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

FORM 10-Q

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

For the quarterly period ended March 31, 2021

OR

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

Commission File No. 001-35456

ALLISON TRANSMISSION HOLDINGS, INC.
(Exact Name of Registrant as Specified in Its Charter)

Delaware	**26-0414014**
(State or Other Jurisdiction of Incorporation or Organization)	**(I.R.S. Employer Identification Number)**
One Allison Way	
Indianapolis, IN	**46222**
(Address of Principal Executive Offices)	**(Zip Code)**

(317) 242-5000

(Registrant's Telephone Number, Including Area Code)

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

Title of Each Class	Trading Symbol(s)	Name of Each Exchange on which Registered
Common stock, $0.01 par value	**ALSN**	**New York Stock Exchange**

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

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

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

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

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

As of April 15, 2021, there were 109,544,816 shares of Common Stock outstanding.

INDEX

PART I. FINANCIAL INFORMATION

ITEM 1. Financial Statements

Allison Transmission Holdings, Inc.
Condensed Consolidated Balance Sheets
(unaudited, dollars in millions, except share and per share data)

	March 31, 2021	December 31, 2020
ASSETS		
Current Assets		
Cash and cash equivalents	**$ 295**	$ 310
Accounts receivable – net of allowances for doubtful accounts of $1	**292**	228
Inventories	**193**	181
Other current assets	**40**	37
Total Current Assets	**820**	756
Property, plant and equipment, net	**644**	638
Intangible assets, net	**951**	963
Goodwill	**2,064**	2,064
Other non-current assets	**55**	56
TOTAL ASSETS	**$ 4,534**	$ 4,477
LIABILITIES		
Current Liabilities		
Accounts payable	**$ 167**	$ 157
Product warranty liability	**32**	36
Current portion of long-term debt	**6**	6
Deferred revenue	**35**	34
Other current liabilities	**178**	140
Total Current Liabilities	**418**	373
Product warranty liability	**30**	30
Deferred revenue	**107**	109
Long-term debt	**2,506**	2,507
Deferred income taxes	**459**	442
Other non-current liabilities	**250**	260
TOTAL LIABILITIES	**3,770**	3,721
Commitments and contingencies (see NOTE P)		
STOCKHOLDERS' EQUITY		
Common stock, $0.01 par value, 1,880,000,000 shares authorized, 110,164,720 shares issued and outstanding and 112,033,477 shares issued and outstanding, respectively	**1**	1
Non-voting common stock, $0.01 par value, 20,000,000 shares authorized, none issued and outstanding	**—**	—
Preferred stock, $0.01 par value, 100,000,000 shares authorized, none issued and outstanding	**—**	—
Paid in capital	**1,820**	1,818
Accumulated deficit	**(971)**	(974)
Accumulated other comprehensive loss, net of tax	**(86)**	(89)
TOTAL STOCKHOLDERS' EQUITY	**764**	756
TOTAL LIABILITIES & STOCKHOLDERS' EQUITY	**$ 4,534**	$ 4,477

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

Allison Transmission Holdings, Inc.
Condensed Consolidated Statements of Comprehensive Income
(unaudited, dollars in millions, except per share data)

	Three Months Ended March 31,	
	2021	2020
Net sales	$ 588	$ 637
Cost of sales	297	311
Gross profit	291	326
Selling, general and administrative	73	75
Engineering — research and development	38	36
Operating income	180	215
Interest expense, net	(29)	(33)
Other income (expense), net	3	(1)
Income before income taxes	154	181
Income tax expense	(34)	(42)
Net income	$ 120	$ 139
Basic earnings per share attributable to common stockholders	$ 1.08	$ 1.20
Diluted earnings per share attributable to common stockholders	$ 1.07	$ 1.20
Comprehensive income, net of tax	$ 123	$ 110

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

Allison Transmission Holdings, Inc.
Condensed Consolidated Statements of Cash Flows
(unaudited, dollars in millions)

