms of less than one year, to hedge our exposure to changes in foreign currency exchange rates. Our primary exposure to changes in foreign currency rates results from intercompany loans made between affiliates to minimize the need for borrowings from third parties. Additionally, we enter into foreign currency forward purchase and sale contracts to mitigate our exposure to changes in exchange rates on certain intercompany and third-party trade receivables and payables. We manage counter-party credit risk by entering into derivative financial instruments with major financial institutions that can be expected to fully perform under the terms of such agreements. We do not enter into derivative financial instruments for speculative purposes. In managing our foreign currency exposures, we identify and aggregate existing offsetting positions and then hedge residual exposures through third-party derivative contracts. The fair value of our foreign currency forward contracts was a net asset position of \$1 million at December 31, 2015 and a net liability position of less than \$1 million at December 31, 2014 and is based on an internally developed model which incorporates observable inputs including quoted spot rates, forward exchange rates and discounted future expected cash flows utilizing market interest rates with similar quality and maturity characteristics. We record the change in fair value of these foreign exchange forward contracts as part of currency gains (losses) within cost of sales in the consolidated statements of income (loss). The fair value of foreign exchange forward contracts are recorded in prepayments and other current assets or other current liabilities in the consolidated balance sheet.

New Accounting Pronouncements

In November 2015, the Financial Accounting Standards Board ("FASB") issued Accounting Standard Update 2015-17, Balance Sheet Classification of Deferred Taxes, which requires companies to classify all deferred tax assets and liabilities as noncurrent on the balance sheet instead of separating deferred taxes into current and noncurrent amounts. For public business entities, the standard is effective for financial statements issued for annual periods beginning after December 15, 2016, and interim periods within those annual periods. Early adoption is permitted for all companies in any interim or annual period. We adopted this standard as of December 31, 2015 and applied prospectively. Adoption of this guidance resulted in a reclassification of our net current deferred tax asset to the net non-current deferred tax asset in our Consolidated Balance Sheet as of December 31, 2015. No prior periods were retrospectively adjusted. In May 2015, the FASB issued Accounting Standard Update (ASU) No. 2015-07, Disclosures for Investments in Certain Entities that Calculate Net Asset Value per Share (or Its Equivalent). ASU No. 2015-07 removes the requirement to categorize within the fair value hierarchy all investments for which fair value is measured using the net asset value per share practical expedient. Such investments should be disclosed separate from the fair value hierarchy. For public business entities, the standard is effective for financial statements issued for fiscal years beginning after December 15, 2015, and interim periods within those fiscal years. The adoption of this guidance is not expected to have an impact on the Company's consolidated financial statements but will impact pension asset disclosure. In April 2015, the FASB issued ASU 2015-03, Simplifying the Presentation of Debt Issuance Costs, which requires debt issuance costs to be presented in the balance sheet as a direct deduction from the associated debt liability. For

public business entities, the standard is effective for financial statements issued for fiscal years beginning after December 15, 2015, and interim periods within those fiscal years. Early adoption of the amendments in this update is permitted for financial statements that have not been previously issued. We adopted this standard for the first quarter of 2015 and applied retrospectively. Please refer to note 5 in our notes to consolidated financial statements located in Part II Item 8 of this Form 10-K for further discussion.

In May 2014, the FASB issued an amendment on revenue recognition. The amendment in this update creates Topic 606, Revenue from Contracts with Customers, and supersedes the revenue recognition requirements in Topic 605, Revenue Recognition, including most industry-specific revenue recognition guidance throughout the Industry Topics of the Codification. In addition, the amendment supersedes the cost guidance in Subtopic 605-35, Revenue Recognition-Construction-Type and

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Production-Type Contracts, and creates new Subtopic 340-40, Other Assets and Deferred Costs-Contracts with Customers. The core principle of Topic 606 is that an entity recognizes revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The FASB has approved a one-year deferral of the effective date from January 1, 2017 to January 1, 2018, while allowing for early adoption as of January 1, 2017 for public entities. We will adopt this amendment on January 1, 2018. We are currently evaluating the potential impact of this new guidance on our consolidated financial statements.

**Restricted Net Assets**

In certain countries where we operate, transfers of funds out of such countries by way of dividends, loans or advances are subject to certain central bank restrictions which require approval from the central bank authorities prior to transferring funds out of these countries. The countries in which we operate that have such restrictions include Argentina, China, South Africa, and Thailand. The net asset balance of our subsidiaries in the countries in which we operate that have such restrictions was \$248 million and \$218 million as of December 31, 2015 and 2014, respectively. These central banking restrictions do not have a significant effect on our ability to manage liquidity on a global basis.

**2. Earnings Per Share**

Earnings per share of common stock outstanding were computed as follows:

	Year Ended December 31,		
	2015	2014	2013
	(Millions Except Share and Per Share Amounts)		
Basic earnings per share —			
Net income attributable to Tenneco Inc.	\$247	\$226	\$183
Average shares of common stock outstanding	59,678,309	60,734,022	60,474,492
Earnings per average share of common stock	\$4.14	\$3.72	\$3.03
Diluted earnings per share —			
Net income attributable to Tenneco Inc.	\$247	\$226	\$183
Average shares of common stock outstanding	59,678,309	60,734,022	60,474,492
Effect of dilutive securities:			
Restricted stock	96,168	130,732	205,020
Stock options	418,673	917,754	914,550
Average shares of common stock outstanding including dilutive securities	60,193,150	61,782,508	61,594,062
Earnings per average share of common stock	\$4.11	\$3.66	\$2.97

Options to purchase 175,216, 1,357 and 205,104 shares of common stock were outstanding as of December 31, 2015, 2014 and 2013, respectively, but not included in the computation of diluted earnings per share, because the options were anti-dilutive.

**3. Acquisitions and divestitures**

In the fourth quarter of 2013, we purchased the remaining 20 percent equity interest in Tenneco Tongtai (Dalian) Exhaust System Co., Ltd. (TTEC) joint venture investment in China for \$69 million in cash through two transactions. The joint venture partner also received an additional amount of \$9 million in lieu of receiving its pro-rata share of dividends owed from the joint venture. As a result of the purchase, TTEC became a wholly owned indirect subsidiary of Tenneco.

In May 2014, we sold a 45 percent equity interest in Tenneco Fusheng (Chengdu) Automobile Parts Co., Ltd., to a third party for \$4 million. As a result of the sale, our equity ownership of Tenneco Fusheng (Chengdu) Automobile

Parts Co., Ltd. changed to 55 percent from 100 percent. The net impact to equity from the sale was less than \$1 million.

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The table below summarizes the net income attributable to Tenneco Inc. and transfers to the noncontrolling interest:

	Year Ended December 31,		
	2015	2014	2013
	(Millions)		
Net income attributable to Tenneco Inc.	\$247	\$226	\$183
Decrease in equity for purchase of noncontrolling equity interest	—	—	(68)
Net income attributable to Tenneco Inc. shareholders less purchase of noncontrolling equity interest	247	226	115

In November 2015, we closed on the sale of certain assets related to our Marzocchi mountain bike suspension product line to affiliates of Fox Factory Holding Corp.; and in December 2015, we closed on the sale of the Marzocchi motorcycle fork product line to an Italian company, VRM S.p.A. We recorded charges of \$29 million in 2015 related to severance and other employee related costs, asset write-downs and other expenses related to the closure.

## 4. Restructuring and Other Charges

Over the past several years, we have adopted plans to restructure portions of our operations. These plans were approved by our Board of Directors and were designed to reduce operational and administrative overhead costs throughout the business. In 2013, we incurred \$78 million in restructuring and related costs, primarily related to European cost reduction efforts including non-cash asset write downs of \$3 million, the costs to exit the distribution of aftermarket exhaust products and ending production of leaf springs in Australia, headcount reductions in various regions, and the net impact of freezing our defined benefit plans in the United Kingdom, of which \$70 million was recorded in cost of sales, \$6 million in SG&A, \$1 million in engineering expense and \$1 million in other expense. In 2014, we incurred \$49 million in restructuring and related costs including non-cash charges of \$5 million, primarily related to European cost reduction efforts, headcount reductions in Australia and South America, the sale of a closed facility in Cozad, Nebraska and costs related to organizational change, of which \$28 million was recorded in cost of sales, \$9 million in SG&A, \$7 million in engineering expense, \$4 million in other expense and \$1 million in depreciation and amortization. In 2015, we incurred \$63 million in restructuring and related costs including asset write-downs of \$10 million, primarily related to European cost reduction efforts, exiting the Marzocchi suspension business, headcount reductions in Australia and South America, and the closure of a JIT plant in Australia, of which \$46 million was recorded in cost of sales, \$11 million in SG&A, \$1 million in engineering expense, \$4 million in depreciation and amortization expense and \$1 million in other expense.

Amounts related to activities that are part of our restructuring plans are as follows:

	December 31, 2014	2015	2015 Cash Payments	Impact of Exchange Rates	December 31, 2015
	Restructuring Expenses Reserve				Restructuring Reserve
	(Millions)				
Employee Severance, Termination Benefits and Other Related Costs	\$40	53	(59)	(4)	\$30

On January 31, 2013, we announced our intent to reduce structural costs in Europe by approximately \$60 million annually. We still expect to reach our target annual savings rate in 2016, however the recent dramatic changes in exchange rates will likely have an impact on the actual savings achieved when translated from Euros to U.S. dollars. We incurred \$78 million in restructuring and related costs in 2013, of which \$69 million was related to this initiative including \$3 million for non-cash asset write downs. In 2014, we incurred \$49 million in restructuring and related costs, of which \$31 million was related to this initiative including \$3 million for non-cash asset write downs. In 2015, we incurred \$63 million in restructuring and related costs, of which \$22 million was related to this initiative. While we are nearing the completion of this initiative, we expect to incur additional restructuring and related costs in 2016 due to certain ongoing matters. For example, we closed a plant in Gijon Spain in 2013, but subsequently re-opened it in



July 2014 with about half of its prior workforce after the employees' works council successfully filed suit challenging the closure decision. Pursuant to an agreement we entered into with employee representatives, we are currently engaged in a sale process to identify potential purchasers for the facility and intend to continue operating it until a complete transfer of ownership takes place.

On July 22, 2015, we announced our intention to discontinue our Marzocchi motorcycle fork suspension product line and our mountain bike suspension product line, and liquidate our Marzocchi operations. These actions were subject to a consultation process with the employee representatives and in total eliminated approximately 138 jobs. We employed 127

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people at the Marzocchi plant in Bologna, Italy and an additional 11 people in our operations in North America and Taiwan. In November 2015, we closed on the sale of certain assets related to our Marzocchi mountain bike suspension product line to the affiliates of Fox Factory Holding Corp.; and in December 2015, we closed on the sale of the Marzocchi motorcycle fork product line to an Italian company, VRM S.p.A. These actions were a part of our ongoing efforts to optimize our Ride Performance product line globally while continuously improving our operations and increasing profitability. We recorded charges of \$29 million in 2015 related to severance and other employee related costs, asset write-downs and other expenses related to the closure.

Under the terms of our amended and restated senior credit agreement that took effect on December 8, 2014, we are allowed to exclude up to \$150 million in the aggregate of all costs, expenses, fees, fines, penalties, judgments, legal settlements and other amounts associated with any restructuring, litigation, claim, proceeding or investigation related to or undertaken by us or any of our subsidiaries, together with any related provision for taxes, incurred after December 8, 2014 in the calculation of the financial covenant ratios required under our senior credit facility. As of December 31, 2015, we had excluded \$53 million of allowable charges relating to restructuring initiatives against the \$150 million available under the terms of the senior credit facility.

## 5. Long-Term Debt, Short-Term Debt, and Financing Arrangements

## Long-Term Debt

A summary of our long-term debt obligations at December 31, 2015 and 2014, is set forth in the following table:

	2015	2014
	(Millions)	
Tenneco Inc. —		
Revolver borrowings due 2019, average effective interest rate 2.0% in 2015	\$105	\$—
Senior Tranche A Term Loan due 2016 through 2019, average effective interest rate 1.9% in 2015	285	300
5 3/8% Senior Notes due 2024	225	225
6 7/8% Senior Notes due 2020	500	500
Debentures due 2017 through 2025, average effective interest rate 7.5% in 2014	—	1
Other subsidiaries —		
Other Long Term Debt due in 2019, average interest rate 6.55% in 2015 and 5.45% in 2014	15	37
Notes due 2016 through 2026, average effective interest rate 0.1% in 2015 and 1.3% in 2014	7	8
	1,137	1,071
Less — maturities classified as current	1	2
Total long-term debt	\$1,136	\$1,069

The aggregate maturities applicable to the long-term debt outstanding at December 31, 2015, are \$15 million, \$24 million, \$30 million, \$338 million and \$1 million for 2016, 2017, 2018, 2019 and 2020, respectively.

We have excluded the required payments, within the next twelve months, under the Tranche A Term Facility totaling \$15 million from current liabilities as of December 31, 2015, because we have the intent and ability to refinance the obligations on a long-term basis by using our revolving credit facility.

## Short-Term Debt

Our short-term debt includes the current portion of long-term obligations and borrowings by parent company and foreign subsidiaries. Information regarding our short-term debt as of and for the years ended December 31, 2015 and 2014 is as follows:

	2015	2014
	(Millions)	
Maturities classified as current	\$1	\$2
Short-term borrowings	85	58
Total short-term debt	\$86	\$60



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TENNECO INC.

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	Notes Payable(a)			
	2015	2014		
	(Dollars in Millions)			
Outstanding borrowings at end of year	\$85	\$58		
Weighted average interest rate on outstanding borrowings at end of year(b)	3.2	% 2.6		%
Maximum month-end outstanding borrowings during year	\$178	\$124		
Average month-end outstanding borrowings during year	\$118	\$107		
Weighted average interest rate on average month-end outstanding borrowings during year(b)	3.0	% 4.0		%

(a) Includes borrowings under both committed credit facilities and uncommitted lines of credit and similar arrangements.

(b) This calculation does not include the commitment fees to be paid on the unused revolving credit facility balances which are recorded as interest expense for accounting purposes.

## Financing Arrangements

	Committed Credit Facilities(a) as of December 31, 2015				Available
	Term	Commitments	Borrowings	Letters of Credit(b)	
	(Millions)				
Tenneco Inc. revolving credit agreement	2019	\$1,200	\$105	\$—	\$1,095
Tenneco Inc. tranche A term facility	2019	285	285	—	—
Subsidiaries' credit agreements	2016-2027	136	107	—	29
		\$1,621	\$497	\$—	\$1,124

(a) We generally are required to pay commitment fees on the unused portion of the total commitment.

(b) Letters of credit reduce the available borrowings under the revolving credit agreement.

Overview. Our financing arrangements are primarily provided by a committed senior secured financing arrangement with a syndicate of banks and other financial institutions. The arrangement is secured by substantially all our domestic assets and pledges of up to 66 percent of the stock of certain first-tier foreign subsidiaries, as well as guarantees by our material domestic subsidiaries.

In April 2015, the FASB issued Accounting Standard Update 2015-03, Simplifying the Presentation of Debt Issuance Costs, which requires debt issuance costs to be presented in the balance sheet as a direct deduction from the associated debt liability. For public business entities, the standard is effective for financial statements issued for fiscal years beginning after December 15, 2015, and interim periods within those fiscal years. Early adoption of the amendments in this update is permitted for financial statements that have not been previously issued. We adopted this standard for the first quarter of 2015 and applied retrospectively. The balance for unamortized debt issuance costs was \$12 million and \$14 million at December 31, 2015 and December 31, 2014, respectively.

On December 8, 2014, we completed an amendment and restatement of our senior credit facility by increasing the amounts and extending the maturity dates of our revolving credit facility and our Tranche A Term Facility. The amended and restated facility replaces our former \$850 million revolving credit facility and \$213 million Tranche A Term Facility. The proceeds from this refinancing transaction were used to repay the \$213 million Tranche A Term Facility, to fund the fees and expenses associated with the purchase and redemption of our \$225 million 7<sup>3</sup>/<sub>4</sub> percent senior notes due in 2018 and for general corporate purposes. As of December 31, 2015, the senior credit facility provides us with a total revolving credit facility size of \$1,200 million and a \$300 million Tranche A Term Facility, both of which will mature on December 8, 2019. Funds may be borrowed, repaid and re-borrowed under the revolving credit facility without premium or penalty (subject to any customary LIBOR breakage fees). The revolving credit facility is reflected as debt on our balance sheet only if we borrow money under this facility or if we use the facility to make payments for letters of credit. Outstanding letters of credit reduce our availability to borrow revolving loans under the facility. We are required to make quarterly principal payments under the Tranche A Term Facility of \$3.75

million through December 31, 2016, \$5.625 million beginning March 31, 2017 through December 31, 2017, \$7.5 million beginning March 31, 2018 through September 30, 2019 and a final payment of \$195 million is due on December 8, 2019. We have excluded the required payments, within the next twelve months, under the Tranche A Term Facility totaling \$15 million from current liabilities as of December 31, 2015, because we have the intent and ability to refinance the obligations on a long-term basis by using our revolving credit facility.

On November 20, 2014, we announced a cash tender offer to purchase our outstanding \$225 million 7<sup>3</sup>/<sub>4</sub> percent senior notes due in 2018 and a solicitation of consents to certain proposed amendments to the indenture governing these notes. We

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received tenders and consents representing \$181 million aggregate principal amount of the notes and, on December 5, 2014, we purchased the tendered notes at a price of 104.35 percent of the principal amount (which includes a consent payment of three percent of the principal amount), plus accrued and unpaid interest, and amended the related indenture. On December 22, 2014, we redeemed the remaining outstanding \$44 million aggregate principal amount of senior notes that were not purchased pursuant to the tender offer at a price of 103.88 percent of the principal amount, plus accrued and unpaid interest. The additional liquidity provided by the new \$1,200 million revolving credit facility and the new \$300 million Tranche A Term Facility was used in part to fund the fees and expenses of the tender offer and redemption.

