TENNECO INC
Form 10-K
February 25, 2015
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K
(Mark One)

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

For the fiscal year ended December 31, 2014
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 Lake Forest, IL (Address of principal executive offices)	60045 (Zip Code)

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 þ 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 þ
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 þ 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 þ 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. þ
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

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

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

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

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant as of June 30, 2014, 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, 2014, was approximately $3.9 billion.

Common Stock, par value $.01 per share, outstanding as of February 20, 2015 was 61,288,883.

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 13, 2015	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 thereof), 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;
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changes in distribution channels or competitive conditions in the markets and countries where we operate, including the impact of changes in distribution channels for aftermarket products on our ability to increase or maintain aftermarket sales;

- 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., is 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. Our company serves both original equipment vehicle manufacturers ("OEMs") and the repair and replacement markets, or aftermarket, worldwide. 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 13, 2015.

Independence of Directors

- Seven of our eight 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.

Stock Ownership Guidelines

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- 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 Board of Directors 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 the common stock.

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. 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.

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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 management's announced organizational changes on February 14, 2013 that aligned our business along product lines, effective with the first quarter of 2013, such that our three prior geographic reportable segments have each been split into 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. Prior period segment information has been revised to reflect our new reporting segments.

Net Sales and Operating Revenues:

	2014		2013		2012	
	(Dollar Amounts in Millions)					
Clean Air Division						
North America	$2,840	34 %	$2,666	33 %	$2,512	34 %
Europe, South America & India	2,088	25 %	2,045	26 %	1,827	25 %
Asia Pacific	1,022	12 %	853	11 %	695	9 %
Intergroup sales	(139)	(2)%	(120)	(2)%	(108)	(1)%
Total Clean Air Division	5,811	69 %	5,444	68 %	4,926	67 %
Ride Performance Division						
North America	1,361	16 %	1,265	16 %	1,223	16 %
Europe, South America & India	1,070	13 %	1,087	14 %	1,094	15 %
Asia Pacific	269	3 %	251	3 %	213	3 %
Intergroup sales	(91)	(1)%	(83)	(1)%	(93)	(1)%
Total Ride Performance Division	2,609	31 %	2,520	32 %	2,437	33 %
Total Tenneco Inc.	$8,420	100 %	$7,964	100 %	$7,363	100 %

EBIT:

	2014		2013		2012	
	(Dollar Amounts in Millions)					
Clean Air Division						
North America	$237	48 %	$229	54 %	$202	47 %
Europe, South America & India	59	12 %	57	13 %	54	13 %
Asia Pacific	101	21 %	84	20 %	71	16 %
Total Clean Air Division	397	81 %	370	87 %	327	76 %
Ride Performance Division						
North America	143	29 %	124	29 %	122	28 %

Europe, South America & India	40	8	%	(7)	(1)%	41	10	%
Asia Pacific	36	7	%	22	5 %	5	1	%
Total Ride Performance Division	219	44	%	139	33 %	168	39	%
Other	(124)	(25)%		(85)	(20)%	(67)	(15)%	
Total Tenneco Inc.	$492	100	%	$424	100 %	$428	100	%

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Expenditures for Plant, Property and Equipment:

	2014			2013			2012		
	(Dollar Amounts in Millions)								
Clean Air Division									
North America	$83	26	%	$76	30	%	$75	29	%
Europe, South America & India	84	26	%	61	24	%	56	21	%
Asia Pacific	56	18	%	44	17	%	39	15	%
Total Clean Air Division	223	70	%	181	71	%	170	65	%
Ride Performance Division									
North America	35	11	%	32	13	%	45	17	%
Europe, South America & India	47	15	%	33	13	%	32	12	%
Asia Pacific	10	3	%	6	2	%	15	6	%
Total Ride Performance Division	92	29	%	71	28	%	92	35	%
Other	2	1	%	2	1	%	1	—	%
Total Tenneco Inc.	$317	100	%	$254	100	%	$263	100	%

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

	2014	2013	2012
	(Millions)		
Interest expense (net of interest capitalized)	$91	$80	$105
Income tax expense	131	122	19
Noncontrolling interests	44	39	29

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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 $8.4 billion in 2014. We serve both original equipment manufacturers (OEMs) and replacement markets worldwide through leading brands, including Monroe®, Rancho®, Clevite® Elastomers, Marzocchi®, Axios,™ Kinetic®, and Fric-Rot™ ride performance products and Walker®, XNOx®, Fonos,™ DynoMax® and Thrush® 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” in which parts are sold in large quantities directly for use by OEMs and commercial truck and off-highway engine manufacturers; and (2) “aftermarket” in which replacement parts 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 the 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. In 2014, the number of light vehicles produced in the regions where Tenneco operates was 17.0 million in North America, 27.5 million in Europe, South America and India and 22.8 million in Asia Pacific. Worldwide light vehicle production is forecasted to increase to 89.4 million units in 2015 from approximately 87.4 million units in 2014, according to IHS Automotive. 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. 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

Due to the most recent global economic recession and credit market crisis, light vehicle production experienced a rapid decline in 2008 and the first half of 2009. Production in the aggregate began to recover during the second half of 2009 and some regions have fared better than others. China has grown rapidly since 2007 and while the rate of growth has slowed, the region still grew 8% in 2014. North America, though it took years to recover to its 2007 production levels, grew at a healthy rate of 5% in 2013 and 2014. Production in Europe has stabilized at a lower level and is still 9% below 2007 production levels. India, which like China saw strong growth initially, has now seen a reversal these past two years with production levels declining 4% in 2013 and 2% in 2014. South America bounced back from the effects of the recession rather strongly but has experienced political and

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economic turmoil that has affected production adversely with production in 2014 down 16%. Overall, global light vehicle production in regions where we operate grew 6% in 2012, 4% in 2013 and 3% in 2014.

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 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_2 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, medium and heavy-duty truck 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®. 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 $169 million in 2014, $144 million in 2013, and $126 million in 2012, net of customer reimbursements. Such expenses reimbursed by our customers totaled $159 million in 2014, $169 million in 2013, and $159 million in 2012, 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.

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® 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

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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 to improve vehicle stability and handling that are based on various technologies including its own DriV™ digital valve technology, its Continuously Variable Semi-Active (CVSA) suspension systems and its Kinetic® ride control offerings. We also develop other advanced suspension systems like Actively Controlled Car (ACOCAR)™ to enhance further vehicle safety and control. In 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 fully integrated, functional systems made possible with the development of advanced electronics in addition to innovative, individual vehicle components and parts that may not readily interface together. As a result, successful parts suppliers offer a variety of component products individually as well as integrated modules and systems:

- "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 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, systems and modules. 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 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 OE manufacturers 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 OE manufacturers 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, OE manufacturers 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

OE manufacturers continue to standardize 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. Light vehicle platforms of over one million units are expected to grow from 51 percent to 56 percent of global OE

production from 2014 to 2019.

With such global platforms, OE manufacturers 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

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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 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

From 2003 to 2014, the number of jobber stores had declined in the U.S. Major aftermarket retailers, such as AutoZone and Advance Auto Parts, have worked to expand their retail outlets to sell directly to parts installers, which had historically purchased from local warehouse distributors and jobbers, as they continued to market to individual retail consumers. Many retailers now offer premium brands which are often preferred by parts installers and other commercial customers in addition to standard products which are often selected by individual store buyers.

We are well positioned to respond to these trends. We make and sell high-quality products marketed under premium brands that appeal to aftermarket retailer and their customers. In addition, our breadth of suspension and emissions control products and a reputation for customer service provide benefits to both wholesalers and retailers.

Analysis of Revenues

The table below provides, for each of the years 2012 through 2014, information relating to our net sales and operating revenues, by primary product lines and customer categories.

	Net Sales Year Ended December 31,		
	2014	2013	2012
	(Millions)		
Clean Air Products & Systems			
Aftermarket	$318	$327	$318
Original Equipment			
OE Value-add	3,559	3,282	2,948
OE Substrate(1)	1,934	1,835	1,660
	5,493	5,117	4,608
	5,811	5,444	4,926
Ride Performance Products & Systems			
Aftermarket	976	953	944
Original Equipment	1,633	1,567	1,493
	2,609	2,520	2,437
Total Revenues	$8,420	$7,964	$7,363

(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

In each of our operating segments, we manufacture and market products with leading brand names. Monroe® ride control products and Walker® exhaust products are two of the most recognized brands in the industry. We emphasize product value differentiation with brands such as Monroe®, Kinetic® and Fric-Rot™ (ride performance products), Walker®, and XNOx® (clean air products), DynoMax®, Thrush® (performance clean air products), Rancho® (ride performance products for high performance light trucks), Clevite® Elastomers and Axios™ (noise, vibration and harshness control components), and Marzocchi® (forks and suspensions for two-wheelers).