	Three Months Ended March 31,	
	2021	2020
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net income	**$ 120**	$ 139
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation of property, plant and equipment	**25**	22
Deferred income taxes	**14**	35
Amortization of intangible assets	**12**	16
Stock-based compensation	**3**	3
Amortization of deferred financing costs	**1**	1
Other	**(1)**	3
Changes in assets and liabilities:		
Accounts receivable	**(66)**	(51)
Inventories	**(14)**	(9)
Accounts payable	**—**	21
Other assets and liabilities	**34**	(32)
Net cash provided by operating activities	**128**	148
CASH FLOWS FROM INVESTING ACTIVITIES:		
Additions of long-lived assets	**(21)**	(21)
Net cash used for investing activities	**(21)**	(21)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Repurchases of common stock	**(96)**	(180)
Dividend payments	**(21)**	(20)
Taxes paid related to net share settlement of equity awards	**(3)**	(2)
Payments on long-term debt	**(2)**	(2)
Proceeds from exercise of stock options	**1**	1
Borrowings on revolving credit facility	**—**	300
Payments on revolving credit facility	**—**	(300)
Net cash used for financing activities	**(121)**	(203)
Effect of exchange rate changes on cash	**(1)**	(2)
Net decrease in cash and cash equivalents	**(15)**	(78)
Cash and cash equivalents at beginning of period	**310**	192
Cash and cash equivalents at end of period	**$ 295**	$ 114
Supplemental disclosures:		
Interest paid	**$ 7**	$ 8
Income taxes paid	**$ 1**	$ 6

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

Allison Transmission Holdings, Inc.
Condensed Consolidated Statements of Stockholders' Equity
(unaudited, dollars in millions)

	Common Stock	Non-voting Common Stock	Preferred Stock	Paid-in Capital	Accumulated (Deficit) Income	Accumulated Other Comprehensive (Loss) Income, net of tax	Stockholders' Equity
Balance at December 31, 2019	$ 1	$ —	$ —	$ 1,802	$ (970)	$ (52)	$ 781
Stock-based compensation	—	—	—	3	—	—	3
Pension and OPEB liability adjustment	—	—	—	—	—	(4)	(4)
Foreign currency translation adjustment	—	—	—	—	—	(2)	(2)
Interest rate swaps	—	—	—	—	—	(23)	(23)
Issuance of common stock	—	—	—	(1)	—	—	(1)
Repurchase of common stock	—	—	—	—	(180)	—	(180)
Dividends on common stock	—	—	—	—	(20)	—	(20)
Net income	—	—	—	—	139	—	139
Balance at March 31, 2020	$ 1	$ —	$ —	$ 1,804	$ (1,031)	$ (81)	$ 693
Balance at December 31, 2020	$ 1	$ —	$ —	$ 1,818	$ (974)	$ (89)	$ 756
Stock-based compensation	—	—	—	**3**	—	—	**3**
Pension and OPEB liability adjustment	—	—	—	—	—	**(2)**	**(2)**
Foreign currency translation adjustment	—	—	—	—	—	**(6)**	**(6)**
Interest rate swaps	—	—	—	—	—	**11**	**11**
Issuance of common stock	—	—	—	**(1)**	—	—	**(1)**
Repurchase of common stock	—	—	—	—	**(96)**	—	**(96)**
Dividends on common stock	—	—	—	—	**(21)**	—	**(21)**
Net income	—	—	—	—	**120**	—	**120**
Balance at March 31, 2021	**$ 1**	**$ —**	**$ —**	**$ 1,820**	**$ (971)**	**$ (86)**	**$ 764**

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

Allison Transmission Holdings, Inc.
Notes to Condensed Consolidated Financial Statements
(UNAUDITED)

NOTE A. OVERVIEW

Overview

Allison Transmission Holdings, Inc. and its subsidiaries (“Allison,” or the “Company”) design and manufacture vehicle propulsion solutions, including commercial-duty on-highway, off-highway and defense fully automatic transmissions and electric hybrid and fully electric systems. The business was founded in 1915 and has been headquartered in Indianapolis, Indiana since inception. Allison was an operating unit of General Motors Corporation from 1929 until 2007, when Allison once again became a stand-alone company. In March 2012, Allison began trading on the New York Stock Exchange under the symbol, “ALSN”.