We recorded \$13 million of pre-tax interest charges in December 2014 related to the refinancing of our senior credit facility, the repurchase and redemption of our 7 <sup>3</sup>/<sub>4</sub> percent senior notes due in 2018 and the write-off of deferred debt issuance costs relating to those notes.

At December 31, 2015, of the \$1,200 million available under the revolving credit facility, we had unused borrowing capacity of \$1,095 million with \$105 million in balance in outstanding borrowings and zero in outstanding letters of credit. As of December 31, 2015, our outstanding debt also included (i) \$285 million of a term loan which consisted of a \$283 million net carrying amount including a \$2 million debt issuance cost related to our Tranche A Term Facility which is subject to quarterly principal payments as described above through December 8, 2019, (ii) \$225 million of notes which consisted of a \$221 million net carrying amount including a \$4 million debt issuance cost of 5<sup>3</sup>/<sub>8</sub> percent senior notes due December 15, 2024, (iii) \$500 million of notes which consisted of a \$494 million net carrying amount including a \$6 million debt issuance cost of 6<sup>7</sup>/<sub>8</sub> percent senior notes due December 15, 2020, and (iv) \$107 million of other debt.

**Senior Credit Facility — Interest Rates and Fees.** Beginning December 8, 2014, our Tranche A Term Facility and revolving credit facility bear interest at an annual rate equal to, at our option, either (i) London Interbank Offered Rate (“LIBOR”) plus a margin of 175 basis points, or (ii) a rate consisting of the greater of (a) the JPMorgan Chase prime rate plus a margin of 75 basis points, (b) the Federal Funds rate plus 50 basis points plus a margin of 75 basis points, and (c) one month LIBOR plus 100 basis points plus a margin of 75 basis points. The margin we pay on these borrowings will be increased by a total of 25 basis points above the original margin following each fiscal quarter for which our consolidated net leverage ratio is equal to or greater than 2.25 and less than 3.25, and will be increased by a total of 50 basis points above the original margin following each fiscal quarter for which our consolidated net leverage ratio is equal to or greater than 3.25. In addition, the margin we pay on these borrowings will be reduced by a total of 25 basis points below the original margin if our consolidated net leverage ratio is less than 1.25. We also pay a commitment fee equal to 30 basis points that will be reduced to 25 basis points or increased to up to 40 basis points depending on consolidated net leverage ratio changes as set forth in the senior credit facility.

**Senior Credit Facility — Other Terms and Conditions.** Our senior credit facility requires that we maintain financial ratios equal to or better than the following consolidated net leverage ratio (consolidated indebtedness net of cash divided by consolidated EBITDA, as defined in the senior credit facility agreement), and consolidated interest coverage ratio (consolidated EBITDA divided by consolidated interest expense, as defined in the senior credit facility agreement) at the end of each period indicated. Failure to maintain these ratios will result in a default under our senior credit facility. The financial ratios required under the amended and restated senior credit facility (or the predecessor facility, as applicable) and the actual ratios we achieved for the four quarters of 2015, are as follows:

	Quarter Ended		September 30,		June 30,		March 31,	
	December 31, 2015		2015		2015		2015	
	Req.	Act.	Req.	Act.	Req.	Act.	Req.	Act.
Leverage Ratio (maximum)	3.50	1.32	3.50	1.51	3.50	1.36	3.50	1.41
Interest Coverage Ratio (minimum)	2.75	13.99	2.75	13.07	2.75	12.43	2.75	11.95

The senior credit facility includes a maximum leverage ratio covenant of 3.50 and a minimum interest coverage ratio of 2.75 through December 8, 2019.

The covenants in our senior credit facility agreement generally prohibit us from repaying or refinancing our senior notes. So long as no default existed, we would, however, under our senior credit facility agreement, be permitted to repay or refinance our senior notes (i) with the net cash proceeds of permitted refinancing indebtedness (as defined in the senior credit facility agreement) or with the net cash proceeds of our common stock in each case issued within 180 days prior to such repayment; (ii) with the net cash proceeds of the incremental facilities (as defined in the senior credit facility agreement) and certain indebtedness incurred by our foreign subsidiaries; (iii) with the proceeds of the revolving loans (as defined in the senior credit facility agreement); (iv) with the cash generated by our operations; (v) in an amount equal to the net cash proceeds of qualified capital stock (as defined in the senior credit facility agreement) issued by us after December 8, 2014; and (vi) in exchange for

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

permitted refinancing indebtedness or in exchange for shares of our common stock; provided that such purchases are capped as follows (with respect to clauses (iii), (iv) and (v) based on a pro forma consolidated leverage ratio after giving effect to such purchase, cancellation or redemption):

Pro forma Consolidated Leverage Ratio	Aggregate Senior Note Maximum Amount (Millions)
Greater than or equal to 3.0x	\$ 20
Greater than or equal to 2.5x	\$ 100
Greater than or equal to 2.0x	\$ 200
Less than 2.0x	no limit

Although the senior credit facility agreement would permit us to repay or refinance our senior notes under the conditions described above, any repayment or refinancing of our outstanding notes would be subject to market conditions and either the voluntary participation of note holders or our ability to redeem the notes under the terms of the applicable note indenture. For example, while the senior credit facility agreement would allow us to repay our outstanding notes via a direct exchange of the notes for either permitted refinancing indebtedness or for shares of our common stock, we do not, under the terms of the agreements governing our outstanding notes, have the right to refinance the notes via any type of direct exchange.

The senior credit facility agreement also contains other restrictions on our operations that are customary for similar facilities, including limitations on: (i) incurring additional liens; (ii) sale and leaseback transactions (except for the permitted transactions as described in the senior credit facility agreement); (iii) liquidations and dissolutions; (iv) incurring additional indebtedness or guarantees; (v) investments and acquisitions; (vi) dividends and share repurchases; (vii) mergers and consolidations; and (viii) refinancing of the senior notes. Compliance with these requirements and restrictions is a condition for any incremental borrowings under the senior credit facility agreement and failure to meet these requirements enables the lenders to require repayment of any outstanding loans.

As of December 31, 2015, we were in compliance with all the financial covenants and operational restrictions of the senior credit facility. Our senior credit facility does not contain any terms that could accelerate payment of the facility or affect pricing under the facility as a result of a credit rating agency downgrade.

**Senior Notes.** As of December 31, 2015, our outstanding senior notes included \$225 million of 5 <sup>3</sup>/<sub>8</sub> percent senior notes due December 15, 2024 which consisted of \$221 million net carrying amount including a \$4 million debt issuance cost and \$500 million of 6 <sup>7</sup>/<sub>8</sub> percent senior notes due December 15, 2020 which consisted of \$494 million net carrying amount including a \$6 million debt issuance cost. Under the indentures governing the notes, we are permitted to redeem some or all of the remaining senior notes at specified prices that decline to par over a specified period, (a) on or after December 15, 2019, in the case of the senior notes due 2024, and (b) on or after December 15, 2015, in the case of the senior notes due 2020. In addition, the notes may also be redeemed at a price generally equal to 100 percent of the principal amount thereof plus a premium based on the present values of the remaining payments due to the note holders. Further, the indentures governing the notes also permit us to redeem up to 35 percent of the senior notes due 2024, with the proceeds of certain equity offerings completed on or before December 15, 2017. If we sell certain of our assets or experience specified kinds of changes in control, we must offer to repurchase the notes due 2024 and 2020 at 101 percent of the principal amount thereof plus accrued and unpaid interest.

Our senior notes require that, as a condition precedent to incurring certain types of indebtedness not otherwise permitted, our consolidated fixed charge coverage ratio, as calculated on a pro forma basis, be greater than 2.00. The indentures also contain restrictions on our operations, including limitations on: (i) incurring additional indebtedness or liens; (ii) dividends; (iii) distributions and stock repurchases; (iv) investments; (v) asset sales and (vi) mergers and consolidations. Subject to limited exceptions, all of our existing and future material domestic wholly owned subsidiaries fully and unconditionally guarantee these notes on a joint and several basis. There are no significant restrictions on the ability of the subsidiaries that have guaranteed these notes to make distributions to us. As of December 31, 2015, we were in compliance with the covenants and restrictions of these indentures.



Accounts Receivable Securitization. We securitize some of our accounts receivable on a limited recourse basis in North America and Europe. As servicer under these accounts receivable securitization programs, we are responsible for performing all accounts receivable administration functions for these securitized financial assets including collections and processing of customer invoice adjustments. In North America, we have an accounts receivable securitization program with three commercial banks comprised of a first priority facility and a second priority facility. We securitize original equipment and aftermarket receivables on a daily basis under the bank program. In March 2015, the North American program was amended and extended to April 30, 2017. The first priority facility provides financing of up to \$130 million and the second priority facility, which is subordinated to the first priority facility, provides up to an additional \$50 million of financing. Both facilities monetize accounts

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receivable generated in the U.S. and Canada that meet certain eligibility requirements. The second priority facility also monetizes certain accounts receivable generated in the U.S. or Canada that would otherwise be ineligible under the first priority securitization facility. The amount of outstanding third-party investments in our securitized accounts receivable under the North American program was \$30 million at December 31, 2015 and zero at December 31, 2014. Each facility contains customary covenants for financings of this type, including restrictions related to liens, payments, mergers or consolidations and amendments to the agreements underlying the receivables pool. Further, each facility may be terminated upon the occurrence of customary events (with customary grace periods, if applicable), including breaches of covenants, failure to maintain certain financial ratios, inaccuracies of representations and warranties, bankruptcy and insolvency events, certain changes in the rate of default or delinquency of the receivables, a change of control and the entry or other enforcement of material judgments. In addition, each facility contains cross-default provisions, where the facility could be terminated in the event of non-payment of other material indebtedness when due and any other event which permits the acceleration of the maturity of material indebtedness.

We also securitize receivables in our European operations with regional banks in Europe. The arrangements to securitize receivables in Europe are provided under six separate facilities provided by various financial institutions in each of the foreign jurisdictions. The commitments for these arrangements are generally for one year, but some may be cancelled with notice 90 days prior to renewal. In some instances, the arrangement provides for cancellation by the applicable financial institution at any time upon notification. The amount of outstanding third-party investments in our securitized accounts receivable in Europe was \$174 million and \$153 million at December 31, 2015 and December 31, 2014, respectively.

If we were not able to securitize receivables under either the North American or European securitization programs, our borrowings under our revolving credit agreement might increase. These accounts receivable securitization programs provide us with access to cash at costs that are generally favorable to alternative sources of financing, and allow us to reduce borrowings under our revolving credit agreement.

In our North American accounts receivable securitization programs, we transfer a partial interest in a pool of receivables and the interest that we retain is subordinate to the transferred interest. Accordingly, we account for our North American securitization program as a secured borrowing. In our European programs, we transfer accounts receivables in their entirety to the acquiring entities and satisfy all of the conditions established under ASC Topic 860, "Transfers and Servicing," to report the transfer of financial assets in their entirety as a sale. The fair value of assets received as proceeds in exchange for the transfer of accounts receivable under our European securitization programs approximates the fair value of such receivables. We recognized \$2 million in interest expense for each of the years ended 2015, 2014 and 2013 relating to our North American securitization program. In addition, we recognized a loss of \$4 million for each of the years ended 2015, 2014 and 2013, on the sale of trade accounts receivable in our European accounts receivable securitization programs, representing the discount from book values at which these receivables were sold to our banks. The discount rate varies based on funding costs incurred by our banks, which averaged approximately two percent for both years ended 2015 and 2014 and three percent for the year ended 2013, respectively.

## 6. Financial Instruments

The carrying and estimated fair values of our financial instruments by class at December 31, 2015 and 2014 were as follows:

	December 31, 2015		December 31, 2014	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
Long-term debt (including current maturities)	\$ 1,125	\$ 1,160	\$ 1,057	\$ 1,106

Instruments with off-balance sheet risk:

Foreign exchange forward contracts:

Asset derivative contracts	1	1	—	—
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Asset and Liability Instruments — The fair value of cash and cash equivalents, short and long-term receivables, accounts payable, and short-term debt was considered to be the same as or was not determined to be materially different from the carrying amount.

Long-term Debt — The fair value of our public fixed rate senior notes is based on quoted market prices. The fair value of our private borrowings under our senior credit facility and other long-term debt instruments is based on the market value of debt with similar maturities, interest rates and risk characteristics. The fair value of our level 1 debt, as classified in the fair value hierarchy, was \$748 million and \$759 million at December 31, 2015 and December 31, 2014, respectively. We have

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classified the \$390 million and \$301 million as level 2 in the fair value hierarchy at December 31, 2015 and December 31, 2014, respectively, since we utilize valuation inputs that are observable both directly and indirectly. We classified the remaining \$22 million and \$46 million, consisting of foreign subsidiary debt, as level 3 in the fair value hierarchy at December 31, 2015, and December 31, 2014, respectively.

The fair value hierarchy definition prioritizes the inputs used in measuring fair value into the following levels:

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

Level 2 — Inputs, other than quoted prices in active markets, that are observable either directly or indirectly.

Level 3 — Unobservable inputs based on our own assumptions.

Foreign exchange forward contracts — We use derivative financial instruments, principally foreign currency forward purchase and sales contracts with terms of less than one year, to hedge our exposure to changes in foreign currency exchange rates. Our primary exposure to changes in foreign currency rates results from intercompany loans made between affiliates to minimize the need for borrowings from third parties. Additionally, we enter into foreign currency forward purchase and sale contracts to mitigate our exposure to changes in exchange rates on certain intercompany and third-party trade receivables and payables. We manage counter-party credit risk by entering into derivative financial instruments with major financial institutions that can be expected to fully perform under the terms of such agreements. We do not enter into derivative financial instruments for speculative purposes. The fair value of our foreign currency forward contracts is based on an internally developed model which incorporates observable inputs including quoted spot rates, forward exchange rates and discounted future expected cash flows utilizing market interest rates with similar quality and maturity characteristics. We record the change in fair value of these foreign exchange forward contracts as part of currency gains (losses) within cost of sales in the consolidated statements of income. The fair value of foreign exchange forward contracts are recorded in prepayments and other current assets or other current liabilities in the consolidated balance sheet. The fair value of our foreign currency forward contracts was a net asset position of \$1 million at December 31, 2015 and a net liability position of less than \$1 million at December 31, 2014.

The following table summarizes by major currency the notional amounts for foreign currency forward purchase and sale contracts as of December 31, 2015 (all of which mature in 2016):

	Notional Amount in Foreign Currency (Millions)
Australian dollars	—Purchase 1
British pounds	—Purchase 45
	—Sell (43 )
Canadian dollars	—Sell (2 )
European euro	—Sell (16 )
Japanese yen	—Purchase 50
	—Sell (1,153 )
South African rand	—Purchase 80
U.S. dollars	—Purchase 93
	—Sell (71 )

Guarantees — We have from time to time issued guarantees for the performance of obligations by some of our subsidiaries, and some of our subsidiaries have guaranteed our debt. All of our existing and future material domestic subsidiaries fully and unconditionally guarantee our senior credit facility and our senior notes on a joint and several basis. The arrangement for the senior credit facility is also secured by first-priority liens on substantially all our

domestic assets and pledges of up to 66 percent of the stock of certain first-tier foreign subsidiaries. No assets or capital stock secure our senior notes. For additional information, refer to Note 13 of the consolidated financial statements of Tenneco Inc., where we present the Supplemental Guarantor Condensed Consolidating Financial Statements.

We have two performance guarantee agreements in the U.K. between Tenneco Management (Europe) Limited (“TMEL”) and the two Walker Group Retirement Plans, the Walker Group Employee Benefit Plan and the Walker Group Executive Retirement Benefit Plan (the “Walker Plans”), whereby TMEL will guarantee the payment of all current and future pension contributions in event of a payment default by the sponsoring or participating employers of the Walker Plans. The Walker Plans are comprised of employees from Tenneco Walker (U.K.) Limited and our Futaba-Tenneco U.K. joint venture. Employer contributions are funded by both Tenneco Walker (U.K.) Limited, as the sponsoring employer and Futaba-Tenneco U.K., as a

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participating employer. The performance guarantee agreements are expected to remain in effect until all pension obligations for the Walker Plans' sponsoring and participating employers have been satisfied. The maximum amount payable for these pension performance guarantees that is not attributable to Tenneco is approximately \$7 million as of December 31, 2015 which is determined by taking 105 percent of the liability of the Walker Plans calculated under section 179 of the U.K. Pension Act of 2004 offset by plan assets multiplied by the ownership percentage in Futaba-Tenneco U.K. that is attributable to Futaba Industrial Co. Ltd. We did not record an additional liability for this performance guarantee since Tenneco Walker (U.K.) Limited, as the sponsoring employer of the Walker Plans, already recognizes 100 percent of the pension obligation calculated based on U.S. GAAP, for all of the Walker Plans' participating employers on its balance sheet, which was \$11 million and \$17 million at December 31, 2015 and December 31, 2014, respectively. At December 31, 2015, all pension contributions under the Walker Plans were current for all of the Walker Plans' sponsoring and participating employers.