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

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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 2014, we served more than 70 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 2014.

During 2014, our OE customers included the following manufacturers of light vehicles, commercial trucks and off-highway equipment and engines:

North America	Europe	Asia
AM General	AvtoVAZ	Beijing Automotive
Caterpillar	BMW	BMW
Club Car	Caterpillar	Brilliance Automobile
CNH Industrial	CNH Industrial (Iveco)	Chang'an Automotive
Daimler AG	Daimler AG	China National Heavy-Duty Truck Group
E-Z Go	Deutz AG	Daimler AG
Fiat Chrysler Automobile	Ducati Motor	Dongfeng Motor
Ford Motor	Fiat Chrysler Automobile	Deutz AG
General Motors	Ford Motor	First Auto Works
Harley-Davidson	Gas-Gas Motors	Ford Motor
Honda Motors	Geely Automobile	Geely Automobile
Hyundai Motor	General Motors	General Motors
John Deere	John Deere	Great Wall Motor
Navistar International	Mazda Motor	Hyundai Motor
Nissan Motor	McLaren Automotive	Isuzu Motor Company
Oshkosh Truck	Nissan Motor	Jiangling Motors
Paccar	Paccar	Kubota
Toyota Motor	Porsche	Navistar International
Volkswagen Group	PSA Peugeot Citroen	Nissan Motor
Volvo Global Truck	Renault	SAIC Motor
	Scania	Suzuki Motor
	Suzuki Motor	Toyota Motor
	Tata Motors	Volkswagen Group
	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)	Club Car
Toyota Motor	Daimler AG	Daimler AG
	Fiat Chrysler Automobile	E-Z Go
	Ford Motor	Ford Motor
	General Motors	General Motors
	Hyundai Motor	Isuzu Motor
	MAN SE	Mahindra & Mahindra
	Navistar International	Nissan Motor
	Nissan Motor	Suzuki Motor
	PSA Peugeot Citroen	Tata Motors
	Renault	Toyota Motor
	Scania	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	2014		2013		2012	
General Motors Company	15	%	15	%	17	%
Ford Motor Company	13	%	14	%	15	%

During 2014, 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 Automotive, 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 revenue mix is balanced, with our top 10 aftermarket customers accounting for 59 percent of our net aftermarket sales and our aftermarket sales representing 15 percent of our total net sales in 2014.

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 pleasant, 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 diesel particulate filters or Lean NOx traps;
- Selective Catalytic Reduction (SCR) systems — Devices which reduce NOx emissions from diesel powertrains using injected reductants such as Verband der Automobil industrie e.V.'s AdBlue® or Diesel Exhaust Fluid (DEF);
- Alternative NOx reduction technologies — Devices which reduce NOx emissions from diesel powertrains, by using 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 we sell, we either buy completed catalytic converter systems or procure substrates coated with precious metals which we incorporate into full 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 30 light vehicle manufacturers for use on over 225 light vehicle models, including seven of the top 10 passenger car models produced in Europe and seven of the top 10 light truck models produced in North America for 2014. We also supply clean air products to 28 manufacturers of commercial truck, off-highway and other vehicles including BMW Motorcycle, Caterpillar, CNHTC, Daimler Trucks, Deutz, FAW Truck, Harley-Davidson, John Deere, Kubota, Scania and Weichai Power.

We entered the clean air market 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.™

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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 excess transfer of the vehicle's weight — either from side to side which is called "roll;" from front to rear which is called "pitch;" or up and down, which is called "bounce." Shock absorbers and struts are designed to control the vertical loads placed on tires and thereby provide resistance to vehicle roll, pitch and bounce. They function as safety components and provide a comfortable ride.

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;
- 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;
- Advanced suspension systems — Shock absorbers and suspension systems that electronically adjust a vehicle's performance based on 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 25 light vehicle manufacturers for use on over 193 light vehicle models, including seven of the top 10 passenger car models produced in Europe and eight of the top 10 light truck models produced in North America for 2014. 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 and Marzocchi® front forks for two-wheelers.

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.

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

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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

Our consolidated businesses operate 61 clean air manufacturing facilities worldwide, of which 13 facilities are located in North America, 23 in Europe, South America and India, and 25 in Asia Pacific. We operate 16 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.

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, nine in Europe and 14 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® 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™ technology licensed from Amminex, an engineering and manufacturing company located in Denmark. We also developed

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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

Our consolidated businesses operate 29 ride performance manufacturing facilities worldwide, of which nine facilities are located in North America, 15 in Europe, South America and India, and five 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 grooved-tube, 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 Sensa-Trac® 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 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.

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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 vehicle, commercial truck, off-highway and other vehicle business. 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 markets 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 digital valves being used for ride performance products offering 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 customers and increase vehicle content generally. 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.

Penetrate Adjacent Markets

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, MAN SE, Scania, IVECO, China National Heavy Duty Truck Company, Shanghai Diesel Engine Company, Weichai Power, FAW Group, YuChai, Kubota, Mahindra and Tata Motors. Our 2014 and 2013 revenue generated by our commercial truck, off-highway and other business was 15 percent and 14 percent, of our total OE revenue, respectively.

Expand Geographically

We continue to expand our global footprint into growth regions around the world, extending beyond North America, Europe and South America. In 2011, we relocated and expanded two plants in China and increased our investment in Thailand by acquiring the remaining interest in our clean air joint venture. We continue to develop our Thailand footprint with the goal of using it as a base for our future operations in that region. In 2012, we opened our first manufacturing plant in Japan, a clean air facility located in Osaka, which will support further growth in the region. In 2013, we opened our new clean air manufacturing

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facility in Chakan, India which is located close to key customers in the Pune region. In 2014, we opened our new clean air research, development, and manufacturing facility in Kunshan, China to enhance our engineering capabilities and develop China-specific solutions. As OEMs have expanded in the fast-growing regions of Brazil, Russia, India, China, and Thailand, we have followed, building our capabilities to engineer and produce locally cost-competitive and cutting-edge products, enabling us to capture new business.

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® ride performance products and Walker® 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® Reflex® and Monroe® Sensa-Trac® shock absorbers, Walker® Quiet-Flow® mufflers, Rancho® ride performance products, DynoMax® exhaust products and Walker Ultra® catalytic converters, and in Europe, Walker and Aluminox Pro™ mufflers. Further, we introduced Monroe® Springs and Monro-Magnum® (bus and truck shock line) in Europe and Monroe® Dynamics® and Monroe® Ceramics® brake pads in the United States. 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 market share in the aftermarket business by adding new product offerings and increasing our market coverage of existing brands and products. To this end, we offer an innovative ride performance product, the Quick-Strut®, 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. We adapt our products for use in foreign nameplate vehicles, for example, by introducing the OESpectrum® line of ride performance products. Additionally, we find ways to benefit from the consolidation of, and regional expansion by, our customers and gained business lost by competitors that encountered financial difficulties.

Our success in the aftermarket business strengthens our competitive position with OEMs. We gain timely market and product knowledge that can be used to modify and enhance our offerings for greater customer acceptance. We continue to enhance our product coverage, expanding for example our suite of manifold converters and diesel particulate filters tailored for the aftermarket.

Execute Focused Transactions

We have successfully identified and capitalized on strategic acquisitions and alliances to achieve growth. Through these acquisitions and alliances, we have (1) expanded our product portfolio with complementary technologies; (2) realized incremental business from existing customers; (3) gained access to new customers; and (4) achieved leadership positions in geographic regions outside North America.

We positioned ourselves as a leading exhaust supplier in the rapidly growing Asian region through our operations in China, India and Thailand. In June 2009, we formed a joint venture with Beijing Hainachuan Automotive Parts Company Limited in Beijing that produces clean air exhaust systems for Hyundai. In addition, we continue to serve North American and European OEMs located in China; we supply parts and systems for luxury cars produced by BMW and Audi through our joint venture with Eberspächer International GmbH, and we supply parts and systems for various Ford platforms through our joint venture with Chengdu Lingchuan Mechanical Plant. We established a local engineering center in Shanghai to develop automotive clean air products when our joint venture with Shanghai Tractor and Engine Company, a subsidiary of Shanghai Automotive Industry Corp., was expanded. Also, 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 and from 75 percent to 100 percent in our Thailand clean air company, Walker Exhaust Co. Limited, in August 2011. Further, we formed a joint venture in March 2010 with FAW Sihuan to supply clean air components and systems for passenger and commercial vehicles.