In June 2011, we entered into an indemnity agreement between TMEL and Futaba Industrial Co. Ltd. which requires Futaba to indemnify TMEL for any cost, loss or liability which TMEL may incur under the performance guarantee agreements relating to the Futaba-Tenneco U.K. joint venture. The maximum amount reimbursable by Futaba to TMEL under this indemnity agreement is equal to the amount incurred by TMEL under the performance guarantee agreements multiplied by Futaba's shareholder ownership percentage of the Futaba-Tenneco U.K. joint venture. At December 31, 2015, the maximum amount reimbursable by Futaba to TMEL is approximately \$7 million.

We have issued guarantees through letters of credit in connection with some obligations of our affiliates. As of December 31, 2015, we have guaranteed \$32 million in letters of credit to support some of our subsidiaries' insurance arrangements, foreign employee benefit programs, environmental remediation activities and cash management and capital requirements.

**Financial Instruments** — One of our European subsidiaries receives payment from one of its customers whereby the accounts receivable are satisfied through the delivery of negotiable financial instruments. We may collect these financial instruments before their maturity date by either selling them at a discount or using them to satisfy accounts receivable that have previously been sold to a European bank. Any of these financial instruments which are not sold are classified as other current assets. Such financial instruments held by our European subsidiary totaled less than \$1 million and \$1 million as of December 31, 2015 and December 31, 2014, respectively.

In certain instances, several of our Chinese subsidiaries receive payment from customers through the receipt of financial instruments on the date the customer payments are due. Several of our Chinese subsidiaries also satisfy vendor payments through the delivery of financial instruments on the date the payments are due. Financial instruments issued to satisfy vendor payables and not redeemed totaled \$15 million and \$24 million at December 31, 2015 and December 31, 2014, respectively, and were classified as notes payable. Financial instruments received from OE customers and not redeemed totaled \$8 million and \$17 million at December 31, 2015 and December 31, 2014, respectively. We classify financial instruments received from our customers as other current assets if issued by a financial institution of our customers or as customer notes and accounts, net if issued by our customer. We classified \$8 million and \$17 million in other current assets at December 31, 2015 and December 31, 2014, respectively.

The financial instruments received by one of our European subsidiaries and some of our Chinese subsidiaries are drafts drawn that are payable at a future date and, in some cases, are negotiable and/or are guaranteed by the banks of the customers. The use of these instruments for payment follows local commercial practice. Because certain of such financial instruments are guaranteed by our customers' banks, we believe they represent a lower financial risk than the outstanding accounts receivable that they satisfy which are not guaranteed by a bank.

**Supply Chain Financing.** Certain of our suppliers in the U.S. participate in a supply chain financing program under which they securitize their accounts receivables from Tenneco. Financial institutions participate in the supply chain financing program on an uncommitted basis and can cease purchasing receivables from Tenneco's suppliers at any time. If the financial institutions did not continue to purchase receivables from Tenneco's suppliers under this program, the participating vendors may have a need to renegotiate their payment terms with Tenneco which in turn would cause our borrowings under our revolving credit facility to increase.

Restricted Cash - Some of our Chinese subsidiaries that issue their own financial instruments to pay vendors are required to maintain a cash balance if they exceed credit limits with the financial institution that guarantees the financial instruments. A restricted cash balance was required at those Chinese subsidiaries at December 31, 2015 for \$1 million and was not required at December 31, 2014.

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## 7. Income Taxes

The domestic and foreign components of our income before income taxes and noncontrolling interests are as follows:

	Year Ended December 31,		
	2015	2014	2013
	(Millions)		
U.S. income before income taxes	\$ 198	\$ 130	\$ 150
Foreign income before income taxes	254	271	194
Income before income taxes and noncontrolling interests	\$ 452	\$ 401	\$ 344

Following is a comparative analysis of the components of income tax expense:

	Year Ended December 31,			
	2015	2014	2013	
	(Millions)			
Current —				
U.S. federal	\$ 64	\$ 38	\$ 25	
State and local	5	3	4	
Foreign	83	92	81	
	152	133	110	
Deferred —				
U.S. federal	(1	) 2	(4	)
State and local	1	7	2	
Foreign	(3	) (11	) 14	
	(3	) (2	) 12	
Income tax expense	\$ 149	\$ 131	\$ 122	

Following is a reconciliation of income taxes computed at the statutory U.S. federal income tax rate (35 percent for all years presented) to the income tax expense reflected in the statements of income:

	Year Ended December 31,			
	2015	2014	2013	
	(Millions)			
Income tax expense computed at the statutory U.S. federal income tax rate	\$ 158	\$ 140	\$ 120	
Increases (reductions) in income tax expense resulting from:				
Foreign income taxed at different rates	(15	) (21	) (21	
Taxes on repatriation of dividends	9	4	9	
Remeasurement of estimated tax on unremitted earnings	(4	) —	(17	)
State and local taxes on income, net of U.S. federal income tax benefit	11	8	6	
Changes in valuation allowance for tax loss carryforwards and credits	13	12	27	
Foreign tax holidays	(7	) (6	) (5	
Investment and R&D tax credits	(26	) (10	) (8	
Foreign earnings subject to U.S. federal income tax	3	7	5	
Adjustment of prior years taxes	2	(2	) (1	
Impact of tax law changes	—	—	(3	
Tax contingencies	4	—	6	
Other	1	(1	) 4	
Income tax expense	\$ 149	\$ 131	\$ 122	

In November 2015, the Financial Accounting Standards Board (“FASB”) issued Accounting Standard Update 2015-17, Balance Sheet Classification of Deferred Taxes, which requires companies to classify all deferred tax assets and



liabilities as noncurrent on the balance sheet instead of separating deferred taxes into current and noncurrent amounts. For public business entities, the standard is effective for financial statements issued for annual periods beginning after December 15, 2016, and

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interim periods within those annual periods. Early adoption is permitted for all companies in any interim or annual period. We adopted this standard as of December 31, 2015 and applied prospectively. Adoption of this guidance resulted in a reclassification of our net current deferred tax asset to the net non-current deferred tax asset in our Consolidated Balance Sheet as of December 31, 2015. No prior periods were retrospectively adjusted.

The components of our net deferred tax assets were as follows:

	Year Ended December 31,	
	2015	2014
	(Millions)	
Deferred tax assets —		
Tax loss carryforwards:		
U.S. federal	\$—	\$—
State	14	15
Foreign	72	75
Tax credit benefits	89	86
Postretirement benefits other than pensions	54	55
Pensions	50	56
Bad debts	2	2
Sales allowances	8	7
Payroll accruals	34	38
Other accruals	55	58
Valuation allowance	(127	) (139
Total deferred tax assets	251	253
Deferred tax liabilities —		
Tax over book depreciation	40	51
Total deferred tax liabilities	40	51
Net deferred tax assets	\$211	\$202

State tax loss carryforwards have been presented net of uncertain tax positions that if realized, would reduce tax loss carryforwards in 2015 and 2014 by \$3 million and \$6 million, respectively. Additionally, foreign tax loss carryforwards, have been presented net of uncertain tax positions that if realized, would reduce tax loss carryforwards in 2015 and 2014 by \$13 million and \$12 million, respectively.

Following is a reconciliation of deferred taxes to the deferred taxes shown in the balance sheet:

	Year Ended December 31,	
	2015	2014
	(Millions)	
Balance Sheet:		
Current portion — deferred tax asset	\$—	\$81
Non-current portion — deferred tax asset	218	143
Current portion — deferred tax liability	—	(4
Non-current portion — deferred tax liability	(7	) (18
Net deferred tax assets	\$211	\$202

As a result of the valuation allowances recorded for \$127 million and \$139 million at December 31, 2015 and 2014, respectively, we have potential tax assets that were not recognized on our balance sheet. These unrecognized tax assets resulted primarily from foreign tax loss carryforwards, foreign investment tax credits, foreign research and development credits and U.S. state net operating losses that are available to reduce future tax liabilities.

We reported income tax expense of \$149 million, \$131 million and \$122 million in the years ended 2015, 2014 and 2013, respectively. The tax expense recorded in 2015 includes a net tax benefit of \$15 million primarily relating to

prior year U.S. research and development tax credits, changes to uncertain tax positions, and prior year income tax adjustments. The tax expense recorded in 2014 includes a net tax benefit of \$11 million for prior year tax adjustments primarily relating to changes to uncertain tax positions and prior year income tax estimates. The tax expense recorded in 2013 differs from the expense that

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would be recorded using a U.S. Federal statutory rate of 35 percent primarily due to the impact of recording a valuation allowance against a tax benefit for restructuring activities in Spain and Belgium and U.S. taxes on repatriation of dividends, partially offset by tax adjustments related to recognizing a U.S. tax benefit for foreign taxes and a favorable mix of income generated in low tax rate jurisdictions.

We have fully utilized our federal net operating loss ("NOL") as of June 30, 2014. The state NOLs expire in various tax years through 2032.

We do not provide for U.S. income taxes on unremitted earnings of foreign subsidiaries, except for the earnings of certain of our China operations, as our present intention is to reinvest the unremitted earnings in our foreign operations. Unremitted earnings of foreign subsidiaries were approximately \$731 million at December 31, 2015. We estimated that the amount of U.S. and foreign income taxes that would be accrued or paid upon remittance of the assets that represent those unremitted earnings was \$150 million. The estimated U.S. and foreign income taxes on unremitted earnings may be impacted in the future if we are unable to claim a U.S. foreign tax credit.

U.S. GAAP provides that a tax benefit from an uncertain tax position may be recognized when it is "more likely than not" that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes, based on the technical merits.

A reconciliation of our uncertain tax positions is as follows:

	2015	2014	2013
	(Millions)		
Uncertain tax positions —			
Balance January 1	\$114	\$115	\$107
Gross increases in tax positions in current period	7	8	15
Gross increases in tax positions in prior period	14	5	—
Gross decreases in tax positions in prior period	(4	) (5	) (1
Gross decreases — settlements	(1	) (2	) —
Gross decreases — statute of limitations expired	(7	) (7	) (6
Balance December 31	\$123	\$114	\$115

Included in the balance of uncertain tax positions were \$110 million in 2015, \$101 million in 2014, \$107 million in 2013, of tax benefits, that if recognized, would affect the effective tax rate. We recognize accrued interest and penalties related to unrecognized tax benefits as income tax expense. Penalties of less than \$1 million were accrued in 2015, 2014 and 2013. Additionally, we accrued interest income related to uncertain tax positions of less than \$1 million in both 2015 and 2014, and interest expense of \$2 million in 2013. Our liability for penalties was \$2 million at December 31, 2015, \$3 million at December 31, 2014 and \$2 million at December 31, 2013, respectively, and our liability for interest was \$6 million, \$6 million, and \$7 million at December 31, 2015, 2014 and 2013, respectively. Our uncertain tax position at December 31, 2015 and 2014 included exposures relating to the disallowance of deductions, global transfer pricing and various other issues. We believe it is reasonably possible that a decrease of up to \$10 million in unrecognized tax benefits related to the expiration of foreign statute of limitations and the conclusion of income tax examinations may occur within the next twelve months.

We are subject to taxation in the U.S. and various state and foreign jurisdictions. As of December 31, 2015, our tax years open to examination in primary jurisdictions are as follows:

	Open To Tax Year
United States	2000
China	2005
Spain	2003
Canada	2012
Brazil	2010
Mexico	2010

Belgium	2013
Germany	2013
United Kingdom	2013

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## 8. Common Stock

We have authorized 135 million shares (\$0.01 par value) of common stock, of which 65,067,132 shares and 64,454,248 shares were issued at December 31, 2015 and 2014, respectively. We held 7,473,325 and 3,244,692 shares of treasury stock at December 31, 2015 and 2014, respectively.

**Equity Plans** — In December 1996, we adopted the 1996 Stock Ownership Plan, which permitted the granting of a variety of awards, including common stock, restricted stock, performance units, stock equivalent units, stock appreciation rights (“SARs”) and stock options to our directors, officers, employees and consultants. The 1996 plan, which terminated as to new awards on December 31, 2001, was renamed the “Stock Ownership Plan.” In December 1999, we adopted the Supplemental Stock Ownership Plan, which permitted the granting of a variety of similar awards to our directors, officers, employees and consultants. We were authorized to deliver up to about 1.1 million treasury shares of common stock under the Supplemental Stock Ownership Plan, which also terminated as to new awards on December 31, 2001. In March 2002, we adopted the 2002 Long-Term Incentive Plan which permitted the granting of a variety of similar awards to our officers, directors, employees and consultants. Up to 4 million shares of our common stock were authorized for delivery under the 2002 Long-Term Incentive Plan. In March 2006, we adopted the 2006 Long-Term Incentive Plan which replaced the 2002 Long-Term Incentive Plan and permits the granting of a variety of similar awards to directors, officers, employees and consultants. On May 13, 2009, our stockholders approved an amendment to the Tenneco Inc. 2006 Long-Term Incentive Plan to increase the shares of common stock available thereunder by 2.3 million. Each share underlying an award generally counts as one share against the total plan availability under the 2009 amendment, each share underlying a full value award (e.g. restricted stock), however, counts as 1.25 shares against the total plan availability. On May 15, 2013 our stockholders approved another amendment to the Tenneco Inc. 2006 Long-Term Incentive Plan to increase the shares of common stock available thereunder by 3.5 million. As part of this amendment, each share underlying a full value award subsequently issued counts as 1.49 shares against total plan availability. As of December 31, 2015, up to 3,042,433 shares of our common stock remain authorized for delivery under the 2006 Long-Term Incentive Plan. Our nonqualified stock options have seven to 20 year terms and vest equally over a three-year service period from the date of the grant. We have granted restricted common stock and stock options to our directors and certain key employees and restricted stock units, payable in cash, to certain key employees. These awards generally require, among other things, that the award holder remain in service to our company during the restriction period, which is currently three years, with a portion of the award vesting equally each year. We also have granted stock equivalent units and long-term performance units to certain key employees that are payable in cash. At December 31, 2015, the long-term performance units outstanding included a three-year grant for 2013-2015 payable in the first quarter of 2016, a three-year grant for 2014-2016 payable in the first quarter of 2017 and a three-year grant for 2015-2017 payable in the first quarter of 2018. Payment is based on the attainment of specified performance goals. Grant value is based on stock price, cumulative EBITDA and free cash flow metrics. In addition, we have granted SARs to certain key employees in our Asian and Indian operations that are payable in cash after a three-year service period. The grant value is indexed to the stock price.

**Accounting Methods** — We have recorded compensation expense (net of taxes) of \$2 million, \$3 million, and \$6 million in the years ended December 31, 2015, 2014 and 2013, respectively, related to nonqualified stock options as part of our selling, general and administrative expense. This resulted in a \$0.03 decrease in basic and diluted earnings per share in 2015, a \$0.06 decrease in basic and diluted earnings per share in 2014, and a \$0.10 decrease in basic and a \$0.09 decrease in diluted earnings per share in 2013.

For employees eligible to retire at the grant date, we immediately expense stock options and restricted stock. If employees become eligible to retire during the vesting period, we immediately recognize any remaining expense associated with their stock options and restricted stock.

As of December 31, 2015, there was approximately \$2 million of unrecognized compensation costs related to our stock options awards that we expect to recognize over a weighted average period of 0.3 years.

Compensation expense for restricted stock, restricted stock units, long-term performance units and SARs (net of taxes) was \$12 million, \$13 million, and \$17 million for each of the years ended 2015, 2014 and 2013, respectively, and was recorded in selling, general, and administrative expense on the consolidated statements of income.

Cash received from stock option exercises was \$4 million in 2015, \$10 million in 2014, and \$15 million in 2013.

Stock option exercises generated an excess tax benefit of \$6 million in 2015, \$12 million in 2014 and \$6 million in 2013. We started to record this tax benefit in the third quarter of 2013 when we began utilizing our federal and state NOLs. We recorded a tax benefit of \$26 million in 2014, of which \$14 million was related to the historic tax benefit on stock options from 2011 to 2013. In 2013, we recorded a tax benefit of \$24 million related to the historic tax benefit on stock options from 2006 through 2011.

Assumptions — We calculated the fair values of stock option awards using the Black-Scholes option pricing model with the weighted average assumptions listed below. The fair value of share-based awards is determined at the time the awards are

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granted which is generally in January of each year, and requires judgment in estimating employee and market behavior. There were no stock options granted in 2015.

	2015	2014	2013	
Stock Options Granted:				
Weighted average grant date fair value, per share	\$—	\$26.46	\$19.84	
Weighted average assumptions used:				
Expected volatility	—	% 52.8	% 66.4	%
Expected lives	0.0	5.0	4.9	
Risk-free interest rates	—	% 1.7	% 0.8	%
Dividends yields	—	% —	% —	%

Expected volatility is calculated based on current implied volatility and historical realized volatility for the Company. Expected lives of options are based upon the historical and expected time to post-vesting forfeiture and exercise. We believe this method is the best estimate of the future exercise patterns currently available.

The risk-free interest rates are based upon the Constant Maturity Rates provided by the U.S. Treasury. For our valuations, we used the continuous rate with a term equal to the expected life of the options.

Stock Options — The following table reflects the status and activity for all options to purchase common stock for the period indicated:

	Year Ended December 31, 2015			
	Shares Under Option	Weighted Avg. Exercise Prices	Weighted Avg. Remaining Life in Years	Aggregate Intrinsic Value (Millions)
Outstanding Stock Options:				
Outstanding, January 1, 2015	1,454,003	\$ 31.16	4.4	\$33
Canceled	(20,427)	) 23.75		
Exercised	(96,997)	) 20.78		3
Outstanding, March 31, 2015	1,336,579	\$ 32.03	4.3	\$31
Forfeited	(7,531)	) 47.36		
Exercised	(141,644)	) 14.68		6
Outstanding, June 30, 2015	1,187,404	\$ 34.00	4.2	\$30
Exercised	(749)	) 19.48		—
Outstanding, September 30, 2015	1,186,655	\$ 33.99	3.9	\$19
Forfeited	(5,066)	) 39.81		
Exercised	(36,870)	) 11.49		1
Outstanding, December 31, 2015	1,144,719	\$ 34.69	3.7	\$19

Of the outstanding 1,144,719 options, 941,607 are currently exercisable and have an intrinsic value of \$18 million, a weighted average exercise price of 31.85 and a weighted average remaining life of 3.8 years.

The weighted average grant-date fair value of options granted during the years 2014 and 2013 was \$26.48 and \$19.91, respectively. There were no stock options granted in 2015. The total intrinsic value of options exercised during the years ended December 31, 2015, 2014, and 2013 was \$10 million, \$30 million and \$19 million, respectively. The total fair value of shares vested was \$6 million in both 2015 and 2014 and \$5 million in 2013.



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Restricted Stock — The following table reflects the status for all nonvested restricted shares for the period indicated:

	Year Ended December 31, 2015	Weighted Avg. Grant Date Fair Value
	Shares	
Nonvested Restricted Shares		
Nonvested balance at January 1, 2015	286,051	\$ 42.35
Granted	350,101	53.40
Vested	(150,171 )	37.86
Nonvested balance at March 31, 2015	485,981	\$ 51.70
Granted	17,164	56.06
Vested	(13,008 )	46.37
Forfeited	(11,034 )	48.85
Nonvested balance at June 30, 2015	479,103	\$ 52.07
Granted	7,824	57.98
Vested	(14,948 )	49.98
Nonvested balance at September 30, 2015	471,979	\$ 52.15
Granted	32,264	44.24
Vested	(1,427 )	35.62
Forfeited	(5,974 )	54.76
Nonvested balance at December 31, 2015	496,842	\$ 51.65

The fair value of restricted stock grants is equal to the average market price of our stock at the date of grant. As of December 31, 2015, approximately \$15 million of total unrecognized compensation costs related to restricted stock awards is expected to be recognized over a weighted-average period of approximately 2.4 years.

The weighted average grant-date fair value of restricted stock granted during the years 2015, 2014 and 2013 was \$52.85, \$55.26, and \$36.40, respectively. The total fair value of restricted shares vested was \$7 million in 2015, \$8 million in 2014 and \$6 million in 2013.

Share Repurchase Program — In January 2013, our Board of Directors approved a share repurchase program, authorizing our company to repurchase up to 550,000 shares of our outstanding common stock over a 12 month period. This share repurchase program is intended to offset dilution from shares of restricted stock and stock options issued in 2013 to employees. We purchased 450,000 shares through open market purchases and 100,000 shares from the Tenneco Retirement Plan for Salaried Employees, both of which were funded through cash from operations, at a total cost of \$27 million, at an average price of 49.33 per share. These repurchased shares are held as part of our treasury stock which increased to 2,844,692 shares at December 31, 2013 from 2,294,692 shares at December 31, 2012.

In January 2014, our Board of Directors approved a share repurchase program, authorizing our company to repurchase up to 400,000 shares of our outstanding common stock over a 12 month period. This share repurchase program is intended to offset dilution from shares of restricted stock and stock options issued in 2014 to employees. We purchased 400,000 shares through open market purchases, which were funded through cash from operations, at a total cost of \$22 million, at an average price of \$56.06 per share. These repurchased shares are held as part of our treasury stock which increased to 3,244,692 shares at December 31, 2014 from 2,844,692 shares at December 31, 2013.

In January 2015, our Board of Directors approved a share repurchase program, authorizing our company to repurchase up to \$350 million of our outstanding common stock over a three-year period. In October 2015 our Board of Directors expanded this share repurchase program, authorizing the repurchase of an additional \$200 million of the Company's outstanding common stock. We purchased 4,228,633 shares through open market purchases, which were funded through cash from operations, at a total cost of \$213 million, at an average price of \$50.32 per share. These

repurchased shares are held as part of our treasury stock which increased to 7,473,325 at December 31, 2015 from 3,244,692 at December 31, 2014. We anticipate completing the additional \$200 million share repurchase authorization by the end of 2017.

Long-Term Performance Units, Restricted Stock Units and SARs — Long-term performance units, restricted stock units, and SARs are paid in cash and recognized as a liability based upon their fair value. As of December 31, 2015, \$14 million of total unrecognized compensation costs is expected to be recognized over a weighted-average period of approximately 1.8 years.

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## 9. Preferred Stock

We had 50 million shares of preferred stock (\$0.01 par value) authorized at December 31, 2015 and 2014, respectively. No shares of preferred stock were outstanding at those dates.

## 10. Pension Plans, Postretirement and Other Employee Benefits

Pension benefits are based on years of service and, for most salaried employees, on average compensation. Our funding policy is to contribute to the plans amounts necessary to satisfy the funding requirement of applicable federal or foreign laws and regulations. Of our \$841 million benefit obligation at December 31, 2015, approximately \$770 million required funding under applicable federal and foreign laws. The balance of our benefit obligation, \$71 million, did not require funding under applicable federal or foreign laws and regulations. At December 31, 2015, we had approximately \$657 million in assets to fund that obligation. Pension plan assets were invested in the following classes of securities:

	Percentage of Fair Market Value				
	December 31, 2015		December 31, 2014		
	US	Foreign	US	Foreign	
Equity Securities	51	% 61	% 70	% 60	%
Debt Securities	49	% 30	% 30	% 32	%
Real Estate	—	2	% —	4	%
Other	—	7	% —	% 4	%

The assets of some of our pension plans are invested in trusts that permit commingling of the assets of more than one employee benefit plan for investment and administrative purposes. Each of the plans participating in the trust has interests in the net assets of the underlying investment pools of the trusts. The investments for all our pension plans are recorded at estimated fair value, in compliance with the accounting guidance on fair value measurement.

The following table presents our plan assets using the fair value hierarchy as of December 31, 2015 and 2014, respectively. The fair value hierarchy has three levels based on the methods used to determine the fair value. Level 1 assets refer to those asset values based on quoted market prices in active markets for identical assets at the measurement date. Level 2 assets refer to assets with values determined using significant other observable inputs, and Level 3 assets include values determined with non-observable inputs.

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Asset Category	Fair Value Level as of December 31, 2015					
	US			Foreign		
	Level 1 (Millions)	Level 2	Level 3	Level 1	Level 2	Level 3
Equity securities:						
U.S. large cap	\$33	\$63	\$—	\$28	\$24	\$—
U.S. mid cap	—	8	—	3	5	—
U.S. Small Cap	—	15	—	—	—	—
Non-U.S. large cap	—	—	—	46	66	—
Non-U.S. mid cap	—	25	—	16	15	—
Non-U.S. small cap	—	—	—	—	3	—
Emerging markets	—	8	—	2	4	—
Debt securities:						
U.S. corporate bonds	—	35	—	—	3	—
U.S. other fixed income	—	113	—	—	—	—
Non-U.S. treasuries/government bonds	—	—	—	29	28	—
Non-U.S. corporate bonds	—	—	—	18	21	—
Non-U.S. mortgage backed securities	—	—	—	—	3	—
Non-U.S. municipal obligations	—	—	—	1	—	—
Non-U.S. asset backed securities	—	—	—	—	2	—
Non-U.S. other fixed income	—	—	—	2	—	—
Real Estate:						
Non-U.S. real estate	—	—	—	1	6	—
Other:						
Insurance contracts	—	—	—	—	12	8
Cash held in bank accounts	2	—	—	11	—	—
Total	\$35	\$267	\$—	\$157	\$192	\$8

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Asset Category	Fair Value Level as of December 31, 2014					
	US			Foreign		
	Level 1 (Millions)	Level 2	Level 3	Level 1	Level 2	Level 3
Equity securities:						
U.S. large cap	\$41	\$134	\$—	\$31	\$25	\$—
U.S. mid cap	—	—	—	4	5	—
U.S. Small Cap	—	25	—	—	—	—
Non-U.S. large cap	—	—	—	57	68	—
Non-U.S. mid cap	—	24	—	20	16	—
Non-U.S. small cap	—	—	—	1	6	—
Emerging markets	—	8	—	—	3	—
Debt securities:						
U.S. corporate bonds	—	5	—	—	5	—
U.S. other fixed income	—	95	—	—	—	—
Non-U.S. treasuries/government bonds	—	—	—	41	27	—
Non-U.S. corporate bonds	—	—	—	20	27	—
Non-U.S. mortgage backed securities	—	—	—	—	2	—
Non-U.S. municipal obligations	—	—	—	1	—	—
Non-U.S. asset backed securities	—	—	—	—	—	—
Non-U.S. other fixed income	—	—	—	1	—	—
Real Estate:						
Non-U.S. real estate	—	—	—	—	6	—
Other:						
Insurance contracts	—	—	—	—	13	9
Cash held in bank accounts	2	—	—	4	—	—
Total	\$43	\$291	\$—	\$180	\$203	\$9

Level 1 assets were valued using market prices based on daily net asset value (NAV) or prices available daily through a public stock exchange. Level 2 assets were valued primarily using market prices, sometimes net of estimated realization expenses, and based on broker/dealer markets or in commingled funds where NAV is not available daily or publicly. For insurance contracts, the estimated surrender value of the policy was used to estimate fair market value. Level 3 assets in the Netherlands were valued using an industry standard model based on certain assumptions such as the U-return and estimated technical reserve.

The table below summarizes the changes in the fair value of the Level 3 assets:

	December 31, 2015		December 31, 2014	
	Level 3 Assets		Level 3 Assets	
	US (Millions)	Foreign	US (Millions)	Foreign
Balance at December 31 of the previous year	\$—	\$9	\$—	\$8
Actual return on plan assets:				
Relating to assets still held at the reporting date	—	(1	) —	1
Ending Balance at December 31	\$—	\$8	\$—	\$9

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The following table contains information about significant concentrations of risk, including all individual assets that make up more than 5 percent of the total assets and any direct investments in Tenneco stock:

Asset Category	Fair Value	Level Value	Percentage of Total Assets	
	(Millions)			
2015:				
Tenneco Stock	1	\$33	5.0	%
2014:				
Tenneco Stock	1	\$41	5.6	%

Our investment policy for both our domestic and foreign plans is to invest more heavily in equity securities than debt securities. Targeted pension plan allocations are 70 percent in equity securities and 30 percent in debt securities, with acceptable tolerance levels of plus or minus five percent within each category for our domestic plans. Our foreign plans are individually managed to different target levels depending on the investing environment in each country. In December 2015, in anticipation of an offer to active employees and retirees in the U.S. to receive their pension benefit as a lump sum payment, we reallocated a portion of the U.S. pension plan asset portfolio to a lower percentage of equity securities and a higher percentage of debt securities, resulting in a change in the average composition of the domestic investment portfolio to 51 percent equity and 49 percent debt securities. Following the planned distribution of lump sum settlement payments in December 2016, we expect to reestablish the domestic pension plan asset portfolio back to the targeted mix of 70 percent equity and 30 percent debt securities.

Our approach to determining expected return on plan asset assumptions evaluates both historical returns as well as estimates of future returns, and adjusts for any expected changes in the long-term outlook for the equity and fixed income markets for both our domestic and foreign plans.

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A summary of the change in benefit obligation, the change in plan assets, the development of net amount recognized, and the amounts recognized in the balance sheets for the pension plans and postretirement benefit plan follows:

	Pension		2014		Postretirement	
	2015		2014		2015	2014
	US	Foreign	US	Foreign	US	US
	(Millions)					
Change in benefit obligation:						
Benefit obligation at December 31 of the previous year	\$448	\$483	\$421	\$442	\$143	\$112
Currency rate conversion	—	(46	) —	(41	) —	—
Settlement	(8	) (2	) (53	) —	—	—
Service cost	1	9	1	8	—	—
Interest cost	18	15	20	18	6	6
Administrative expenses/taxes paid	—	(2	) —	(2	) —	—
Plan amendments	—	2	—	—	—	—
Actuarial (gain)/loss	(21	) (17	) 77	73	1	18
Prior period correction	—	—	—	—	—	15
Benefits paid	(22	) (18	) (18	) (17	) (9	) (8
Participants' contributions	—	1	—	2	—	—
Benefit obligation at December 31	\$416	\$425	\$448	\$483	\$141	\$143
Change in plan assets:						
Fair value at December 31 of the previous year	\$334	\$392	\$347	\$379	\$—	\$—
Currency rate conversion	—	(38	) —	(32	) —	—
Settlement	(8	) (2	) (41	) —	—	—
Actual return on plan assets	(11	) 8	23	40	—	—
Administrative expenses/taxes paid	—	(2	) —	(2	) —	—
Employer contributions	9	16	23	22	9	8
Participants' contributions	—	1	—	2	—	—
Benefits paid	(22	) (18	) (18	) (17	) (9	) (8
Fair value at December 31	\$302	\$357	\$334	\$392	\$—	\$—
Development of net amount recognized:						
Unfunded status at December 31	\$(114	) \$(68	) \$(115	) \$(90	) \$(141	) \$(143
Unrecognized cost:						
Actuarial loss	232	144	230	172	49	53
Prior service cost/(credit)	—	5	1	5	(6	) (10
Net amount recognized at December 31	\$118	\$81	\$116	\$87	\$(98	) \$(100
Amounts recognized in the balance sheets as of December 31						
Noncurrent assets	\$—	\$6	\$—	\$8	\$—	\$—
Current liabilities	(2	) (3	) (10	) (3	) (9	) (9
Noncurrent liabilities	(112	) (71	) (105	) (95	) (132	) (134
Net amount recognized	\$(114	) \$(68	) \$(115	) \$(90	) \$(141	) \$(143

Assets of one plan may not be utilized to pay benefits of other plans. Additionally, the prepaid (accrued) pension cost has been recorded based upon certain actuarial estimates as described below. Those estimates are subject to revision in future periods given new facts or circumstances.





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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Net periodic pension costs for the years 2015, 2014 and 2013, consist of the following components:

	2015		2014		2013	
	US	Foreign	US	Foreign	US	Foreign
	(Millions)					
Service cost — benefits earned during the year	\$1	\$9	\$1	\$8	\$1	\$9
Interest cost	17	15	20	18	19	17
Expected return on plan assets	(23	) (21	) (25	) (23	) (22	) (20
Curtailment loss	—	—	—	—	—	—
Settlement loss	4	—	21	—	—	1
Net amortization:						
Actuarial loss	8	8	7	7	9	10
Prior service cost	—	1	—	2	—	1
Net pension costs	\$7	\$12	\$24	\$12	\$7	\$18

Amounts recognized in accumulated other comprehensive loss for pension benefits consist of the following components:

	2015		2014	
	US	Foreign	US	Foreign
	(Millions)			
Net actuarial loss	\$232	\$144	\$230	\$172
Prior service cost	—	5	1	5
	\$232	\$149	\$231	\$177

Amounts recognized for pension and postretirement benefits in other comprehensive income for the year ended December 31, 2015 and 2014 include the following components:

	Year Ended December 31,			2014		
	2015			2014		
	Before-Tax Amount	Tax Benefit	Net-of-Tax Amount	Before-Tax Amount	Tax Benefit	Net-of-Tax Amount
	(Millions)					
Defined benefit pension and postretirement plans:						
Change in total actuarial gain (loss)	\$(7	) \$2	\$(5	) \$(124	) \$35	\$(89
Amortization of prior service cost included in net periodic pension and postretirement cost	(3	) —	(3	) (5	) 1	(4
Amortization of actuarial gain (loss) included in net periodic pension and postretirement cost	23	(4	) 19	18	(5	) 13
Other comprehensive income — pension benefits	\$13	\$(2	) \$11	\$(111	) \$31	\$(80

In 2016, we expect to recognize the following amounts, which are currently reflected in accumulated other comprehensive loss, as components of net periodic benefit cost:

	2016	
	US	Foreign
	(Millions)	
Net actuarial loss	\$7	\$7

Prior service cost	—	1
	\$7	\$8

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The projected benefit obligation, accumulated benefit obligation and fair value of plan assets for all pension plans with accumulated benefit obligations in excess of plan assets at December 31, 2015 and 2014 were as follows:

	December 31, 2015		December 31, 2014	
	US	Foreign	US	Foreign
	(Millions)			
Projected benefit obligation	\$416	\$337	\$448	\$349
Accumulated benefit obligation	416	332	448	344
Fair value of plan assets	302	262	334	253

The following estimated benefit payments are payable from the pension plans to participants:

Year	US		Foreign	
	(Millions)			
2016	\$22		\$17	
2017	30		16	
2018	22		17	
2019	24		20	
2020	24		20	
2021-2025	120		102	

The following assumptions were used in the accounting for the pension plans for the years of 2015, 2014, and 2013:

	2015		2014		
	US	Foreign	US	Foreign	
Weighted-average assumptions used to determine benefit obligations					
Discount rate	4.4	% 3.5	% 4.1	% 3.3	%
Rate of compensation increase	N/A	2.7	% N/A	3.4	%

	2015		2014		2013		
	US	Foreign	US	Foreign	US	Foreign	
Weighted-average assumptions used to determine net periodic benefit cost							
Discount rate	4.1	% 3.2	% 4.8	% 4.3	% 4.1	% 4.2	%
Expected long-term return on plan assets	7.8	% 5.9	% 7.8	% 6.1	% 7.8	% 6.2	%
Rate of compensation increase	N/A	3.0	% N/A	3.3	% N/A	3.4	%

We made contributions of \$25 million to our pension plans during 2015. Based on current actuarial estimates, we believe we will be required to make contributions of \$15 million to those plans during 2016. Pension contributions beyond 2016 will be required, but those amounts will vary based upon many factors, including the performance of our pension fund investments during 2016 and future discount rate changes.