In late 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 late 2012, we signed a nonexclusive Joint Development and

Licensing Agreement with Amminex for the design and development of SOLID-SCR™ systems.
We have exclusive licensing agreements for T.R.U.E.-Clean®, 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.

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

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, and anticipate related costs of approximately $120 million, which includes the closing of the Vittaryd facility in Sweden that we announced in September 2012 and a $7 million charge recorded in the fourth quarter of 2012 related to the impairment of certain assets in the European ride performance business. 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. We expect that most of the remaining expense will be recorded in 2015, and that the company will reach a full savings run rate in 2016. Any plans affecting our European hourly and salaried workforce would be subject to consultation with the relevant employee representatives.

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 2015 and $4 million in 2016.

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, 2014, we had approximately 29,000 employees of whom approximately 41 percent were covered by collective bargaining agreements. European works councils cover 18 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 Canada are scheduled for renegotiation in 2015. In addition, agreements covering plants in Argentina , Brazil and Portugal are expiring in 2015. 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. In general, steel prices have been increasing since 2004 with the exception of a temporary but significant decline in prices as a result of the economic turmoil in 2008 and 2009. We address such 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. As global economies continue to recover, we expect increasing price pressure on key commodities, including rubber, oil and steel.

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

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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.

The economic crisis in 2008 and 2009 and the related worldwide financial industry turmoil resulted in a severe and global tightening of credit and liquidity. These conditions led to low consumer confidence, which resulted in delayed and reduced purchases of durable consumer goods such as automobiles. As a result, our OEM customers significantly reduced their production schedules. In general, light vehicle production has increased since the second half of 2009, although there was weakness in Europe and South America in 2012, in Europe and India in 2013 and in India and South America in 2014. Additionally, production of commercial truck and off-highway vehicles with our content on them has been weaker than expected in certain product applications, such as agricultural and construction equipment in North America for 2014. We cannot assure you that production levels will increase or that they may not decline.

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

For example, as we saw in 2008 and 2009, disruptions in the financial markets 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 difficulties facing our customers and suppliers over the last several years have been primarily financial in nature, other difficulties, such as an inability to meet increased demand as the economy recovers, 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 the 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.

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

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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 business. 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, 2014, 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 several years prior to 2008, substantially all of our North American vehicle manufacturing customers had slowed or maintained at relatively flat levels new vehicle production. In 2009, new vehicle production decreased dramatically in many geographic regions as a result of the global economic crisis. During the second half of 2009 and in 2010, new vehicle production stabilized and began to strengthen from these low production levels. For 2011 through 2014, light vehicle production continued to improve in most geographic regions in which we operate. European production was weak in 2013 but improved in 2014, production in South America declined in 2014 and production in India declined further in 2014. Additionally, production of commercial truck and off-highway vehicles with our content on them has been weaker than expected in certain product applications, such as agricultural and construction equipment in North America for 2014. In addition to the risks inherent in the cyclicality 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.

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 remained at weak production levels in 2013 and 2014. 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 2014 primarily due to the weakening of the Canadian dollar, Argentine Peso, and the Euro against the U.S. dollar, in 2013 primarily due to the weakening of the Canadian dollar, Argentine Peso and Indian Rupee against the U.S. dollar and in 2012 due to the weakening of the Euro against the U.S. dollar. We do not generally seek to mitigate this translation effect

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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 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. In general, commodity prices including steel, oil and rubber, have been increasing since 2004 with the exception of a temporary but significant decline in prices as a result of the economic turmoil in 2008 and 2009. Notwithstanding this temporary decline, the trend of increasing commodity prices has continued. We mitigated these challenges by evaluating alternative materials and processes, reviewing material substitution opportunities, increasing component sourcing and parts assembly in best cost countries as well as 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

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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 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

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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 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.

We may not be able to successfully respond to the changing distribution channels for aftermarket products.

Major automotive aftermarket retailers, such as AutoZone and Advance Auto Parts, have worked to increase their commercial sales by selling directly to automotive parts installers in addition to individual consumers. These installers have historically purchased from their local warehouse distributors and jobbers, who are our more traditional customers. We cannot assure you that we will be able to maintain or increase aftermarket sales through increasing our sales to retailers. Furthermore, because of the cost focus of major retailers, we have occasionally been requested to offer price concessions to them. Our failure to maintain or increase aftermarket sales, or to offset the impact of any reduced sales or pricing through cost improvements, could have an adverse impact on our business and operating results.

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 and 16 percent of our net sales in the fiscal years ended December 31, 2014 and 2013, respectively.

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.

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, 2014, approximately 52 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;

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- 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. For example, during the fiscal year ended December 31, 2012, we recorded non-cash asset impairment charges of $4 million related to the announced closing of our aftermarket clean air plant in Vittaryd, Sweden, and a $7 million asset impairment charge related to certain assets of our European ride performance business. We did not record any non-cash asset impairment charges during the fiscal years ended December 31, 2013 or 2014.

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

As of December 31, 2014, we had approximately $202 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

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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 business operates 61 manufacturing facilities worldwide, of which 13 facilities are located in North America, 23 in Europe, South America and India, and 25 in Asia Pacific. Clean Air business also operates five engineering and technical facilities worldwide and shares three other such facilities with our Ride Performance business. 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 business operates 29 manufacturing facilities worldwide, of which nine facilities are located in North America, 15 in Europe, South America and India, and five in Asia Pacific. Our Ride Performance business also operates seven engineering and technical facilities worldwide and shares three other such facilities with our Clean Air business. 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, Taiwan and United Arab Emirates.

We own 48 and lease 62 of the properties described above. We hold 18 of the above-described international manufacturing facilities through eight 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 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.

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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, 2014, we have the obligation to remediate or contribute towards the remediation of certain sites, including one Federal Superfund site. At December 31, 2014, our aggregated estimated share of environmental remediation costs for all these sites on a discounted basis was approximately $15 million, of which $3 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 2.2 percent. The undiscounted value of the estimated remediation costs was $19 million. Our expected payments of environmental remediation costs are estimated to be approximately $3 million in 2015, $1 million each year beginning 2016 through 2019 and $12 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 towards 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.

We expect to continue to incur legal and related costs pertaining to the ongoing antitrust investigation in 2015. While the quarterly costs we incur in 2015 may be lower than those incurred in 2014, such costs may not be evenly distributed throughout the year.

Other Legal Proceedings, Claims and Investigations

We also from time to time are involved in 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 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

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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, we are subject to lawsuits initiated by a significant number of claimants alleging health problems as a result of exposure to asbestos. In the early 2000's we were named in nearly 20,000 complaints, most of which were filed in Mississippi state court and the vast majority of which made no allegations of exposure to asbestos from our product categories. Most of these claims have been dismissed and our current docket of active and inactive cases is less than 500 cases nationwide. A small number of claims have been asserted by railroad workers alleging exposure to asbestos products in railroad cars manufactured by The Pullman Company, one of our subsidiaries. The substantial majority of the remaining claims are related to alleged exposure to asbestos in our automotive products. Only a small percentage of the claimants allege that they were automobile mechanics and a significant number appear to involve workers in other industries or otherwise do not include sufficient information to determine whether there is any basis for a claim against us. We believe, based on scientific and other evidence, it is unlikely that mechanics 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 25, 2015.

Name and Age	Offices Held
Gregg M. Sherrill (62)	Chairman and Chief Executive Officer
Brian J. Kesseler (48)	Chief Operating Officer
Josep Fornos (62)	Executive Vice President, Clean Air Division
Timothy E. Jackson (58)	Executive Vice President Technology, Strategy and Business Development
Kenneth R. Trammell (54)	Executive Vice President and Chief Financial Officer
Gregg Bolt (55)	Senior Vice President, Global Human Resources and Administration
Michael J. Charlton (56)	Senior Vice President, Global Manufacturing Development
Peng (Patrick) Guo (49)	Senior Vice President and General Manager, Asia Pacific
James D. Harrington (54)	Senior Vice President, General Counsel and Corporate Secretary
Joseph A. Pomaranski (59)	Senior Vice President and General Manager, Global Aftermarket
Paul D. Novas (56)	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. Kesseler - Mr. Kesseler 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. Kesseler also served as the sponsor of Johnson Controls' Manufacturing Operations Council. Mr. Kesseler 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, Clean Air Division in October 2014. He served as Executive Vice President, Ride Performance Division from February 2013 to October 2014. Prior to that, he served 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, 14 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 Executive Vice President and Chief Financial Officer since January 2006. Mr. Trammell was named our Senior Vice President and Chief Financial Officer in September 2003, having served as our Vice President and Controller since September 1999. From April 1997 to November 1999, he served as Corporate Controller of Tenneco Inc. 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.