The Company announced and launched a voluntary program offering to buyout former employees vested in the U.S. pension plan during the third quarter of 2014. The process was completed in the fourth quarter of 2014. Based on participant responses, more than 60% of the former employees who were eligible to participate received a buyout. This resulted in a non-cash charge of \$21 million. The cash payments to those former employees who elected to take the buyout were made from the pension plan's assets and did not impact the company's cash flow. This program reduced the outstanding U.S. pension liability by approximately \$50 million.

In February 2016, the Company launched a voluntary program to buy out active employees and retirees who have earned benefits in the U.S. pension plans and announced that the program is expected to be completed by the end of 2016 and will record a non-cash charge at that time. Cash payments to those who elect to take the buyout will be made

from pension plan assets.

We have life insurance plans which provided benefit to a majority of our U.S. employees. We also have postretirement plans for our U.S. employees hired before January 1, 2001. The plans cover salaried employees retiring on or after attaining

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

age 55 who have at least 10 years of service with us. For hourly employees, the postretirement benefit plans generally cover employees who retire according to one of our hourly employee retirement plans. All of these benefits may be subject to deductibles, co-payment provisions and other limitations, and we have reserved the right to change these benefits. For those employees hired after January 1, 2001, we do not provide any postretirement benefits. Our postretirement healthcare and life insurance plans are not funded. The measurement date used to determine postretirement benefit obligations is December 31.

Net periodic postretirement benefit cost for the years 2015, 2014, and 2013, consists of the following components:

	2015	2014	2013
	(Millions)		
Service cost — benefits earned during the year	\$—	\$—	\$—
Interest on accumulated postretirement benefit obligation	6	6	5
Net amortization:			
Actuarial loss	6	4	4
Prior service credit	(4	) (7	) (6
Prior period correction	—	\$9	\$—
Net periodic postretirement benefit cost	\$8	\$12	\$3

In the fourth quarter of 2014, we recorded an \$11 million adjustment to our postretirement medical expense as a result of approximately 170 retirees who were entitled to benefits but had not been included in the prior year calculations of net periodic postretirement benefit cost.

In 2016, we expect to recognize the following amounts, which are currently reflected in accumulated other comprehensive loss, as components of net periodic benefit cost:

	2016
	(Millions)
Net actuarial loss	\$5
Prior service credit	(2
	) \$3

The following estimated postretirement benefit payments are payable from the plan to participants:

Year	Postretirement Benefits (Millions)
2016	\$9
2017	9
2018	9
2019	9
2020	9
2021-2025	44

We do not expect to receive any future subsidies under the Medicare Prescription Drug, Improvement, and Modernization Act.

The weighted-average assumed health care cost trend rate used in determining the 2015 accumulated postretirement benefit obligation was 7.0 percent, declining to 4.5 percent by 2026. For 2014, the health care cost trend rate was 6.5 percent declining to 4.5 percent by 2019 and for 2013, the health care cost trend rate was 7.0 percent declining to 4.5 percent by 2019.

The following assumptions were used in the accounting for postretirement cost for the years of 2015, 2014 and 2013:

	2015	2014
Weighted-average assumptions used to determine benefit obligations		
Discount rate	4.3	% 4.1
		%

Rate of compensation increase

N/A

N/A

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

	2015	2014	2013	
Weighted-average assumptions used to determine net periodic benefit cost				
Discount rate	4.1	% 4.8	% 4.1	%
Rate of compensation increase	N/A	N/A	N/A	

A one-percentage-point increase in the 2015 assumed health care cost trend rates would increase total service and interest cost by \$1 million and would increase the postretirement benefit obligation by \$15 million. A

one-percentage-point decrease in the 2015 assumed health care cost trend rates would decrease the total service and interest cost by \$1 million and decrease the postretirement benefit obligation by \$13 million.

Based on current actuarial estimates, we believe we will be required to make postretirement contributions of approximately \$9 million during 2016.

Effective January 1, 2012, the Tenneco Employee Stock Ownership Plan for Hourly Employees and the Tenneco Employee Stock Ownership Plan for Salaried Employees were merged into one plan called the Tenneco 401(k) Retirement Savings Plan (the "Retirement Savings Plan"). Under the plan, subject to limitations in the Internal Revenue Code, participants may elect to defer up to 75 percent of their salary through contributions to the plan, which are invested in selected mutual funds or used to buy our common stock. We match 100 percent of an employee's contributions up to three percent of the employee's salary and 50 percent of an employee's contributions that are between three percent and five percent of the employee's salary. In connection with freezing the defined benefit pension plans for nearly all U.S. based salaried and non-union hourly employees effective December 31, 2006, and the related replacement of those defined benefit plans with defined contribution plans, we are making additional contributions to the Employee Stock Ownership Plans. We recorded expense for these contributions of approximately \$27 million, \$25 million and \$23 million in 2015, 2014 and 2013, respectively. Matching contributions vest immediately. Defined benefit replacement contributions fully vest on the employee's third anniversary of employment.

#### 11. Segment and Geographic Area Information

We are organized and manage our business along our two major product lines (clean air and ride performance) and three geographic areas (North America; Europe, South America and India; and Asia Pacific), resulting in six operating segments (North America Clean Air, North America Ride Performance, Europe, South America and India Clean Air, Europe, South America and India Ride Performance, Asia Pacific Clean Air and Asia Pacific Ride Performance).

Within each geographical area, each operating segment manufactures and distributes either clean air or ride performance products primarily for the original equipment and aftermarket industries. Each of the six operating segments constitutes a reportable segment. Costs related to other business activities, primarily corporate headquarter functions, are disclosed separately from the six operating segments as "Other." We evaluate segment performance based primarily on earnings before interest expense, income taxes, and noncontrolling interests. Products are transferred between segments and geographic areas on a basis intended to reflect as nearly as possible the "market value" of the products.

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Segment results for 2015, 2014 and 2013 are as follows:

	Clean Air Division			Ride Performance Division			Other	Reclass & Elims	Total
	North America	Europe, South America & India	Asia Pacific	North America	Europe, South America & India	Asia Pacific			
(Millions)									
At December 31, 2015, and for the Year Ended									
Revenues from external customers	\$2,851	\$1,835	\$1,037	\$1,313	\$944	\$229	\$—	\$—	\$8,209
Intersegment revenues	16	100	—	10	28	46	—	(200 )	—
EBIT, Earnings (loss) before interest expense, income taxes, and noncontrolling interests	244	52	121	155	(5 )	39	(87 )	—	519
Total assets	1,209	713	596	692	499	226	—	32	3,967
At December 31, 2014, and for the Year Ended									
Revenues from external customers	\$2,815	\$1,974	\$1,022	\$1,351	\$1,032	\$226	\$—	\$—	\$8,420
Intersegment revenues	25	114	—	10	38	43	—	(230 )	—
EBIT, Earnings (loss) before interest expense, income taxes, and noncontrolling interests	237	59	101	143	40	36	(124 )	—	492
Total assets	1,156	789	593	659	503	227	—	69	3,996
At December 31, 2013, and for the Year Ended									
Revenues from external customers	\$2,658	\$1,934	\$852	\$1,255	\$1,046	\$219	\$—	\$—	\$7,964
Intersegment revenues	8	111	1	10	41	32	—	(203 )	—
EBIT, Earnings (loss) before interest expense, income taxes, and noncontrolling interests	229	57	84	124	(7 )	22	(85 )	—	424
Total assets	1,030	827	544	628	552	213	—	36	3,830



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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following table shows information relating to our external customer revenues for each product or each group of similar products:

	Net Sales		
	Year Ended December 31,		
	2015	2014	2013
	(Millions)		
Clean Air Products & Systems			
Aftermarket	\$318	\$318	\$327
Original Equipment			
OE Value-add	3,489	3,559	3,282
OE Substrate	1,916	1,934	1,835
	5,405	5,493	5,117
	5,723	5,811	5,444
Ride Performance Products & Systems			
Aftermarket	941	976	953
Original Equipment	1,545	1,633	1,567
	2,486	2,609	2,520
Total Revenues	\$8,209	\$8,420	\$7,964

The following customers accounted for 10 percent or more of our net sales in the last three years. The net sales to both customers were across segments.

Customer	2015	2014	2013	
General Motors Company	15	% 15	% 15	%
Ford Motor Company	13	% 13	% 14	%

The following table shows information relating to the geographic regions in which we operate:

	Geographic Area							Consolidated
	United States	China	Germany	Mexico	Canada	Other Foreign(a)	Reclass & Elims	
	(Millions)							
At December 31, 2015, and for the Year Then Ended								
Revenues from external customers(b)	\$3,362	\$1,101	\$807	\$431	\$387	\$2,121	\$—	\$8,209
Long-lived assets(c)	496	203	108	35	41	473	—	1,356
Total assets	1,726	696	258	158	146	1,099	(116 )	3,967
At December 31, 2014, and for the Year Then Ended								
Revenues from external customers(b)	\$3,348	\$1,079	\$955	\$423	\$413	\$2,202	\$—	\$8,420
Long-lived assets(c)	473	192	113	34	52	487	—	1,351
Total assets	1,696	683	319	156	164	1,133	(155 )	3,996
At December 31, 2013, and for the Year Then Ended								
	\$3,144	\$875	\$941	\$397	\$387	\$2,220	\$—	\$7,964

Revenues from

external customers(b)

Long-lived assets(c)	448	158	120	31	59	500	—	1,316
Total assets	1,552	602	358	126	182	1,200	(190 )	3,830

(a) Revenues from external customers and long-lived assets for individual foreign countries other than China, Germany, Mexico, and Canada are not material.

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

(b) Revenues are attributed to countries based on location of the shipper.

(c) Long-lived assets include all long-term assets except goodwill, intangibles and deferred tax assets.

## 12. Commitments and Contingencies

### Capital Commitments

We estimate that expenditures aggregating approximately \$89 million will be required after December 31, 2015 to complete facilities and projects authorized at such date, and we have made substantial commitments in connection with these facilities and projects.

### Lease Commitments

We have long-term leases for certain facilities, equipment and other assets. The minimum lease payments under our non-cancelable operating leases with lease terms in excess of one year are \$38 million in 2016, \$28 million in 2017, \$18 million in 2018, \$13 million in 2019, and \$13 million in 2020 and \$15 million in subsequent years. The minimum lease payments under our non-cancelable capital leases with lease terms in excess of one year are less than \$1 million in each of the next five years. Total rental expense for the year 2015, 2014 and 2013 was \$61 million, \$64 million and \$58 million, respectively.

### Environmental Matters, Legal Proceedings and Product Warranties

We are involved in environmental remediation matters, legal proceedings, claims, investigations and warranty obligations. These matters are typically incidental to the conduct of our business and create the potential for contingent losses. We accrue for potential contingent losses when our review of available facts indicates that it is probable a loss has been incurred and the amount of the loss is reasonably estimable. Each quarter we assess our loss contingencies based upon currently available facts, existing technology, presently enacted laws and regulations and taking into consideration the likely effects of inflation and other societal and economic factors and record adjustments to these reserves as required. As an example, we consider all available evidence including prior experience in remediation of contaminated sites, other companies' cleanup experiences and data released by the United States Environmental Protection Agency or other organizations when we evaluate our environmental remediation contingencies. All of our loss contingency estimates are subject to revision in future periods based on actual costs or new information. With respect to our environmental liabilities, where future cash flows are fixed or reliably determinable, we have discounted those liabilities. We evaluate recoveries separately from the liability and, when they are assured, recoveries are recorded and reported separately from the associated liability in our consolidated financial statements.

### Environmental Matters

We are subject to a variety of environmental and pollution control laws and regulations in all jurisdictions in which we operate. We expense or capitalize, as appropriate, expenditures for ongoing compliance with environmental regulations that relate to current operations. We expense costs related to an existing condition caused by past operations that do not contribute to current or future revenue generation. As of December 31, 2015, we have the obligation to remediate or contribute towards the remediation of certain sites, including one Federal Superfund site. At December 31, 2015, our aggregated estimated share of environmental remediation costs for all these sites on a discounted basis was approximately \$14 million, of which \$2 million is recorded in other current liabilities and \$12 million is recorded in deferred credits and other liabilities in our consolidated balance sheet. For those locations where the liability was discounted, the weighted average discount rate used was 1.8 percent. The undiscounted value of the estimated remediation costs was \$17 million. Our expected payments of environmental remediation costs are estimated to be approximately \$2 million in 2016, \$1 million each year beginning 2017 through 2020 and \$11 million in aggregate thereafter.

Based on information known to us, we have established reserves that we believe are adequate for these costs.

Although we believe these estimates of remediation costs are reasonable and are based on the latest available information, the costs are estimates and are subject to revision as more information becomes available about the extent of remediation required. At some sites, we expect that other parties will contribute to the remediation costs. In

addition, certain environmental statutes provide that our liability could be joint and several, meaning that we could be required to pay in excess of our share of remediation costs. Our understanding of the financial strength of other potentially responsible parties at these sites has been considered, where appropriate, in our determination of our estimated liability. We do not believe that any potential costs associated with our current status as a potentially responsible party in the Federal Superfund site, or as a liable party at the other locations referenced herein, will be material to our consolidated financial position, results of operations, or liquidity.

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Antitrust Investigations

On March 25, 2014, representatives of the European Commission were at Tenneco GmbH's Edenkoben, Germany administrative facility to gather information in connection with an ongoing global antitrust investigation concerning multiple automotive suppliers. On March 25, 2014, we also received a related subpoena from the U.S. Department of Justice ("DOJ").

On November 5, 2014, the DOJ granted us conditional leniency pursuant to an agreement we entered into under the Antitrust Division's Corporate Leniency Policy. This agreement provides us with important benefits in exchange for our self reporting of matters to the DOJ and our continuing full cooperation with the DOJ's resulting investigation. For example, the DOJ will not bring any criminal antitrust prosecution against us, nor seek any criminal fines or penalties, in connection with the matters we reported to the DOJ. Additionally, there are limits on our liability related to any follow on civil antitrust litigation in the U.S. The limits include single rather than treble damages, as well as relief from joint and several antitrust liability with other relevant civil antitrust action defendants. These limits are subject to our satisfying the DOJ and any court presiding over such follow on civil litigation. We cannot provide any assurance as to when such actions will be filed in the future or how they will ultimately be resolved.

Certain other competition agencies are also investigating possible violations of antitrust laws relating to products supplied by our company. We have cooperated and continue to cooperate fully with all of these antitrust investigations, and take other actions to minimize our potential exposure.

Antitrust law investigations and related matters often continue for several years and can result in significant penalties and liability. At this point, we cannot estimate the ultimate impact on our company from investigations into our antitrust compliance and related matters in light of the uncertainties and many variables involved, and there can be no assurance that the ultimate resolution of these matters, including any civil litigation claims, will not have a material adverse effect on our consolidated financial position, results of operations or liquidity.

Other Legal Proceedings, Claims and Investigations

We are also from time to time involved in other legal proceedings, claims or investigations. Some of these matters involve allegations of damages against us relating to environmental liabilities (including, toxic tort, property damage and remediation), intellectual property matters (including patent, trademark and copyright infringement, and licensing disputes), personal injury claims (including injuries due to product failure, design or warning issues, and other product liability related matters), taxes, employment matters, and commercial or contractual disputes, sometimes related to acquisitions or divestitures. Additionally, some of these matters involve allegations relating to legal compliance. For example, one of our Argentine subsidiaries is currently defending itself against a criminal complaint alleging the failure to comply with laws requiring the proceeds of export transactions to be collected, reported and/or converted to local currency within specified time periods. As another example, in the U.S. we are subject to an audit in 11 states with respect to the payment of unclaimed property to those states, spanning a period as far back as over 30 years. While we vigorously defend ourselves against all of these legal proceedings, claims and investigations and take other actions to minimize our potential exposure, in future periods, we could be subject to cash costs or charges to earnings if any of these matters are resolved on unfavorable terms. Although the ultimate outcome of any legal matter cannot be predicted with certainty, based on current information, including our assessment of the merits of the particular claim, except as described above under "Antitrust Investigations," we do not expect the legal proceedings, claims or investigations currently pending against us will have any material adverse impact on our consolidated financial position, results of operations or liquidity.

In addition, for many years we have been and continue to be subject to lawsuits initiated by claimants alleging health problems as a result of exposure to asbestos. Our current docket of active and inactive cases is less than 500 cases nationwide. A small number of claims have been asserted against one of our subsidiaries by railroad workers alleging exposure to asbestos products in railroad cars. The substantial majority of the remaining claims are related to alleged exposure to asbestos in our automotive products although a significant number of those claims appear also to involve occupational exposures sustained in industries other than automotive. We believe, based on scientific and other evidence, it is unlikely that claimants were exposed to asbestos by our former products and that, in any event, they

would not be at increased risk of asbestos-related disease based on their work with these products. Further, many of these cases involve numerous defendants, with the number in some cases exceeding 100 defendants from a variety of industries. Additionally, the plaintiffs either do not specify any, or specify the jurisdictional minimum, dollar amount for damages. As major asbestos manufacturers and/or users continue to go out of business or file for bankruptcy, we may experience an increased number of these claims. We vigorously defend ourselves against these claims as part of our ordinary course of business. In future periods, we could be subject to cash costs or charges to earnings if any of these matters are resolved unfavorably to us. To date, with respect to claims that have proceeded sufficiently through the judicial process, we have regularly achieved favorable resolutions. Accordingly, we presently believe that these asbestos-related claims will not have a material adverse impact on our future consolidated financial position, results of operations or liquidity.