Michael J. Charlton — Mr. Charlton was named Senior Vice President, Global Manufacturing Development in February 2013. He served as our Senior Vice President, Global Supply Chain Management and Manufacturing from January 2010 to February 2013. Mr. Charlton served as our Vice President, Global Supply Chain Management and Manufacturing from November 2008 through December 2009. Mr. Charlton served as Tenneco's Managing Director for India from January 2008 until November 2008. Prior to that, he served as the operations director for the Company's emission control business in Europe since 2005. Prior to joining Tenneco in 2005, Mr. Charlton held a variety of positions of increasing responsibility at TRW Automotive, the most recent being Lead Director, European Purchasing and Operations for the United Kingdom.

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.

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.

Paul D. Novas — Mr. Novas has served as our Vice President and Controller since July 2006. Mr. Novas served as Vice President, Finance and Administration for Tenneco Europe from January 2004 until July 2006 and as Vice President and Treasurer of Tenneco from November 1999 until January 2004. Mr. Novas joined Tenneco in 1996 as assistant treasurer responsible for corporate finance and North American treasury operations. Prior to joining Tenneco, Mr. Novas worked in the treasurer's office of General Motors Corporation for ten years.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS, AND 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.

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	Sales Prices	
Quarter	High	Low
2014		
1st	$62.75	$52.21
2nd	67.69	56.10
3rd	69.22	52.20
4th	58.08	46.64
2013		
1st	$39.50	$34.55
2nd	47.83	34.26
3rd	52.01	45.30
4th	57.85	48.60

As of February 20, 2015, there were approximately 16,241 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 2014. These purchases include shares withheld upon vesting of restricted stock for minimum tax withholding obligations. We 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 Number of Shares That May Yet be Purchased Under These Plans or Programs
October 2014	1,928	$29.95	—	400,000
November 2014	250,000	$56.49	250,000	150,000
December 2014	154,167	$55.31	150,000	—
Total	406,095		400,000	—

In January 2015, our Board of Directors approved a share repurchase program, authorizing our company to repurchase up to $350 million of the Company’s outstanding common stock over a three year period.

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: Meritor, Inc., American

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Axle & Manufacturing Co., Borg Warner Inc., Cummins Inc., Johnson Controls Inc., Lear Corp., Magna International Inc. and TRW Automotive Holdings Corp. These comparisons assume an initial investment of $100 and the reinvestment of dividends.

	12/31/2009	12/31/2010	12/31/2011	12/31/2012	12/31/2013	12/31/2014
Tenneco Inc.	100.00	232.15	167.96	198.03	319.06	319.29
S&P 500	100.00	115.06	117.49	136.30	180.44	205.14
Peer Group	100.00	184.62	142.83	172.44	268.68	296.50

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.

In connection with the organizational changes announced on February 14, 2013 that aligned our businesses along product lines, effective with 2013, our three prior geographic reportable segments have each been split into two product segments. Beginning with 2013, we are managed and organized 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." Prior period segment information has been revised to reflect our new reporting segments.

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TENNECO INC. AND CONSOLIDATED SUBSIDIARIES
SELECTED CONSOLIDATED FINANCIAL DATA

	Year Ended December 31,				
	2014(a)	2013(b)	2012(c)	2011(d)	2010
	(Millions Except Share and Per Share Amounts)				
Statements of Income (Loss) Data:					
Net sales and operating revenues —					
Clean Air Division					
North America	$2,840	$2,666	$2,512	$2,291	$1,813
Europe, South America & India	2,088	2,045	1,827	1,952	1,562
Asia Pacific	1,022	853	695	625	543
Intergroup sales	(139)	(120)	(108)	(107)	(93)
Total Clean Air Division	5,811	5,444	4,926	4,761	3,825
Ride Performance Division					
North America	1,361	1,265	1,223	1,135	1,019
Europe, South America & India	1,070	1,087	1,094	1,217	1,032
Asia Pacific	269	251	213	179	155
Intergroup sales	(91)	(83)	(93)	(87)	(94)
Total Ride Performance Division	2,609	2,520	2,437	2,444	2,112
Total Tenneco Inc.	$8,420	$7,964	$7,363	$7,205	$5,937
Earnings (loss) before interest expense, income taxes, and noncontrolling interests —					
Clean Air Division					
North America	$237	$229	$202	$172	$114
Europe, South America & India	59	57	54	$79	$50
Asia Pacific	101	84	71	$47	$53
Total Clean Air Division	397	370	327	$298	$217
Ride Performance Division					
North America	143	124	122	$76	$87
Europe, South America & India	40	(7)	41	$69	$55
Asia Pacific	36	22	5	$(6)	$3
Total Ride Performance Division	219	139	168	$139	$145
Other	(124)	(85)	(67)	(58)	(81)
Total Tenneco Inc.	$492	$424	$428	379	281
Interest expense (net of interest capitalized)	91	80	105	108	149
Income tax expense	131	122	19	88	69
Net income (loss)	270	222	304	183	63
Less: Net income attributable to noncontrolling interests	44	39	29	26	24
Net income (loss) attributable to Tenneco Inc.	$226	$183	$275	$157	$39
Weighted average shares of common stock outstanding —					
Basic	60,734,022	60,474,492	59,985,677	59,884,139	59,208,103
Diluted	61,782,508	61,594,062	61,083,510	61,520,160	60,998,694
Basic earnings (loss) per share of common stock	$3.72	$3.03	$4.58	$2.62	$0.65
Diluted earnings (loss) per share of common stock	$3.66	$2.97	$4.50	$2.55	$0.63

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	Years Ended December 31,				
	2014	2013	2012	2011	2010
	(Millions Except Ratio and Percent Amounts)				
Balance Sheet Data (at year end):					
Total assets	$4,010	$3,830	$3,608	$3,337	$3,167
Short-term debt	60	83	113	66	63
Long-term debt	1,069	1,019	1,067	1,158	1,160
Redeemable noncontrolling interests	35	20	15	12	12
Total Tenneco Inc. shareholders' equity	497	433	246	—	(4)
Noncontrolling interests	41	39	45	43	39
Total equity	538	472	291	43	35
Statement of Cash Flows Data:					
Net cash provided by operating activities	$341	$503	$365	$245	$244
Net cash used by investing activities	(339)	(266)	(273)	(224)	(157)
Net cash used by financing activities	20	(175)	(89)	(26)	(30)
Cash payments for plant, property and equipment	(328)	(244)	(256)	(213)	(151)
Other Data:					
EBITDA including noncontrolling interests(e)	$700	$629	$633	$586	$497
Ratio of EBITDA including noncontrolling interests to interest expense	7.69	7.86	6.03	5.43	3.34
Ratio of net debt (total debt less cash and cash equivalents) to EBITDA including noncontrolling interests(f)	1.21	1.31	1.51	1.72	1.99
Ratio of earnings to fixed charges(g)	4.41	4.34	3.55	3.10	1.79

NOTE: Our consolidated financial statements for the three years ended December 31, 2014, which are discussed in the following notes, are included in this Form 10-K under Item 8.

(a) 2014 includes $49 million of restructuring and related costs primarily related to the European cost reduction effort, 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.

(b) 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.

(c) 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.

(d) 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.

(e) 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 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.

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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,				
	2014	2013	2012	2011	2010
	(Millions)				
Net income (loss)	$226	$183	$275	$157	$39
Noncontrolling interests	44	39	29	26	24
Income tax expense	131	122	19	88	69
Interest expense, net of interest capitalized	91	80	105	108	149
Depreciation and amortization of other intangibles	208	205	205	207	216
Total EBITDA including noncontrolling interests	$700	$629	$633	$586	$497

(f) 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 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.

(g) For purposes of computing this ratio, earnings generally consist of income before income taxes and fixed charges 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.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF 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, Marzocchi®, Axios,™ Kinetic™ and Fric-Rot™ ride performance products and Walker®, XNOx®, Fonos,™ DynoMax® and Thrush™ clean air products. We serve more than 70 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 2014. Our aftermarket customers are comprised of full-line and specialty warehouse distributors, retailers, jobbers, installer chains and car dealers. As of December 31, 2014, we operated 90 manufacturing facilities worldwide and employed approximately 29,000 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 2014, light vehicle production continued to improve from recent years in some of the geographic regions in which we operate. Light vehicle production was up five percent in North America, three percent in Europe and eight percent in China.

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South America light vehicle production was down 16 percent, India was down two percent and Australia was down 17 percent from 2013 levels.

In connection with the organizational changes announced on February 14, 2013 that aligned our businesses along product lines, effective with 2013, our three prior geographic reportable segments have each been split into two product segments. Beginning with 2013, we are managed and organized 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." Prior period segment information has been revised to reflect our new reporting segments.

Total revenue for 2014 was $8,420 million, a six percent increase from $7,964 million in 2013. Excluding the impact of currency and substrate sales, revenue was up $483 million from $6,129 million to $6,612 million, driven primarily by stronger OE light vehicle volumes in North America, Europe and China, higher OE commercial truck, off-highway and other revenue in Europe, China and Japan Clean Air and North America Ride Performance and increased aftermarket sales in North America and South America.

Cost of sales: Cost of sales for 2014 was $7,025 million, or 83.4 percent of sales, compared to $6,734 million, or 84.6 percent of sales in 2013. The following table lists the primary drivers behind the change in cost of sales ($ millions).

Year ended December 31, 2013	$6,734
Volume and mix	456
Material	(29)
Currency exchange rates	(122)
Restructuring	(48)
Other Costs	34
Year ended December 31, 2014	$7,025

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

Gross margin: Revenue less cost of sales for 2014 was $1,395 million, or 16.6 percent of sales, versus $1,230 million, or 15.4 percent of sales in 2013. The effects on gross margin resulting from higher volumes, lower restructuring and related expenses and lower net material costs was partially offset by higher other costs, mainly manufacturing and the impact of currency exchange rates.

Engineering, research and development: Engineering, research and development expense was $169 million and $144 million in 2014 and 2013, respectively. Increased spending to support customer programs and lower recoveries drove the year-over-year increase.

Selling, general and administrative (SG&A): Selling, general and administrative expense was up $66 million in 2014, at $519 million, compared to $453 million in 2013. The year-over-year increase is due to higher compensation related accruals, higher legal and related costs related to the ongoing anti-trust investigation, growth in emerging markets and other corporate expenses.

Depreciation and amortization: Depreciation and amortization expense was $208 million and $205 million for 2014 and 2013, respectively.

Earnings before interest expense, taxes and noncontrolling interests (“EBIT”) was $492 million for 2014, an increase of $68 million, when compared to $424 million in the prior year. Higher light vehicle volumes globally, commercial truck and off-highway revenue growth, new platforms and an increase in commercial vehicle content, higher aftermarket sales in North America, lower restructuring and related expenses and savings from prior restructuring

activities were partially offset by higher SG&A and engineering expenses and a $7 million adjustment to workers' compensation reserves in 2014. Currency had a $10 million unfavorable impact on EBIT for 2014.

Results from Operations

Net Sales and Operating Revenues for Years 2014 and 2013

The tables below reflect our revenues for 2014 and 2013. 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

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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 2013 table since this is the base period for measuring the effects of currency during 2014 on our operations. We believe investors find this information useful in understanding period-to-period comparisons in our revenues.

	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

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	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

	Year Ended December 31, 2014 Versus Year Ended December 31, 2013 Dollar and Percent Increase (Decrease)				
	Revenues	Percent	Value-add Revenues excluding Currency	Percent	
	(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 (According to IHS Automotive, January 2015)

	Year Ended December 31,				
	2014	2013	Increase (Decrease)	% Increase (Decrease)	
	(Number of Vehicles in Thousands)				
North America	16,987	16,177	810	5	%
Europe	20,118	19,502	616	3	%
South America	3,820	4,534	(714)	(16)	)%
India	3,598	3,655	(57)	(2)	)%
Total Europe, South America & India	27,536	27,691	(155)	(1)	)%

China	22,575	20,920	1,655	8	%
Australia	175	210	(35)	(17)	%

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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 platforms 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.

Net Sales and Operating Revenues for Years 2013 and 2012

The following tables reflect our revenues for the years of 2013 and 2012. See “Net Sales and Operating Revenues for Years 2014 and 2013” for a description of why we present these reconciliations of revenue.

	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)	$1,629
Europe, South America & India	1,934	663	1,271	(18)	1,289
Asia Pacific	852	142	710	9	701
Total Clean Air Division	5,444	1,835	3,609	(10)	3,619
Ride Performance Division					
North America	1,255	—	1,255	(6)	1,261
Europe, South America & India	1,046	—	1,046	(36)	1,082
Asia Pacific	219	—	219	(3)	222
Total Ride Performance Division	2,520	—	2,520	(45)	2,565
Total Tenneco Inc.	$7,964	$1,835	$6,129	$(55)	$6,184

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	Year Ended December 31, 2012				
	Revenues	Substrate Sales	Value-add Revenues	Currency Impact on Value-add Revenues	Value-add Revenues excluding Currency
	(Millions)				
Clean Air Division					
North America	$2,506	$997	$1,509	$—	$1,509
Europe, South America & India	1,726	570	1,156	—	1,156
Asia Pacific	694	93	601	—	601
Total Clean Air Division	4,926	1,660	3,266	—	3,266
Ride Performance Division					
North America	1,213	—	1,213	—	1,213
Europe, South America & India	1,041	—	1,041	—	1,041
Asia Pacific	183	—	183	—	183
Total Ride Performance Division	2,437	—	2,437	—	2,437
Total Tenneco Inc.	$7,363	$1,660	$5,703	$—	$5,703

	Year Ended December 31, 2013 Versus Year Ended December 31, 2012 Dollar and Percent Increase (Decrease)				
	Revenues	Percent	Value-add Revenues excluding Currency	Percent	
	(Millions Except Percent Amounts)				
Clean Air Division					
North America	$152	6 %	$120	8	%
Europe, South America & India	208	12 %	133	12	%
Asia Pacific	158	23 %	100	17	%
Total Clean Air Division	518	11 %	353	11	%
Ride Performance Division					
North America	42	3 %	48	4	%
Europe, South America & India	5	— %	41	4	%
Asia Pacific	36	20 %	39	21	%
Total Ride Performance Division	83	3 %	128	5	%
Total Tenneco Inc.	$601	8 %	$481	8	%

Light Vehicle Industry Production by Region for Years Ended December 31, 2013 and 2012 (Updated according to IHS Automotive, January 2015)

	Year Ended December 31,			
	2013	2012	Increase (Decrease)	% Increase (Decrease)
	(Number of Vehicles in Thousands)			
North America	16,177	15,434	743	5%
Europe	19,502	19,298	204	1%
South America	4,534	4,291	243	6%
India	3,655	3,802	(147)	(4)%
Total Europe, South America & India	27,691	27,391	300	1%
China	20,920	18,235	2,685	15%
Australia	210	221	(11)	(5)%

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Clean Air revenue was up $518 million in 2013 compared to 2012, driven by higher sales in all the regions. The increase in North American revenues was driven by higher volumes, which accounted for $156 million of the year-over-year change in revenues. Currency had a $1 million unfavorable impact on North American revenues. The increase in European, South American and Indian revenues was mostly driven by higher volumes of $231 million, mainly due to higher year-over-year OE light vehicle and commercial truck and off-highway revenues. Currency had a $15 million unfavorable impact on European, South American and Indian revenues. The increase in Asia Pacific revenues was primarily driven by higher volumes of $166 million, mostly due to higher light vehicle and commercial truck volumes in China. Currency had an $11 million favorable impact on Asia Pacific revenues.

Ride Performance revenue was up $83 million in 2013 compared to 2012, primarily driven by higher sales in all the regions. The increase in North American revenues was primarily driven by higher volumes of $43 million. Currency had a $6 million unfavorable impact on North American revenues. The increase in European, South American and Indian revenues was primarily driven by higher volumes of $25 million. Currency had a $36 million unfavorable impact on European, South American and Indian revenues. The increase in Asia Pacific revenues was driven by higher volumes of $42 million, mostly due to higher light vehicle production volumes in China. Currency had a $3 million unfavorable impact on Asia Pacific revenues.

Earnings before Interest Expense, Income Taxes and Noncontrolling Interests (“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

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:

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	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 last year.

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 a year ago. 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 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

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division for 2014 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 $10 million unfavorable impact on overall company EBIT in 2014 as compared to the prior year.