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

## Warranty Matters

We provide warranties on some of our products. The warranty terms vary but range from one year up to limited lifetime warranties on some of our premium aftermarket products. Provisions for estimated expenses related to product warranty are made at the time products are sold or when specific warranty issues are identified on OE products. These estimates are established using historical information about the nature, frequency, and average cost of warranty claims. We actively study trends of our warranty claims and take action to improve product quality and minimize warranty claims. We believe that the warranty reserve is appropriate; however, actual claims incurred could differ from the original estimates, requiring adjustments to the reserve. The reserve is included in both current and long-term liabilities on the balance sheet.

Below is a table that shows the activity in the warranty accrual accounts:

	Year Ended		
	December 31,		
	2015	2014	2013
	(Millions)		
Beginning Balance	\$26	\$24	\$23
Accruals related to product warranties	15	24	20
Reductions for payments made	(18	) (22	) (19
Ending Balance	\$23	\$26	\$24

## 13. Supplemental Guarantor Condensed Consolidating Financial Statement

## Basis of Presentation

Substantially all of our existing and future material domestic 100% owned subsidiaries (which are referred to as the Guarantor Subsidiaries) fully and unconditionally guarantee our senior notes due in 2020 and 2024 on a joint and several basis. However, a subsidiary's guarantee may be released in certain customary circumstances such as a sale of the subsidiary or all or substantially all of its assets in accordance with the indenture applicable to the notes. The Guarantor Subsidiaries are combined in the presentation below.

These consolidating financial statements are presented on the equity method. Under this method, our investments are recorded at cost and adjusted for our ownership share of a subsidiary's cumulative results of operations, capital contributions and distributions, and other equity changes. You should read the condensed consolidating financial information of the Guarantor Subsidiaries in connection with our condensed consolidated financial statements and related notes of which this note is an integral part.

## Distributions

There are no significant restrictions on the ability of the Guarantor Subsidiaries to make distributions to us.

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

## STATEMENT OF COMPREHENSIVE INCOME (LOSS)

	For the Year Ended December 31, 2015					
	Guarantor Subsidiaries	Nonguarantor Subsidiaries	Tenneco Inc. (Parent Company)	Reclass & Elims	Consolidated	
	(Millions)					
Revenues						
Net sales and operating revenues —						
External	\$3,711	\$ 4,498	\$—	\$—	\$8,209	
Affiliated companies	411	558	—	(969	) —	
	4,122	5,056	—	(969	) 8,209	
Costs and expenses						
Cost of sales (exclusive of depreciation and amortization shown below)	3,442	4,372	—	(969	) 6,845	
Engineering, research, and development	70	76	—	—	146	
Selling, general, and administrative	193	295	3	—	491	
Depreciation and amortization of other intangibles	87	116	—	—	203	
	3,792	4,859	3	(969	) 7,685	
Other income (expense)						
Loss on sale of receivables	(1	) (3	) —	—	(4	)
Other income (expense)	41	6	—	(48	) (1	)
	40	3	—	(48	) (5	)
Earnings (loss) before interest expense, income taxes, noncontrolling interests and equity in net370 income from affiliated companies		200	(3	) (48	) 519	
Interest expense —						
External (net of interest capitalized)	(2	) 3	66	—	67	
Affiliated companies (net of interest income)	54	(56	) 2	—	—	
Earnings (loss) before income taxes, noncontrolling interests and equity in net income from affiliated companies	318	253	(71	) (48	) 452	
Income tax expense	43	106	—	—	149	
Equity in net income (loss) from affiliated companies	84	—	318	(402	) —	
Net income (loss)	359	147	247	(450	) 303	
Less: Net income attributable to noncontrolling interests	—	56	—	—	56	
Net income (loss) attributable to Tenneco Inc.	\$359	\$ 91	\$247	\$(450	) \$247	
Comprehensive income (loss) attributable to Tenneco Inc.	\$359	\$ 91	\$127	\$(450	) \$127	



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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

## STATEMENT OF COMPREHENSIVE INCOME (LOSS)

	For the Year Ended December 31, 2014				
	Guarantor Subsidiaries	Nonguarantor Subsidiaries	Tenneco Inc. (Parent Company)	Reclass & Elims	Consolidated
	(Millions)				
Revenues					
Net sales and operating revenues —					
External	\$3,727	\$ 4,693	\$—	\$—	\$8,420
Affiliated companies	403	602	—	(1,005 )	—
	4,130	5,295	—	(1,005 )	8,420
Costs and expenses					
Cost of sales (exclusive of depreciation and amortization shown below)	3,391	4,639	—	(1,005 )	7,025
Engineering, research, and development	81	88	—	—	169
Selling, general, and administrative	211	302	6	—	519
Depreciation and amortization of other intangibles	86	122	—	—	208
	3,769	5,151	6	(1,005 )	7,921
Other income (expense)					
Loss on sale of receivables	—	(4 )	—	—	(4 )
Other income (expense)	26	9	—	(38 )	(3 )
	26	5	—	(38 )	(7 )
Earnings (loss) before interest expense, income taxes, noncontrolling interests and equity in net income from affiliated companies	387	149	(6 )	(38 )	492
Interest expense —					
External (net of interest capitalized)	(1 )	4	88	—	91
Affiliated companies (net of interest income)	73	(75 )	2	—	—
Earnings (loss) before income taxes, noncontrolling interests and equity in net income from affiliated companies	315	220	(96 )	(38 )	401
Income tax expense	94	37	—	—	131
Equity in net income (loss) from affiliated companies	129	—	322	(451 )	—
Net income (loss)	350	183	226	(489 )	270
Less: Net income attributable to noncontrolling interests	—	44	—	—	44
Net income (loss) attributable to Tenneco Inc.	\$350	\$ 139	\$226	\$(489 )	\$226
Comprehensive income (loss) attributable to Tenneco Inc.	\$350	\$ 139	\$41	\$(489 )	\$41

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

## STATEMENT OF COMPREHENSIVE INCOME (LOSS)

	For the Year Ended December 31, 2013				
	Guarantor Subsidiaries	Nonguarantor Subsidiaries	Tenneco Inc. (Parent Company)	Reclass & Elims	Consolidated
	(Millions)				
Revenues					
Net sales and operating revenues —					
External	\$3,498	\$4,466	\$—	\$—	\$7,964
Affiliated companies	350	572	—	(922)	) —
	3,848	5,038	—	(922)	) 7,964
Costs and expenses					
Cost of sales (exclusive of depreciation and amortization shown below)	3,103	4,553	—	(922)	) 6,734
Engineering, research, and development	66	78	—	—	144
Selling, general, and administrative	187	260	6	—	453
Depreciation and amortization of other intangibles	78	127	—	—	205
	3,434	5,018	6	(922)	) 7,536
Other income (expense)					
Loss on sale of receivables	—	(4	) —	—	(4
Other income (expense)	(1	) 59	—	(58	) —
	(1	) 55	—	(58	) (4
Earnings (loss) before interest expense, income taxes, noncontrolling interests, and equity in net income from affiliated companies	413	75	(6	) (58	) 424
Interest expense —					
External (net of interest capitalized)	(2	) 5	77	—	80
Affiliated companies (net of interest income)	70	(72	) 2	—	—
Earnings (loss) before income taxes, noncontrolling interests, and equity in net income from affiliated companies	345	142	(85	) (58	) 344
Income tax expense	60	62	—	—	122
Equity in net income (loss) from affiliated companies	32	—	268	(300)	) —
Net income (loss)	317	80	183	(358)	) 222
Less: Net income attributable to noncontrolling interests	—	39	—	—	39
Net income (loss) attributable to Tenneco Inc.	\$317	\$41	\$183	\$(358)	) \$183
Comprehensive income (loss) attributable to Tenneco Inc.	\$317	\$41	\$231	\$(358)	) \$231

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

## BALANCE SHEET

	December 31, 2015				
	Guarantor Subsidiaries	Nonguarantor Subsidiaries	Tenneco Inc. (Parent Company)	Reclass & Elims	Consolidated
	(Millions)				
<b>ASSETS</b>					
Current assets:					
Cash and cash equivalents	\$2	\$285	\$—	\$—	\$287
Restricted cash	—	1	—	—	1
Receivables, net	299	1,241	—	(428)	) 1,112
Inventories	333	349	—	—	682
Prepayments and other	67	162	—	—	229
Total current assets	701	2,038	—	(428)	) 2,311
Other assets:					
Investment in affiliated companies	1,146	—	891	(2,037)	) —
Notes and advances receivable from affiliates	938	13,291	4,788	(19,017)	) —
Long-term receivables, net	11	2	—	—	13
Goodwill	22	38	—	—	60
Intangibles, net	9	13	—	—	22
Deferred income taxes	122	28	68	—	218
Other	42	47	11	—	100
	2,290	13,419	5,758	(21,054)	) 413
Plant, property, and equipment, at cost	1,281	2,137	—	—	3,418
Less — Accumulated depreciation and amortization	(851)	) (1,324)	) —	—	(2,175)
	430	813	—	—	1,243
Total assets	\$3,421	\$16,270	\$5,758	\$(21,482)	) \$3,967
<b>LIABILITIES AND SHAREHOLDERS' EQUITY</b>					
Current liabilities:					
Short-term debt (including current maturities of long-term debt)					
Short-term debt — non-affiliated	\$—	\$73	\$13	\$—	\$86
Short-term debt — affiliated	164	147	—	(311)	) —
Accounts payable	484	955	—	(63)	) 1,376
Accrued taxes	6	31	—	—	37
Other	125	221	3	(54)	) 295
Total current liabilities	779	1,427	16	(428)	) 1,794
Long-term debt — non-affiliated	—	21	1,103	—	1,124
Long-term debt — affiliated	1,583	13,226	4,208	(19,017)	) —
Deferred income taxes	—	7	—	—	7
Postretirement benefits and other liabilities	424	100	—	—	524
Commitments and contingencies					
Total liabilities	2,786	14,781	5,327	(19,445)	) 3,449
Redeemable noncontrolling interests	—	43	—	—	43
Tenneco Inc. Shareholders' equity	635	1,404	433	(2,039)	) 433

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Noncontrolling interests	—	42	—	—	42
Total equity	635	1,446	433	(2,039	) 475
Total liabilities, redeemable noncontrolling interests and equity	\$3,421	\$ 16,270	\$5,760	\$(21,484	) \$3,967

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

## BALANCE SHEET

	December 31, 2014				
	Guarantor Subsidiaries	Nonguarantor Subsidiaries	Tenneco Inc. (Parent Company)	Reclass & Elims	Consolidated
	(Millions)				
<b>ASSETS</b>					
Current assets:					
Cash and cash equivalents	\$ 10	\$ 272	\$—	\$—	\$ 282
Restricted cash	—	3	—	—	3
Receivables, net	408	1,309	—	(629 )	1,088
Inventories	312	376	—	—	688
Deferred income taxes	49	25	7	—	81
Prepayments and other	96	188	—	—	284
Total current assets	875	2,173	7	(629 )	2,426
Other assets:					
Investment in affiliated companies	1,064	—	764	(1,828 )	—
Notes and advances receivable from affiliates	944	10,589	4,844	(16,377 )	—
Long-term receivables, net	12	—	—	—	12
Goodwill	22	43	—	—	65
Intangibles, net	10	16	—	—	26
Deferred income taxes	76	14	53	—	143
Other	40	53	13	—	106
	2,168	10,715	5,674	(18,205 )	352
Plant, property, and equipment, at cost	1,236	2,254	—	—	3,490
Less — Accumulated depreciation and amortization	(845 )	(1,427 )	—	—	(2,272 )
	391	827	—	—	1,218
Total assets	\$ 3,434	\$ 13,715	\$ 5,681	\$ (18,834 )	\$ 3,996
<b>LIABILITIES AND SHAREHOLDERS' EQUITY</b>					
Current liabilities:					
Short-term debt (including current maturities of long-term debt)					
Short-term debt — non-affiliated	\$—	\$ 54	\$ 6	\$—	\$ 60
Short-term debt — affiliated	243	220	9	(472 )	—
Accounts payable	478	1,000	—	(106 )	1,372
Accrued taxes	(15 )	31	24	—	40
Other	134	241	3	(51 )	327
Total current liabilities	840	1,546	42	(629 )	1,799
Long-term debt — non-affiliated	—	44	1,011	—	1,055
Long-term debt — affiliated	1,730	10,516	4,131	(16,377 )	—
Deferred income taxes	—	18	—	—	18
Postretirement benefits and other liabilities	418	129	—	4	551
Commitments and contingencies					
Total liabilities	2,988	12,253	5,184	(17,002 )	3,423
Redeemable noncontrolling interests	—	35	—	—	35

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Tenneco Inc. Shareholders' equity	446	1,386	497	(1,832	) 497
Noncontrolling interests	—	41	—	—	41
Total equity	446	1,427	497	(1,832	) 538
Total liabilities, redeemable noncontrolling interests and equity	\$3,434	\$ 13,715	\$5,681	\$(18,834	) \$3,996

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

## STATEMENT OF CASH FLOWS

	Year Ended December 31, 2015				Consolidated
	Guarantor Subsidiaries (Millions)	Nonguarantor Subsidiaries	Tenneco Inc. (Parent Company)	Reclass & Elims	
<b>Operating Activities</b>					
Net cash provided (used) by operating activities	\$204	\$ 311	\$49	\$(47 )	\$517
<b>Investing Activities</b>					
Proceeds from sale of assets	—	4	—	—	4
Cash payments for plant, property, and equipment	(114 )	(172 )	—	—	(286 )
Cash payments for software related intangible assets	(16 )	(7 )	—	—	(23 )
Change in restricted cash	—	2	—	—	2
Net cash used by investing activities	(130 )	(173 )	—	—	(303 )
<b>Financing Activities</b>					
Retirement of long-term debt	—	(22 )	(15 )	—	(37 )
Issuance of long-term debt	—	1	—	—	1
Debt issuance cost on long-term debt	—	—	(1 )	—	(1 )
Tax impact from stock-based compensation	—	—	6	—	6
Purchase of common stock under the share repurchase program	—	—	(213 )	—	(213 )
Issuance of common shares	—	—	6	—	6
Increase in bank overdrafts	—	(22 )	—	—	(22 )
Net increase in revolver borrowings and short-term debt excluding current maturities of long-term debt and short-term borrowings secured by accounts receivable	—	20	82	—	102
Net increase (decrease) in short-term borrowings secured by accounts receivable	—	—	30	—	30
Intercompany dividends and net increase (decrease) in intercompany obligations	(82 )	(21 )	56	47	—
Distribution to noncontrolling interests partners	—	(44 )	—	—	(44 )
Net cash provided (used) by financing activities	(82 )	(88 )	(49 )	47	(172 )
Effect of foreign exchange rate changes on cash and cash equivalents	—	(37 )	—	—	(37 )
Increase in cash and cash equivalents	(8 )	13	—	—	5
Cash and cash equivalents, January 1	10	272	—	—	282
Cash and cash equivalents, December 31 (Note)	\$2	\$ 285	\$—	\$—	\$287

Note: Cash and cash equivalents include highly liquid investments with a maturity of three months or less at the date of purchase.





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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

## STATEMENT OF CASH FLOWS

	Year Ended December 31, 2014				Consolidated
	Guarantor Subsidiaries (Millions)	Nonguarantor Subsidiaries	Tenneco Inc. (Parent Company)	Reclass & Elims	
<b>Operating Activities</b>					
Net cash provided (used) by operating activities	\$44	\$ 314	\$21	\$(38 )	\$341
<b>Investing Activities</b>					
Proceeds from sale of assets	—	3	—	—	3
Cash payments for plant, property, and equipment	(106 )	(222 )	—	—	(328 )
Cash payments for software related intangible assets	(5 )	(8 )	—	—	(13 )
Cash payments for net assets purchased	(3 )	—	—	—	(3 )
Change in restricted cash	—	2	—	—	2
Net cash used by investing activities	(114 )	(225 )	—	—	(339 )
<b>Financing Activities</b>					
Retirement of long-term debt	—	(9 )	(453 )	—	(462 )
Issuance of long-term debt	—	45	525	—	570
Debt issuance cost on long-term debt	—	—	(12 )	—	(12 )
Tax impact from stock-based compensation	—	—	26	—	26
Purchase of common stock under the share repurchase program	—	—	(22 )	—	(22 )
Issuance of common shares	—	—	19	—	19
Increase in bank overdrafts	—	6	—	—	6
Net decrease in revolver borrowings and short-term debt excluding current maturities of long-term debt and short-term borrowings secured by accounts receivable	—	(13 )	(57 )	—	(70 )
Net decrease in short-term borrowings secured by accounts receivable	—	—	(10 )	—	(10 )
Intercompany dividends and net increase (decrease) in intercompany obligations	74	(75 )	(37 )	38	—
Capital contribution from noncontrolling interest partner	—	5	—	—	5
Distribution to noncontrolling interests partners	—	(30 )	—	—	(30 )
Net cash provided (used) by financing activities	74	(71 )	(21 )	38	20
Effect of foreign exchange rate changes on cash and cash equivalents	—	(15 )	—	—	(15 )
Increase in cash and cash equivalents	4	3	—	—	7
Cash and cash equivalents, January 1	6	269	—	—	275
Cash and cash equivalents, December 31 (Note)	\$10	\$ 272	\$—	\$—	\$282

Note: Cash and cash equivalents include highly liquid investments with a maturity of three months or less at the date of purchase.