EBIT for Years 2013 and 2012

	Year Ended December 31,		Change
	2013	2012	
	(Millions)		
Clean Air Division			
North America	$229	$202	$27
Europe, South America & India	57	54	3
Asia Pacific	84	71	13
Total Clean Air Division	370	327	43
Ride Performance Division			
North America	124	122	2
Europe, South America & India	(7)	41	(48)
Asia Pacific	22	5	17
Total Ride Performance Division	139	168	(29)
Other	(85)	(67)	(18)
Total Tenneco Inc.	$424	$428	$(4)

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,	
	2013	2012
	(Millions)	
Clean Air Division		
Europe, South America & India		
Restructuring and related expenses	$8	$7
Asia Pacific		
Restructuring and related expenses	3	—
Total Clean Air Division	$11	$7
Ride Performance Division		
North America		
Restructuring and related expenses	$1	$1
Pullman property recoveries (1)	—	(5)
Europe, South America & India		
Restructuring and related expenses	62	5
Asia impairment charge (2)	—	7
Asia Pacific		
Restructuring and related expenses	2	—
Total Ride Performance Division	$65	$8
Other		
Restructuring and related expenses	$2	$—

(1) Benefit from property recoveries related to transactions originated by The Pullman Company before being acquired by Tenneco in 1996.
(2) Non-cash asset impairment charge related to certain assets of our European ride performance business.

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EBIT for the Clean Air division was $370 million in 2013 compared to $327 million in 2012. EBIT for North America increased $27 million to $229 million in 2013 versus 2012. The benefits to EBIT from higher volumes, the ramp-up on new platforms and operational cost improvements were partially offset by higher engineering investments for customer programs and negative currency. Europe, South America and India's EBIT increased $3 million in 2013 to $57 million from $54 million in 2012. The increase was driven by higher OE revenues partially offset by higher restructuring and related expenses and negative currency. EBIT for Asia Pacific increased $13 million to $84 million in 2013 from $71 million in 2012. The benefits to EBIT from launches of new platforms and higher production volumes, operational cost management and positive currency were partially offset by increased restructuring and related expenses. For the Clean Air division, EBIT included restructuring and related expenses of $11 million in 2013 and $7 million in 2012. Currency had no impact on EBIT of the Clean Air division for 2013 when compared to 2012.
EBIT for the Ride Performance division was $139 million in 2013 compared to $168 million in 2012. EBIT for North America increased $2 million in 2013 to $124 million from $122 million in 2012. The increase was driven by higher OE light vehicle volumes and the ramp-up on new OE platforms, which was partially offset by lower OE commercial truck and off-highway revenues and aftermarket sales, negative currency and costs related to the resolution of an issue related to struts supplied to one particular OE platform. We also recorded a benefit of $5 million in 2012 from property recoveries related to transactions originated by The Pullman Company before being acquired by Tenneco in 1996. Europe, South America and India's EBIT was a loss of $7 million in 2013, compared to $41 million earnings in 2012. The decrease was driven by higher restructuring and related expenses, lower OE light vehicle volumes and negative currency, which was partially offset by new OE platform launches and higher aftermarket volumes. EBIT from Asia Pacific increased $17 million in 2013 to $22 million from 2012. EBIT benefited from higher light vehicle production volumes and operational cost improvements, offset partially by higher restructuring and related expenses. For the Ride Performance division, EBIT included restructuring and related expenses of $65 million in 2013 and $6 million in 2012. We also recorded an asset impairment charge of $7 million in 2012 related to certain assets of our European ride performance business. Currency had a $14 million unfavorable impact on EBIT of the Ride Performance division for 2013 when compared to 2012.
Currency had a $14 million unfavorable impact on overall company EBIT in 2013 as compared to 2012.

EBIT as a Percentage of Revenue for Years 2014, 2013 and 2012

	Year Ended December 31,		
	2014	2013	2012
Clean Air Division			
North America	8%	9%	8%
Europe, South America & India	3%	3%	3%
Asia Pacific	10%	10%	10%
Total Clean Air Division	7%	7%	7%
Ride Performance Division			
North America	11%	10%	10%
Europe, South America & India	4%	(1)%	4%
Asia Pacific	16%	10%	3%
Total Ride Performance Division	8%	6%	7%
Total Tenneco Inc.	6%	5%	6%

In the Clean Air division, EBIT as a percentage of revenues in 2014 was even compared to last year. In North America, EBIT as a percentage of revenues in 2014 was down one percentage point compared to last year. 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 prior year. 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 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.

In the Ride Performance division, EBIT as a percentage of revenues in 2014 was up two percentage points compared to the prior year. In 2014, EBIT as a percentage of revenues for North America was up one percentage point compared to 2013.

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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 the prior year. 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 last year. 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.

In the Clean Air division, EBIT as a percentage of revenues in 2013 was even compared to 2012. In North America, EBIT as a percentage of revenues in 2013 was up one percentage point from 2012. The benefits from higher volumes, the ramp-up on new platforms and operational cost improvements were partially offset by higher engineering investments for customer programs and negative currency. Europe, South America and India's EBIT as a percentage of revenues in 2013 was even compared to 2012. The benefit from higher OE revenues was offset by higher restructuring and related expenses and negative currency. EBIT as a percentage of revenues for Asia Pacific was even in 2013 when compared to 2012. The benefits from launches of new platforms and higher production volumes, operational cost management and positive currency were offset by increased restructuring and related expenses.

In the Ride Performance division, EBIT as a percentage of revenues in 2013 was down one percentage point compared to 2012. In 2013, EBIT as a percentage of revenues for North America was even compared to 2012. The benefits from higher OE light vehicle volumes and the ramp-up on new OE platforms were offset by lower OE commercial truck and off-highway revenues and aftermarket sales, negative currency and costs related to the resolution of an issue related to struts supplied to one particular OE platform. We also recorded a benefit of $5 million in 2012 from property recoveries related to transactions originated by The Pullman Company before being acquired by Tenneco in 1996. EBIT as a percentage of revenues in Europe, South America and India was down five percentage points in 2013 when compared to 2012. The decrease was driven by higher restructuring and related expenses, lower OE light vehicle volumes and negative currency, which was partially offset by new OE platform launches and higher aftermarket volumes. In Asia Pacific, EBIT as a percentage of revenues in 2013 was up seven percentage points from 2012, driven by higher light vehicle production volumes and operational cost improvements, which were offset partially by higher restructuring and related expenses.

Interest Expense, Net of Interest Capitalized

We reported interest expense in 2014 of $91 million ($89 million in our U.S. operations and $2 million in our foreign operations) net of interest capitalized of $5 million, up from $80 million ($77 million in our U.S. operations and $3 million in our foreign 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 the prior year.

We reported interest expense in 2013 of $80 million ($77 million in our U.S. operations and $3 million in our foreign operations) net of interest capitalized of $4 million, down from $105 million ($102 million in our U.S. operations and $3 million in our foreign operations) net of interest capitalized of $4 million in 2012. Included in 2012 was $18 million of expense related to our refinancing activities. Excluding the refinancing expenses, interest expense decreased in 2013 compared to 2012 as a result of lower rates due to the debt refinancing transactions in 2012.

On December 31, 2014, we had $770 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 $301 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 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 reported an income tax expense of $19 million for 2012. The tax expense recorded in 2012 included the impact of the U.S. 2012 valuation allowance release and income generated in lower tax rate jurisdictions, partially offset by the impact of recording a valuation allowance against the tax benefit for tax credits and losses in certain foreign jurisdictions.

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In 2012, we reversed the tax valuation allowance against our net deferred tax assets in the U.S. based on operating improvements we had made, the outlook for light and commercial vehicle production in the U.S. and the positive impact this should have on our U.S. operations. The net income impact of the tax valuation allowance release in the U.S. was a tax benefit of approximately $81 million. 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.

Valuation allowances have been established in certain foreign jurisdictions for deferred tax assets. The valuation allowances recorded against deferred tax assets 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.

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 2012, we incurred $13 million in restructuring and related costs, primarily related to headcount reductions in South America and non-cash asset write downs of $4 million in Europe, of which $10 million was recorded in cost of sales and $3 million was recorded in SG&A. 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.

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

	December 31, 2013 Restructuring Reserve	2014 Expenses	2014 Cash Payments	Impact of Exchange Rates	December 31, 2014 Restructuring Reserve
	(Millions)				
Employee Severance, Termination Benefits and Other Related Costs	$44	44	(43)	(5)	$40

On January 31, 2013, we announced our intent to reduce structural costs in Europe by approximately $60 million annually, and anticipate related costs of approximately $120 million, which includes the closing of the Vittaryd facility in Sweden that we announced in September 2012 and a $7 million charge recorded in the fourth quarter of 2012 related to the impairment of certain assets in the European ride performance business. The $120 million of anticipated costs includes approximately $20 million of non-cash asset write downs, the cost of relocating tooling, equipment and production to other facilities, severance and retention payments to employees and other costs related to these actions. Any plans affecting our European hourly and salaried workforce have been and will be subject to consultation with the relevant employee representatives. 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. We expect that most of the remaining expense will be recorded in 2015, and that the Company will reach a full savings run rate in 2016. As part of our European structural cost reduction initiative, on September 5, 2013, we announced our intent to close our ride performance plant in Gijon, Spain and reduce the workforce at our ride performance plant in Sint-Truiden, Belgium. The actions were subject to consultation with the relevant employee representatives and in total would eliminate approximately 480 jobs in Western Europe while allowing the most efficient use of our capital assets and production capacity across the region. We concluded

the consultation period with employee representatives at Gijon without having reached agreement and on December 17, 2013 notified the Gijon employees' works council that the Company was proceeding with the plant closure. Employee terminations at Gijon were completed by the end of 2013. During the first quarter of 2014, the employees' works council filed suit challenging the decision to close the Gijon plant and the local High Court of Justice of Asturias ruled in favor of the employees' works council. On February 25, 2014, we announced the intention of the Company to appeal that decision to the Supreme Court of Spain in Madrid and at the same time we worked closely with local and European government officials to reach a solution to address the challenge to our restructuring plan by the Gijon plant's employees' works council. In July 2014, we finalized an agreement related to the restructuring with employee representatives at Gijon. In the same month, we also finalized an agreement related to the Sint Truiden restructuring with employee representatives. Under the final agreement for Gijon, the plant re-opened in July 2014 with about half of its prior workforce and will continue to be operated by Tenneco until

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a complete transfer of ownership takes place in 2016. Due to the ongoing operation of the Gijon plant, we now expect total charges related to the actions at the Gijon and Sint-Truiden plants to exceed the previous estimate of $63 million. Overall, however, the total cost of our initiatives to reduce structural costs in Europe remains unchanged from the original estimate of approximately $120 million. In the first quarter of 2014, we announced and finalized the closure of the clean air just-in-time plant in Iwuy, France, due to reduced demand for the plant's products. The actions were subject to the required consultation process with the relevant employee representatives.

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, 2014, we have not excluded any 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 $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. We reported net income attributable to Tenneco Inc. of $275 million or $4.50 per diluted common share for 2012. Included in the results for 2012 were negative impacts from expenses related to our restructuring activities, an asset impairment charge and costs related to our refinancing activities, which were more than offset by the benefit from The Pullman Company property recoveries and net tax benefits which included the net impact of approximately $81 million or $1.33 per diluted common share related to the reversal of the tax valuation allowance on the Company’s U.S. net operating loss position in the third quarter. The net impact of these items increased earnings per diluted common share by $1.18.

Dividends on Common Stock

On January 10, 2001, our Board of Directors eliminated the quarterly dividend on our common stock. There are no current plans to reinstate a dividend on our common stock.

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)

Operating Activities

For 2014, operating activities provided $341 million in cash compared to $503 million in cash provided during last year. 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 the prior year. Inventory represented a cash outflow of $74 million during 2014, compared to a cash inflow of $3 million for the prior year. 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 the prior year.

Investing Activities

Cash used for investing activities was $73 million higher in 2014 compared to the same period a year ago. Cash payments for plant, property and equipment were $328 million in 2014 versus payments of $244 million in 2013, an increase of

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$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 $16 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 ending December 31, 2014 compared to an outflow of $175 million for the year ending 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 3/8 percent to refinance the existing 7 3/4 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.

Cash Flows for 2013 and 2012

	Year Ended December 31,	
	2013	2012
	(Millions)	
Cash provided (used) by:		
Operating activities	$503	$365
Investing activities	(266)	(273)
Financing activities	(175)	(89)

Operating Activities

For 2013, operating activities provided $503 million in cash compared to $365 million in cash provided during 2012. The increase was mainly from working capital improvement. For 2013, cash provided from working capital was $77 million versus $76 million of cash used for working capital in 2012. Receivables were a use of cash of $88 million in 2013 compared to a cash use of $9 million in 2012. Inventory represented a cash inflow of $3 million during 2013, compared to a cash outflow of $72 million for 2012. Accounts payable provided cash of $161 million for the year ended December 31, 2013, compared to cash provided of $12 million for the year ended December 31, 2012. Cash taxes were $109 million for 2013 compared to $80 million in 2012.

Investing Activities

Cash used for investing activities was $7 million lower in 2013 compared to 2012. Cash payments for plant, property and equipment were $244 million in 2013 versus payments of $256 million in 2012, a decrease of $12 million. The majority of spending was to support continued growth in the Clean Air business. In 2012, cash of $7 million was used to acquire certain rights from Combustion Components Associates, Inc. primarily pertaining to clean air technology for stationary reciprocating engine applications. Cash payments for software-related intangible assets were $25 million in 2013 compared to $13 million in 2012. Changes in restricted cash were a use of cash of $5 million in 2013.

Financing Activities

Cash flow from financing activities was an outflow of $175 million for the year ending December 31, 2013 compared to an outflow of $89 million for the year ending December 31, 2012. 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. During 2012, we completed a previously announced stock buyback plan, repurchasing 600,000 shares of our outstanding common stock for $18 million, at an average price of $29.22 per share. In 2013, we paid $69 million to acquire the remaining

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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. Borrowings under our revolving credit facility were $58 million at December 31, 2013 versus $92 million at December 31, 2012. In 2012, refinancing activities included retiring certain of our 8.125 percent senior notes due in 2015 and the $148 million Tranche B Term Facility, adding a new $250 million Tranche A Term Facility and increasing the amount and extending the maturity date of our revolving credit facility. At December 31, 2013, there was $10 million borrowed under the North American accounts receivable securitization programs, whereas at December 31, 2012, there was $50 million outstanding.

Outlook

First Quarter 2015

For the first quarter of 2015, modest industry light vehicle production growth is expected, with IHS forecasting one percent growth in the regions where we operate. Excluding currency, we anticipate total combined OE and aftermarket revenue growth of about four percent, driven primarily by higher light vehicle unit volumes, additional content on commercial truck and off-highway programs to meet environmental regulations, and year-over-year growth in the aftermarket. Based on current exchange rates, we anticipate a currency headwind in the first quarter between four and six percent.

Full Year 2015

In 2015, IHS is forecasting three percent higher industry light vehicle production globally. We anticipate OE light vehicle revenue in 2015 to continue outpacing global industry production, driven by our strong platform position with leading OEMs worldwide, the launch and ramp up of new programs and increased technology content.

We anticipate further weakness in the off-highway industry as well as continued production weakness in commercial trucks in Brazil. However, we expect strong year-over-year revenue growth in our commercial truck and off-highway business, driven by the ramp up of content to meet global emissions requirements, including in China as compliance with emissions regulations increases, as well as new program launches.

Our global aftermarket business is expected to continue to be a steady contributor to revenue performance, driven by our leading market share in key regions.

For the full year 2015, we expect year-over-year total combined OE and aftermarket revenue growth in the range of five percent to eight percent, excluding the impact of currency.

Our revenue growth will continue to be driven by consistent and strong structural growth drivers including increasing global light vehicle industry production; our strong platform position on leading light vehicle programs, especially in the world’s largest and fastest-growing geographic markets; emissions regulations which require new content to meet increasingly stringent requirements for light vehicles, as well as commercial trucks, off-highway equipment, locomotive, marine and stationary engines; increased use of electronically controlled components in vehicle suspensions; and the growing global car parc, which we serve with industry-leading global aftermarket brands. In this respect, beyond 2015, there are no changes to our structural growth outlook excluding the effects of currency exchange rates and market cyclicality.

The revenue estimates presented in this “Outlook” are based on projected customer production schedules, IHS Automotive and Power Systems Research forecasts as of January 2015; 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; our status as supplier for the existing programs and our relationships and experience with our customers; and the actual original equipment revenues achieved by us for each of the last several years compared to the amount of those revenues that we estimated we would generate at the beginning of each year. 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. These values are used to translate foreign revenues to the U.S. dollar. Although such currency values are subject to fluctuations based on the economic conditions in each of our foreign operations, we do not intend to update the annual revenue estimates shown above

due to these fluctuations. We plan to update our revenue guidance during the first quarter of 2016. 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 2015 to be between $300 million and $320 million, our 2015 interest expense to be about $75 million, our 2015 cash taxes to be between $150 million and $175 million and our 2015 tax rate to be between 33 percent and 36 percent.