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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

## STATEMENT OF CASH FLOWS

	Year Ended December 31, 2013				Consolidated
	Guarantor Subsidiaries (Millions)	Nonguarantor Subsidiaries	Tenneco Inc. (Parent Company)	Reclass & Elims	
<b>Operating Activities</b>					
Net cash provided (used) by operating activities	\$270	\$ 244	\$48	\$(59 )	\$503
<b>Investing Activities</b>					
Proceeds from sale of assets	1	7	—	—	8
Cash payments for plant, property, and equipment	(102 )	(142 )	—	—	(244 )
Cash payments for software related intangible assets	(19 )	(6 )	—	—	(25 )
Cash payments for net assets purchased	—	(5 )	—	—	(5 )
Net cash used by investing activities	(120 )	(146 )	—	—	(266 )
<b>Financing Activities</b>					
Retirement of long-term debt	—	(2 )	(14 )	—	(16 )
Tax impact from stock-based compensation	—	—	24	—	24
Purchase of common stock under the share repurchase program	—	—	(27 )	—	(27 )
Issuance of common shares	—	—	20	—	20
Increase in bank overdrafts	—	(6 )	—	—	(6 )
Net increase (decrease) in revolver borrowings and short-term debt excluding current maturities of long-term debt	—	(43 )	21	—	(22 )
Net decrease in short-term borrowings secured by accounts receivable	—	—	(40 )	—	(40 )
Intercompany dividends and net increase (decrease) in intercompany obligations	(148 )	121	(32 )	59	—
Purchase of noncontrolling equity interest	—	(69 )	—	—	(69 )
Distribution to noncontrolling interests partners	—	(39 )	—	—	(39 )
Net cash provided (used) by financing activities	(148 )	(38 )	(48 )	59	(175 )
Effect of foreign exchange rate changes on cash and cash equivalents	—	(10 )	—	—	(10 )
Increase (decrease) in cash and cash equivalents	2	50	—	—	52
Cash and cash equivalents, January 1	4	219	—	—	223
Cash and cash equivalents, December 31 (Note)	\$6	\$ 269	\$—	\$—	\$275

Note: Cash and cash equivalents include highly liquid investments with a maturity of three months or less at the date of purchase.



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TENNECO INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

## 14. Quarterly Financial Data (Unaudited)

Quarter	Net Sales and Operating Revenues  (Millions)	Cost of Sales (Excluding Depreciation and Amortization)	Earnings Before Interest Expense, Income Taxes and Noncontrolling Interests	Net Income Attributable to Tenneco Inc.
2015				
1st	\$2,023	\$1,686	\$120	\$49
2nd	2,130	1,764	155	78
3rd	2,025	1,707	116	52
4th	2,031	1,688	128	68
	\$8,209	\$6,845	\$519	\$247
2014				
1st	\$2,094	\$1,754	\$113	\$46
2nd	2,241	1,851	156	81
3rd	2,081	1,735	140	78
4th	2,004	1,685	83	21
	\$8,420	\$7,025	\$492	\$226

Quarter	Basic Earnings per Share of Common Stock	Diluted Earnings per Share of Common Stock
2015		
1st	\$0.81	\$0.80
2nd	1.27	1.26
3rd	0.89	0.88
4th	1.18	1.17
Full Year	4.14	4.11
2014		
1st	\$0.76	\$0.75
2nd	1.34	1.32
3rd	1.29	1.27
4th	0.34	0.33
Full Year	3.72	3.66

Note: The sum of the quarters may not equal the total of the respective year's earnings per share on either a basic or diluted basis due to changes in the weighted average shares outstanding throughout the year.

(The preceding notes are an integral part of the foregoing consolidated financial statements.)

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SCHEDULE II  
 TENNECO INC. AND CONSOLIDATED SUBSIDIARIES  
 SCHEDULE II — VALUATION AND QUALIFYING ACCOUNTS

Description	Balance at Beginning of Year (Millions)	Additions Charged to Costs and Expenses	Charged to Other Accounts	Deductions	Balance at End of Year
Allowance for Doubtful Accounts and Notes Receivable Deducted from Assets to Which it Applies:					
Year Ended December 31, 2015	\$16	4	—	4	\$16
Year Ended December 31, 2014	\$14	4	—	2	\$16
Year Ended December 31, 2013	\$14	1	—	1	\$14

Description	Balance at Beginning of Year (Millions)	Provision Charged (Credited) to Expense	Allowance Changes	Other Additions (Deductions)	Balance at End of Year
Deferred Tax Assets- Valuation Allowance					
Year Ended December 31, 2015	\$139	15	(3	) (24	) \$127
Year Ended December 31, 2014	\$135	15	(3	) (8	) \$139
Year Ended December 31, 2013	\$118	19	8	(10	) \$135

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

None.

ITEM 9A.CONTROLS AND PROCEDURES.

Evaluation of Disclosure Controls and Procedures

An evaluation was carried out under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of our disclosure controls and procedures (as defined in Rule 13a-15(e) and Rule 15d-15(e) under the Securities Exchange Act of 1934) as of the end of the year covered by this report. Based on their evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that the Company's disclosure controls and procedures are effective to ensure that information required to be disclosed by our company in reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms and such information is accumulated and communicated to management as appropriate to allow timely decisions regarding required disclosures.

See Item 8, "Financial Statements and Supplementary Data" for management's report on internal control over financial reporting and the report of our independent registered public accounting firm thereon.

Changes in Internal Control over Financial Reporting

There have been no changes in our internal control over financial reporting during the quarter ended December 31, 2015, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B.OTHER INFORMATION.

None.

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## PART III

## ITEM 10.DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE.

The sections entitled “Election of Directors” and “Corporate Governance” in our definitive Proxy Statement for the Annual Meeting of Stockholders to be held May 18, 2016 are incorporated herein by reference. In addition, Item 4.1 of this Annual Report on Form 10-K, which appears at the end of Part I, is incorporated herein by reference.

A copy of our Code of Ethical Conduct for Financial Managers, which applies to our Chief Executive Officer, Chief Financial Officer, Controller and other key financial managers, is filed as Exhibit 14 to this Form 10-K. We have posted a copy of the Code of Ethical Conduct for Financial Managers on our Internet website at [www.tenneco.com](http://www.tenneco.com). We will make a copy of this code available to any person, without charge, upon written request to Tenneco Inc., 500 North Field Drive, Lake Forest, Illinois 60045, Attn: General Counsel. We intend to satisfy the disclosure requirement under Item 5.05 of Form 8-K and applicable NYSE rules regarding amendments to or waivers of our Code of Ethical Conduct by posting this information on our Internet website at [www.tenneco.com](http://www.tenneco.com).

## ITEM 11.EXECUTIVE COMPENSATION.

The section entitled “Executive Compensation” in our definitive Proxy Statement for the Annual Meeting of Stockholders to be held on May 18, 2016 is incorporated herein by reference.

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

The section entitled “Ownership of Common Stock” in our definitive Proxy Statement for the Annual Meeting of Stockholders to be held on May 18, 2016 is incorporated herein by reference.

## Securities Authorized for Issuance under Equity Compensation Plans

The following table shows, as of December 31, 2015, information regarding outstanding awards available under our compensation plans (including individual compensation arrangements) under which our equity securities may be delivered:

Plan category	(a) Number of securities to be issued upon exercise of outstanding options, warrants and rights(1)	(b) Weighted-average exercise price of outstanding options, warrants and rights	(c) Number of securities available for future issuance (excluding shares in column (a))(1)
Equity compensation plans approved by security holders:			
Stock Ownership Plan(2)	70,575	\$20.14	—
2002 Long-Term Incentive Plan (as amended)(3)	—	\$—	—
2006 Long-Term Incentive Plan (as amended)(4)	1,074,144	\$26.46	3,042,433

Reflects the number of shares of the Company’s common stock. Does not include 278,815 shares that may be issued in settlement of common stock equivalent units that were (i) credited to outside directors as payment for their (1)retainer and other fees or (ii) credited to any of our executive officers who have elected to defer a portion of their compensation. In general, these units are settled in cash. At the option of the Company, however, the units may be settled in shares of the Company’s common stock.

(2) This plan terminated as to new awards on December 31, 2001 (except awards pursuant to commitments outstanding at that date).

(3) This plan terminated as to new awards upon adoption of our 2006 Long-term Incentive Plan (except awards pursuant to commitments outstanding on that date).



Does not include 496,842 shares subject to outstanding restricted stock (vest over time) as of December 31, 2015 that were issued at a weighted average grant date fair value of \$51.65. Under this plan, as of December 31, 2015, a  
(4) maximum of 2,041,901 shares remained available for delivery under full value awards (i.e., bonus stock, stock equivalent units, performance units, restricted stock and restricted stock units).

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ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE.

The subsections entitled “The Board of Directors and its Committees — General” and “Transactions with Related Persons” under the section entitled “Corporate Governance” in our definitive Proxy Statement for the Annual Meeting of Stockholders to be held on May 18, 2016 are incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES.

The sections entitled “Ratify Appointment of Independent Public Accountants — Audit, Audit-Related, Tax and All Other Fees” and “Ratify Appointment of Independent Public Accountants — Pre-Approval Policy” in our definitive Proxy Statement for the Annual Meeting of Stockholders to be held on May 18, 2016 are incorporated herein by reference.

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PART IV

ITEM 15.EXHIBITS, FINANCIAL STATEMENT SCHEDULES.

CONSOLIDATED FINANCIAL STATEMENTS INCLUDED IN ITEM 8

See “Index to Financial Statements of Tenneco Inc. and Consolidated Subsidiaries” set forth in Item 8, “Financial Statements and Supplementary Data” for a list of financial statements filed as part of this Report.

INDEX TO SCHEDULE INCLUDED IN ITEM 8

	Page
<u>Schedule of Tenneco Inc. and Consolidated Subsidiaries — Schedule II — Valuation and qualifying accounts — three years ended December 31, 2015</u>	<u>three</u> <u>120</u>

SCHEDULES OMITTED AS NOT REQUIRED OR INAPPLICABLE

Schedule I — Condensed financial information of registrant

Schedule III — Real estate and accumulated depreciation

Schedule IV — Mortgage loans on real estate

Schedule V — Supplemental information concerning property — casualty insurance operations

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## EXHIBITS

The following exhibits are filed with this Annual Report on Form 10-K for the fiscal year ended December 31, 2015, or incorporated herein by reference (exhibits designated by an asterisk are filed with the report; all other exhibits are incorporated by reference):

## INDEX TO EXHIBITS

Exhibit Number	Description
2	— None.
3.1(a)	— Restated Certificate of Incorporation of the registrant dated December 11, 1996 (incorporated herein by reference to Exhibit 3.1(a) of the registrant's Annual Report on Form 10-K for the year ended December 31, 1997, File No. 1-12387).
3.1(b)	— Certificate of Amendment, dated December 11, 1996 (incorporated herein by reference to Exhibit 3.1(c) of the registrant's Annual Report on Form 10-K for the year ended December 31, 1997, File No. 1-12387).
3.1(c)	— Certificate of Ownership and Merger, dated July 8, 1997 (incorporated herein by reference to Exhibit 3.1(d) of the registrant's Annual Report on Form 10-K for the year ended December 31, 1997, File No. 1-12387).
3.1(d)	— Certificate of Designation of Series B Junior Participating Preferred Stock dated September 9, 1998 (incorporated herein by reference to Exhibit 3.1(d) of the registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 1998, File No. 1-12387).
3.1(e)	— Certificate of Elimination of the Series A Participating Junior Preferred Stock of the registrant dated September 11, 1998 (incorporated herein by reference to Exhibit 3.1(e) of the registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 1998, File No. 1-12387).
3.1(f)	— Certificate of Amendment to Restated Certificate of Incorporation of the registrant dated November 5, 1999 (incorporated herein by reference to Exhibit 3.1(f) of the registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 1999, File No. 1-12387).
3.1(g)	— Certificate of Amendment to Restated Certificate of Incorporation of the registrant dated November 5, 1999 (incorporated herein by reference to Exhibit 3.1(g) of the registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 1999, File No. 1-12387).
3.1(h)	— Certificate of Ownership and Merger merging Tenneco Automotive Merger Sub Inc. with and into the registrant, dated November 5, 1999 (incorporated herein by reference to Exhibit 3.1(h) of the registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 1999, File No. 1-12387).
3.1(i)	— Certificate of Amendment to Restated Certificate of Incorporation of the registrant dated May 9, 2000 (incorporated herein by reference to Exhibit 3.1(i) of the registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2000, File No. 1-12387).
3.1(j)	— Certificate of Ownership and Merger merging Tenneco Inc. with and into the registrant, dated October 27, 2005 (incorporated herein by reference to Exhibit 99.1 of the registrant's Current Report on Form 8-K dated October 28, 2005, File No. 1-12387).
3.2	— By-laws of the registrant, as amended March 4, 2008 (incorporated herein by reference to Exhibit 99.1 of the registrant's Current Report on Form 8-K event date March 4, 2008, File No. 1-12387).
4.1	— Specimen stock certificate for Tenneco Inc. common stock (incorporated herein by reference to Exhibit 4.3 of the registrant's Annual Report on Form 10-K for the year ended December 31, 2006, File No. 1-12387).
4.2(a)	— Fourth Amended and Restated Credit Agreement, dated as of December 8, 2014, among Tenneco Inc., JPMorgan Chase Bank, N.A., as administrative agent, and the other lenders party thereto (incorporated herein by reference to Exhibit 4.1 of the registrant's Current Report on Form 8-K dated December 8, 2014, File No. 1-12387).
4.2(b)	— Amended and Restated Guarantee and Collateral Agreement, dated as of December 8, 2014, among Tenneco Inc., various of its subsidiaries and JPMorgan Chase Bank, N.A., as administrative agent

(incorporated herein by reference to Exhibit 4.2 of the registrant's Current Report on Form 8-K dated December 8, 2014, File No. 1-12387).

- 4.3 — Bank of New York Mellon Trust Company, N.A., as trustee (incorporated herein by reference to Exhibit 4.1 of the registrant's Current Report on Form 8-K filed December 23, 2010, File No. 1-12387).  
Indenture, dated December 23, 2010, among the registrant, various subsidiaries of the registrant and The
- 4.4 — Bank National Association, as trustee (incorporated herein by reference to Exhibit 4.1 of the registrant's Current Report on Form 8-K filed December 5, 2014, File No. 1-12387).  
Indenture, dated December 5, 2014, among the registrant, various subsidiaries of the registrant and U.S,
- 4.5 — First Supplemental Indenture, dated December 5, 2014, among the registrant, various subsidiaries of the registrant and U.S. Bank National Association, as trustee (incorporated herein by reference to Exhibit 4.2 of the registrant's Current Report on Form 8-K filed December 5, 2014, File No. 1-12387).

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Exhibit Number	Description
4.6	— The registrant is a party to other agreements for unregistered long-term debt securities, which do not exceed 10% of the registrant's total assets. The registrant agrees to furnish a copy of such agreements to the Commission upon request.
9	— None
+10.1	— Change of Control Severance Benefits Plan for Key Executives (incorporated herein by reference to Exhibit 10.13 of the registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 1999, File No. 1-12387).
+10.2	— Stock Ownership Plan (incorporated herein by reference to Exhibit 10.14 of the registrant's Registration Statement on Form S-4, Reg. No. 333-93757).
+10.3	— Key Executive Pension Plan (incorporated herein by reference to Exhibit 10.11 of the registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2000, File No. 1-12387).
+10.4	— Deferred Compensation Plan (incorporated herein by reference to Exhibit 10.12 of the registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2000, File No. 1-12387).
+10.5	— Supplemental Executive Retirement Plan (incorporated herein by reference to Exhibit 10.13 of the registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2000, File No. 1-12387).
+10.6	— Amendment No. 1 to Change in Control Severance Benefits Plan for Key Executives (incorporated herein by reference to Exhibit 10.23 of the registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2000, File No. 1-12387).
+10.7	— Form of Indemnity Agreement entered into between the registrant and Paul Stecko (incorporated herein by reference to Exhibit 10.29 of the registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2000, File No. 1-12387).
+10.8	— 2002 Long-Term Incentive Plan (As Amended and Restated Effective March 11, 2003) (incorporated herein by reference to Exhibit 10.26 of the registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2003, File No. 1-12387).
+10.9	— Amendment No. 1 to Deferred Compensation Plan (incorporated herein by reference to Exhibit 10.27 of the registrant's Annual Report on Form 10-K for the year ended December 31, 2002, File No. 1-12387).
+10.10	— Form of Stock Option Agreement for employees under the 2002 Long-Term Incentive Plan, as amended (providing for a ten year option term) (incorporated herein by reference to Exhibit 99.2 of the registrant's Current Report on Form 8-K dated January 13, 2005, File No. 1-12387).
+10.11	— Amendment No. 1 to the Key Executive Pension Plan (incorporated herein by reference to Exhibit 10.39 of the registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2005, File No. 1-12387).
+10.12	— Amendment No. 1 to the Supplemental Executive Retirement Plan (incorporated herein by reference to Exhibit 10.40 of the registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2005, File No. 1-12387).
+10.13	— Second Amendment to the Key Executive Pension Plan (incorporated herein by reference to Exhibit 10.41 of the registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2005, File No. 1-12387).
+10.14	— Amendment No. 2 to the Deferred Compensation Plan (incorporated herein by reference to Exhibit 10.42 of the registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2005, File No. 1-12387).
+10.15	— Supplemental Retirement Plan (incorporated herein by reference to Exhibit 10.43 of the registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2005, File No. 1-12387).
+10.16	— Supplemental Pension Plan for Management (incorporated herein by reference to Exhibit 10.45 of the registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2005, File No. 1-12387).
+10.17	— Amended and Restated Value Added ("TAVA") Incentive Compensation Plan, effective January 1, 2006 (incorporated herein by reference to Exhibit 10.47 of the registrant's Annual Report on Form 10-K for the year ended December 31, 2005, File No. 1-12387).
+10.18	—

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Tenneco Inc. 2006 Long-Term Incentive Plan (incorporated herein by reference to Exhibit 99.1 of the registrant's Current Report on Form 8-K, dated May 9, 2006).