Liquidity and Capital Resources

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Capitalization

	Year Ended December 31,		% Change	
	2014	2013		
	(Millions)			
Short-term debt and maturities classified as current	$60	$83	(28	)%
Long-term debt	1,069	1,019	5	
Total debt	1,129	1,102	2	
Total redeemable noncontrolling interests	35	20	75	
Total noncontrolling interests	41	39	5	
Tenneco Inc. shareholders' equity	497	433	15	
Total equity	538	472	14	
Total capitalization	$1,702	$1,594	7	%

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 $60 million and $83 million as of December 31, 2014 and December 31, 2013, respectively. Borrowings under our revolving credit facilities, which are classified as long-term debt, were zero and $58 million at December 31, 2014 and December 31, 2013, respectively.

The 2014 year-to-date increase in Tenneco Inc. shareholders' equity primarily resulted from net income attributable to Tenneco Inc. of $226 million and a $45 million increase in premium on common stock and other capital surplus relating to common stock issued pursuant to benefit plans, offset by a $80 million decrease related to pension and postretirement benefits caused primarily by the impact of a decline in the discount rates and a change in the mortality tables used to calculate our pension and postretirement liabilities, a $22 million increase in treasury stock as a result of purchases of common stock under our share purchase program and a $105 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.

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.

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 $^{3}/_{4}$ percent senior notes due in 2018 and for general corporate purposes. As of December 31, 2014, 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, 2014, 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 3/4 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.

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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 3/4 percent senior notes due in 2018 and the write-off of deferred debt issuance costs relating to those notes.

At December 31, 2014, of the $1,200 million available under the revolving credit facility, we had unused borrowing capacity of $1,166 million with zero balance in outstanding borrowings and $34 million in outstanding letters of credit. As of December 31, 2014, our outstanding debt also included $300 million related to our Tranche A Term Facility due December 8, 2019, $225 million of 5 3/8 percent senior notes due December 15, 2024, $500 million of 6 7/8 percent senior notes due December 15, 2020, and $104 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, beginning after we deliver financial statements for the fiscal quarter ending September 30, 2015, 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 2014, are as follows:

	Quarter Ended December 31, 2014		September 30, 2014		June 30, 2014		March 31, 2014	
	Req.	Act.	Req.	Act.	Req.	Act.	Req.	Act.
Leverage Ratio (maximum)	3.50	1.22	3.50	1.55	3.50	1.57	3.50	1.63
Interest Coverage Ratio (minimum)	2.75	11.40	2.75	10.99	2.75	10.62	2.75	10.39

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

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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, 2014, 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, 2014, our outstanding senior notes included $225 million of 5 3/8 percent senior notes due December 15, 2024 and $500 million of 6 7/8 percent senior notes due December 15, 2020. 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 due 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, 2014, 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 2014, the North American program was amended and extended to March 20, 2015. The first priority facility continues to provide financing of up to $110 million and the second priority facility, which is subordinated to the first priority facility, continues to provide up to an additional $40 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 zero at December 31, 2014 and $10 million at December 31, 2013.

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

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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 $153 million and $134 million at December 31, 2014 and December 31, 2013, 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 2014 and 2013 and $3 million for the year ended 2012, relating to our North American securitization program. In addition, we recognized a loss of $4 million for each of the years ended 2014, 2013 and 2012, 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 the year ended 2014 and three percent for the years ended 2013 and 2012, respectively.

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. The amount of these financial instruments that was collected before their maturity date and sold at a discount totaled $1 million and $5 million at December 31, 2014 and December 31, 2013, respectively. No such financial instruments were held by our European subsidiary as of December 31, 2014 and December 31, 2013, 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 $24 million and $12 million at December 31, 2014 and December 31, 2013, respectively, and were classified as notes payable. Financial instruments received from OE customers and not redeemed totaled $17 million and $8 million at December 31, 2014 and December 31, 2013, 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 $17 million and $8 million in other current assets at December 31, 2014 and December 31, 2013, 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. Near the end of the second quarter of 2013 certain of our suppliers in the U.S. extended their payment terms to Tenneco. The liquidity benefit to Tenneco from the extended payment terms totaled $16 million at December 31, 2014. These suppliers also began participating in a supply chain financing program under which they securitize their accounts receivables from Tenneco with two financial institutions. The 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 could reduce their payment terms to 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

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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.

Contractual Obligations.

Our remaining required debt principal amortization and payment obligations under lease and certain other financial commitments as of December 31, 2014 are shown in the following table:

	Payments due in:						
	2015	2016	2017	2018	2019	Beyond 2019	Total
	(Millions)						
Obligations:							
Senior term loans	15	15	23	30	217	—	300
Senior notes	—	—	—	—	—	725	725
Debentures	—	—	—	—	—	1	1
Other long term debt	—	—	—	—	37	—	37
Other subsidiary debt and capital lease obligations	1	1	1	1	1	3	8
Short-term debt	59	—	—	—	—	—	59
Debt and capital lease obligations	75	16	24	31	255	729	1,130
Operating leases	46	35	27	21	14	18	161
Purchase obligations	91	5	—	—	—	—	96
Interest payments	64	67	70	72	72	34	379
Capital commitments	132	—	—	—	—	—	132
Total payments	$408	$123	$121	$124	$341	$781	$1,898

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 3/8 percent and 6 7/8 percent, respectively. Interest on our variable rate debt is calculated as LIBOR plus the applicable margin in effect at December 31, 2014 for the Eurodollar and Term Loan A loan and prime plus the applicable margin in effect on December 31, 2014 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, 2014 to complete the projects authorized at December 31, 2014, in which we have made substantial commitments in connection with purchasing plant, property and equipment for our operations. For 2015, we expect our capital expenditures to be between $300 million and $320 million.

We have included an estimate of the expenditures necessary after December 31, 2014 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 $31 million to those plans in 2015. Pension and postretirement contributions beyond 2015 will be required but those amounts will vary based upon many factors, including the performance of our pension fund investments during 2015 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

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spend approximately $18 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.

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. As a result of our decision to enter into these performance guarantee agreements, the levy due to the U.K. Pension Protection Fund was reduced. 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, relating to other participating employers, is approximately $55 million as of December 31, 2014 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. 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 $17 million and $7 million at December 31, 2014 and December 31, 2013, respectively. At December 31, 2014, 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, 2014 the maximum amount reimbursable by Futaba to TMEL is approximately $9 million.

We have issued guarantees through letters of credit in connection with some obligations of our affiliates. As of December 31, 2014, we have $35 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 $1,934 million, $1,835 million and $1,660 million in 2014, 2013 and 2012, 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

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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.

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 $169 million for 2014, $144 million for 2013 and $126 million for 2012, net of reimbursements from our customers. Of these amounts, $26 million in 2014, $19 million in 2013 and $13 million in 2012 relate to research and development, which includes the research, design, and development of a new unproven product or process. Additionally, $118 million, $101 million and $92 million of engineering, research, and development expense for 2014, 2013 and 2012, 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 2014, 2013 and 2012 has been reduced by $159 million, $169 million and $159 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 were $23 million and $30 million on December 31, 2014 and 2013, respectively. In addition, plant, property and equipment included $59 million and $59 million at December 31, 2014 and 2013, respectively, for original equipment tools and dies that we own, and prepayments and other included $98 million and $86 million at December 31, 2014 and 2013, 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.

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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.

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.

In the fourth quarter of 2014, 2013 and 2012, as a result of our annual goodwill impairment testing, the estimated fair value of each of our reporting units substantially 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 lowered the weighted average discount rate for all our pension plans to 3.7 percent in 2014 from 4.6 percent in 2013. The discount rate for postretirement benefits was lowered to 4.1 percent in 2014 from 4.8 percent in 2013.

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 6.7 percent in 2014 from 6.9 percent in 2013.

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, 2014, 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 to the consolidated financial statements of Tenneco Inc. located in Item 8 — Financial Statements and Supplemental Data 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 foreign currency rates results from intercompany loans made between affiliates to minimize the need for borrowings from third

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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 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. The following table summarizes by major currency the notional amounts for our foreign currency forward purchase and sale contracts as of December 31, 2014. All contracts in the following table mature in 2015.

		Notional Amount in Foreign Currency (Millions)
Australian dollars	—Purchase	3
British pounds	—Purchase	1
Canadian dollars	—Sell	(2)
European euro	—Purchase	1
	—Sell	(4)
Japanese yen	—Sell	(1,268)
South African rand		