+10.19 — Form of Stock Option Agreement for employees under the Tenneco Inc. 2006 Long-Term Incentive Plan (incorporated herein by reference to Exhibit 99.3 of the registrant's Current Report on Form 8-K, dated May 9, 2006).

+10.20 — Form of First Amendment to the Tenneco Inc. Supplemental Pension Plan for Management (incorporated herein by reference to Exhibit 10.56 of the registrant's Annual Report on Form 10-K for the year ended December 31, 2006, File No. 1-12387).

+10.21 — Form of First Amendment to the Tenneco Inc. Supplemental Retirement Plan (incorporated herein by reference to Exhibit 10.57 of the registrant's Annual Report on Form 10-K for the year ended December 31, 2006, File No. 1-12387).

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Exhibit Number	Description
+10.22	— Tenneco Inc. Change in Control Severance Benefit Plan for Key Executives, as Amended and Restated effective December 12, 2007 (incorporated herein by reference to Exhibit 10.61 of the registrant’s Annual Report on Form 10-K for the year ended December 31, 2008, File No. 1-12387).
+10.23	— Amendment No. 2 to Change in Control Severance Benefit Plan for Key Executives (incorporated herein by reference to Exhibit 10.66 of the registrant’s Annual Report on Form 10-K for the year ended December 31, 2008, File No. 1-12387).
+10.24	— Code Section 409A Amendment to 2002 Long-Term Incentive Plan (incorporated herein by reference to Exhibit 10.68 of the registrant’s Annual Report on Form 10-K for the year ended December 31, 2008, File No. 1-12387).
+10.25	— Code Section 409A Amendment to 2006 Long-Term Incentive Plan (incorporated herein by reference to Exhibit 10.69 of the registrant’s Annual Report on Form 10-K for the year ended December 31, 2008, File No. 1-12387).
+10.26	— Code Section 409A Amendment to Supplemental Retirement Plan (incorporated herein by reference to Exhibit 10.71 of the registrant’s Annual Report on Form 10-K for the year ended December 31, 2008, File No. 1-12387).
+10.27	— Code Section 409A Amendment to Supplemental Pension Plan for Management (incorporated herein by reference to Exhibit 10.72 of the registrant’s Annual Report on Form 10-K for the year ended December 31, 2008, File No. 1-12387).
+10.28	— Code Section 409A Amendment to Amended and Restated Value Added (“TAVA”) Incentive Compensation Plan (incorporated herein by reference to Exhibit 10.73 of the registrant’s Annual Report on Form 10-K for the year ended December 31, 2008, File No. 1-12387).
+10.29	— Tenneco Inc. 2006 Long-Term Incentive Plan (as amended and restated effective March 11, 2009) (incorporated herein by reference to Appendix A of the registrant’s proxy statement on Schedule 14A, filed with the Securities and Exchange Commission on March 31, 2009, File No. 1-12387).
+10.30	— Amendment No. 2, effective January 15, 2010, to Amended and Restated Tenneco Value Added Incentive Compensation Plan (incorporated herein by reference to Exhibit 10.70 of the registrant’s Annual Report on Form 10-K for the year ended December 31, 2009, File No. 1-12387).
+10.31	— Form of Tenneco Inc. Three Year Long-Term Performance Unit Award Agreement (incorporated herein by reference to Exhibit 10.1 of the registrant’s Current Report on Form 8-K dated as of March 15, 2010, File No. 1-12387).
+10.32	— First Amendment to Tenneco Inc. Change in Control Severance Benefit Plan for Key Executives, as Amended and Restated effective December 12, 2007 (incorporated herein by reference to Exhibit 10.3 of the registrant’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2011, File No. 1-12387).
+10.33	— Form of Restricted Stock Award for Non-Employee Directors under Tenneco Inc. 2006 Long-Term Incentive Plan (incorporated herein by reference to Exhibit 10.1 of the registrant’s Current Report on Form 8-K dated January 18, 2012, File No. 1-12387).
+10.34	— Form of Non-Qualified Stock Option Agreement for Employees under Tenneco Inc. 2006 Long-Term Incentive Plan (incorporated herein by reference to Exhibit 10.3 of the registrant’s Current Report on Form 8-K dated January 18, 2012, File No. 1-12387).
+10.35	— Letter Agreement between Tenneco Inc. and Gregg M. Sherrill (incorporated herein by reference to Exhibit 99.2 of the registrant’s Current Report on Form 8-K dated as of January 5, 2007. File No. 1-12387).
+10.36	— Letter Agreement between Tenneco Inc. and Gregg M. Sherrill, dated as of January 15, 2007 (incorporated herein by reference to Exhibit 99.1 of the registrant’s Current Report on Form 8-K dated as of January 15, 2007, File No. 1-12387).
+10.37	— Code Section 409A Amendment to Letter Agreement between the registrant and Gregg M. Sherrill (incorporated herein by reference to Exhibit 10.74 of the registrant’s Annual Report on Form 10-K for the



year ended December 31, 2008, File No. 1-12387).

- +10.38 — General Manager Service Contract, dated as of March 1, 2007, between Heinrich Gillet GmbH and Josep Fornos (incorporated herein by reference from Exhibit 10.87 of the registrant's Annual Report on Form 10-K for the year ended December 31, 2011, File No. 1-12387).
- +10.39 — Letter of Understanding, dated as of January 2012, between Tenneco Inc. and Josep Fornos. Third Amended and Restated Receivables Purchase Agreement, dated as of March 26, 2010, among Tenneco Automotive RSA Company, as Seller, Tenneco Automotive Operating Company Inc., as Servicer, Falcon Asset Securitization Company LLC and Liberty Street Funding LLC, as Conduits, the
- 10.40 — Committed Purchasers from time to time party thereto, JPMorgan Chase Bank, N.A., The Bank of Nova Scotia and Wells Fargo Bank, N.A., as Co-Agents and JPMorgan Chase Bank, N.A., as Administrative Agent (incorporated herein by reference to Exhibit 10.1 of the registrant's Current Report on Form 8-K dated as of March 26, 2010, File No. 1-12387).

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Exhibit Number	Description
10.41	— Intercreditor Agreement, dated as of March 26, 2010, among Tenneco Automotive RSA Company, Tenneco Automotive Operating Company Inc., JPMorgan Chase Bank, N.A. and Wells Fargo Bank, N.A. (incorporated herein by reference to Exhibit 10.2 of the registrant’s Current Report on Form 8-K dated as of March 26, 2010, File No. 1-12387).
10.42	— Omnibus Amendment No. 4, dated as of March 26, 2010, to Receivables Sale Agreements, as amended (incorporated herein by reference to Exhibit 10.3 of the registrant’s Current Report on Form 8-K dated as of March 26, 2010, File No. 1-12387).
10.43	— SLOT Receivables Purchase Agreement, dated as of March 26, 2010, among Tenneco Automotive RSA Company, as Seller, Tenneco Automotive Operating Company Inc., as Servicer, and Wells Fargo Bank, N.A., individually and as SLOT Agent (incorporated herein by reference to Exhibit 10.4 of the registrant’s Current Report on Form 8-K dated as of March 26, 2010, File No. 1-12387).
10.44	— Fourth Amended and Restated Performance Undertaking, dated as of March 26, 2010, by the registrant in favor of Tenneco Automotive RSA Company (incorporated herein by reference to Exhibit 10.5 of the registrant’s Current Report on Form 8-K dated as of March 26, 2010, File No. 1-12387).
10.45	— Amendment No. 1 to Third Amended and Restated Receivables Purchase Agreement, dated as of March 25, 2011, among Tenneco Automotive RSA Company, as Seller, Tenneco Automotive Operating Company Inc., as Servicer, Falcon Asset Securitization Company LLC and Liberty Street Funding LLC, as Conduits, the Committed Purchasers from time to time party thereto, JPMorgan Chase Bank, N.A., The Bank of Nova Scotia and Wells Fargo Bank, N.A., as Co-Agents and JPMorgan Chase Bank, N.A., as Administrative Agent (incorporated herein by reference from Exhibit 10.1 of the registrant’s Current Report on Form 8-K dated as of March 29, 2011, File No. 1-12387).
10.46	— Amendment No. 1 to SLOT Receivables Purchase Agreement, dated as of March 25, 2011, among Tenneco Automotive RSA Company, as Seller, Tenneco Automotive Operating Company Inc. as Servicer, and Wells Fargo Bank, N.A., individually and as SLOT Agent (incorporated herein by reference from Exhibit 10.2 of the registrant’s Current Report on Form 8-K dated as of March 29, 2011, File No. 1-12387).
10.47	— Amendment No. 2 to Third Amended and Restated Receivables Purchase Agreement, dated as of March 23, 2012 (incorporated herein by reference from Exhibit 10.1 of the registrant’s Current Report on Form 8-K dated as of March 26, 2012, File No. 1-12387).
10.48	— Amendment No. 2 to SLOT Receivables Purchase Agreement, dated as of March 23, 2012 (incorporated herein by reference from Exhibit 10.2 of the registrant’s Current Report on Form 8-K dated as of March 26, 2012, File No. 1-12387).
10.49	— Omnibus Amendment No. 5 to Receivables Sale Agreements and Amendment No. 3 to Third Amended and Restated Receivables Purchase Agreement, dated March 22, 2013 (incorporated herein by reference from Exhibit 10.1 of the registrant’s Current Report on Form 8-K dated as of March 22, 2013, File No. 1-12387).
10.50	— Amendment No. 3 to SLOT Receivables Purchase Agreement, dated as of March 22, 2013 (incorporated herein by reference from Exhibit 10.2 of the registrant’s Current Report on Form 8-K dated as of March 22, 2013, File No. 1-12387).
10.51	— Amendment No. 4 to SLOT Receivables Purchase Agreement, dated May 22, 2013 (incorporated herein by reference from Exhibit 10.41 of the registrant’s Current Report on Form 8-K dated as of May 28, 2013, File No. 1-12387).
+10.52	— Tenneco Inc. Executive Bonus Plan (incorporated herein by reference from Exhibit 99.1 of the registrant’s Current Report on Form 8-K dated as of January 15, 2014, File No. 1-12387).
+10.53	— Amended and Restated Tenneco Inc. 2006 Long-Term Incentive Plan (effective March 18, 2013) (incorporated by reference to Appendix A of the Company’s Proxy Statement on Schedule 14A, filed with the Securities and Exchange Commission on April 3, 2013).

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- +10.54 — Form of Restricted Stock Award Agreement for Employees under Tenneco Inc. 2006 Long-Term Incentive Plan (awards after May 21, 2013) (incorporated herein by reference from Exhibit 10.3 of the registrant's Current Report on Form 8-K dated as of May 21, 2013, File No. 1-12387).
- +10.55 — Form of Stock Option Award Agreement for Employees under Tenneco Inc. 2006 Long-Term Incentive Plan (awards after May 21, 2013) (incorporated herein by reference from Exhibit 10.4 of the registrant's Current Report on Form 8-K dated as of May 21, 2013, File No. 1-12387).
- +10.56 — Form of Tenneco Inc. Long-Term Performance Unit Award Agreement under Tenneco Inc. 2006 Long-Term Incentive Plan (grants after January 14, 2014) (incorporated herein by reference from Exhibit 99.2 of the registrant's Current Report on Form 8-K dated as of January 15, 2014, File No. 1-12387).

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Exhibit Number	Description
10.57	— Amendment No. 4 to Third Amended and Restated Receivables Purchase Agreement, dated as of March 21, 2014 (incorporated herein by reference to Exhibit 10.1 of the registrant's Current Report on Form 8-K dated March 21, 2014, File No. 1-12387).
10.58	— Amendment No. 5 to SLOT Receivables Purchase Agreement, dated March 21, 2014 (incorporated herein by reference to Exhibit 10.2 of the registrant's Current Report on Form 8-K dated March 21, 2014, File No. 1-12387).
+10.59	— Offer Letter to Brian J. Kessler dated January 6, 2015 (incorporated herein by reference to Exhibit 10.67 of the registrant's Annual Report on Form 10-K for the year ended December 31, 2014, File No. 1-12387).
+10.60	— Tenneco Inc. Excess Benefit Plan (as amended and restated effective as of January 1, 2013) (incorporated by reference to Exhibit 10.5 of Tenneco Inc.'s Quarterly Report on Form 10-Q for the quarter ended June 30, 2013, File No. 1-12387).
+10.61	— First Amendment to Amended and Restated Tenneco Inc. Excess Benefit Plan (amendment effective as of January 6, 2015) (incorporated by reference to Exhibit 10.5 of Tenneco Inc.'s Quarterly Report on Form 10-Q for the quarter ended March 31, 2015, File No. 1-12387).
+10.62	— Second Amendment to Tenneco Inc. Change in Control Severance Benefit Plan for Key Executives (incorporated by reference to Exhibit 10.1 of registrant's Current Report on form 8-K dated April 28, 2015, File No. 1.12387).
+10.63	— Form of Restricted Stock Award for Brian J. Kessler (January 2015 replacement grant) under Tenneco Inc. 2006 Long-Term Incentive Plan (incorporated herein by reference to Exhibit 10.71 of the registrant's Annual Report on Form 10-K for the year ended December 31, 2014, File No. 1-12387).
10.64	— Amendment No. 5 to Third Amended and Restated Receivables Purchase Agreement, dated as of March 20, 2015 (incorporated herein by reference to Exhibit 10.1 of the registrant's Current Report on Form 8-K dated March 20, 2016, File No. 1-12387).
+10.65	— Amendment No. 6 to SLOT Receivables Purchase Agreement, dated as of March 20, 2015 (incorporated herein by reference to Exhibit 10.2 of the registrant's Current Report on Form 8-K dated March 20, 2015, File No. 1-12387).
+10.66	— Tenneco Inc. Deferred Compensation Plan (as Amended and Restated Effective as of August 1, 2013) (incorporated by reference to Exhibit 10.6 of Tenneco Inc.'s Quarterly Report on Form 10-Q for the quarter ended June 30, 2013, File No. 1-12387).
+10.67	— Tenneco Inc. Incentive Deferral Plan (as Amended and Restated Effective as of August 1, 2013) (incorporated by reference to Exhibit 10.7 of Tenneco Inc.'s Quarterly Report on Form 10-Q for the quarter ended June 30, 2013, File No. 1-12387).
*+10.68	— Letter Agreement dated September 9, 2010 between the registrant and Enrique Orta.
*+10.69	— Letter Agreement dated February 19, 2015 between the registrant and Enrique Orta.
*+10.70	— Amendment dated July 14, 2015 to Letter Agreement dated February 19, 2015 between the registrant and Enrique Orta.
11	— None.
*12	— Computation of Ratio of Earnings to Fixed Charges.
13	— None.
14	— Tenneco Inc. Code of Ethical Conduct for Financial Managers (incorporated herein by reference from Exhibit 99.3 to the registrant's Annual Report on Form 10-K for the year ended December 31, 2002, File No. 1-12387).
16	— None.
18	— None.
*21	— List of Subsidiaries of Tenneco Inc.

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- 22 — None.
- \*23.1 — Consent of PricewaterhouseCoopers LLP.
- \*24.1 — Powers of Attorney.
- \*31.1 — Certification of Gregg M. Sherrill under Section 302 of the Sarbanes-Oxley Act of 2002.
- \*31.2 — Certification of Kenneth R. Trammell under Section 302 of the Sarbanes-Oxley Act of 2002.
- \*32.1 — Certification of Gregg M. Sherrill and Kenneth R. Trammell under Section 906 of the Sarbanes-Oxley Act of 2002.
- 33 — None.

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Exhibit Number	Description
34	— None.
35	— None.
99	— None.
100	— None.
101	— None.
*101.INS	— XBRL Instance Document.
*101.SCH	— XBRL Taxonomy Extension Schema Document.
*101.CAL	— XBRL Taxonomy Extension Calculation Linkbase Document.
*101.DEF	— XBRL Taxonomy Extension Definition Linkbase Document.
*101.LAB	— XBRL Taxonomy Extension Label Linkbase Document.
*101.PRE	— XBRL Taxonomy Extension Presentation Linkbase Document.
* Filed herewith.	
+ Indicates a management contract or compensatory plan or arrangement.	

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SIGNATURES

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

TENNECO INC.

By /S/ GREGG M. SHERRILL  
 Gregg M. Sherrill  
 Chairman and Chief Executive Officer

Date: February 24, 2016

Pursuant to the requirements of the Securities Exchange Act of 1934 this report has been signed by the following persons in the capacities indicated on February 24, 2016.

Signature	Title
/S/ GREGG M. SHERRILL Gregg M. Sherrill	Chairman and Chief Executive Officer and Director (principal executive officer)
/S/ KENNETH R. TRAMMELL Kenneth R. Trammell	Executive Vice President and Chief Financial Officer (principal financial officer)
* John E. Kunz	Vice President and Controller (principal accounting officer)
* Thomas C. Freyman	Director
* Dennis J. Letham	Director
* James S. Metcalf	Director
* Roger B. Porter	Director
* David B. Price, Jr.	Director
* Paul T. Stecko	Director
* Jane L. Warner	Director
* Roger J. Wood	Director
*BY: /S/ KENNETH R. TRAMMELL Kenneth R. Trammell Attorney in fact	