Although approximately 79% of revenues were generated in North America in 2020, the Company has a global presence by serving customers in Europe, Asia, South America and Africa. The Company serves customers through an independent network of approximately 1,400 independent distributor and dealer locations worldwide.

In March 2020, the World Health Organization categorized the novel coronavirus ("COVID-19") as a pandemic. In the first quarter of 2021, the COVID-19 pandemic continued to create volatility in the Company’s business performance and impact global markets and supply chains.

To limit the spread of COVID-19, governments continue to take various actions including the administration of vaccinations, travel bans and restrictions, quarantines, curfews, stay-at-home orders, social distancing guidelines and business shutdowns and closures. The Company is also continuing to take a variety of measures to promote the safety and security of its employees and to maintain operations with as minimal impact as possible to its stakeholders, including increased frequency of cleaning and disinfecting of facilities, social distancing, occupancy limits, mask wearing requirements, onsite testing, remote working, travel restrictions, limitations on visitor access to facilities and, most recently, administration of vaccinations at the Company’s corporate headquarters. As a result, the Company has been able to continue its manufacturing operations and deliver its products to customers with minimal disruptions.

NOTE B. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation and Principles of Consolidation

The condensed consolidated financial statements have been prepared in accordance with accounting principles for interim financial information and with the instructions to Form 10-Q and Article 10 of Regulation S-X. Accordingly, the condensed consolidated financial statements do not include all information and footnotes required by accounting principles generally accepted in the United States of America (“GAAP”) for complete financial statements. The information herein reflects all normal recurring material adjustments, which are, in the opinion of management, necessary for the fair statement of the results for the periods presented. The condensed consolidated financial statements herein consist of all wholly-owned domestic and foreign subsidiaries with all significant intercompany transactions eliminated.

These condensed consolidated financial statements present the financial position, results of comprehensive income, cash flows and statements of stockholders' equity of the Company. Certain immaterial reclassifications have been made in the condensed consolidated financial statements of prior periods to conform to the current period presentation. These reclassifications had no impact on previously reported net income, total stockholders' equity or cash flows. The condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements included in the Company's Form 10-K for the year ended December 31, 2020 as filed with the Securities and Exchange Commission on February 18, 2021. The interim period financial results for the three-month periods presented are not necessarily indicative of results to be expected for any other interim period or for the entire year.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities and the reported amounts of revenue and expenses. Estimates include, but are not limited to, sales allowances, government price adjustments, fair market values and future cash flows associated with goodwill, indefinite life intangibles, definite life intangibles, long-lived asset impairment tests, useful lives for depreciation and amortization, warranty liabilities, environmental liabilities, determination of discount rate and other assumptions for pension and other post-retirement benefit expense, determination of discount rate and period for leases, income taxes and deferred tax valuation allowances, derivative valuation, assumptions for business combinations and contingencies. The Company's accounting policies involve the application of judgments and assumptions made by management that include inherent risks and uncertainties. Due to the continued uncertainty related to the ongoing COVID-19 pandemic, actual results could differ materially from the estimates and assumptions used in preparation of the financial statements including, but not limited to, future cash flows associated with goodwill, indefinite life intangibles, definite life intangibles, long-lived impairment tests, determination of discount rate and other assumptions for pension and other post-retirement benefit expense and income taxes. Changes in estimates are recorded in results of operations in the period that the events or circumstances giving rise to such changes occur.

Recently Adopted Accounting Pronouncements

In March 2020, the Financial Accounting Standards Board ("FASB") issued authoritative accounting guidance regarding highly effective cash flow hedges affected by reference rate reform, which guidance was subsequently amended. The guidance allows the Company to continue to classify its interest rate hedges as highly effective subsequent to reference rate reform under certain circumstances. The Company adopted this guidance effective January 1, 2021 and will apply the guidance prospectively on all applicable transactions through December 31, 2022. Management expects to be able to elect the optional expedient within this guidance upon the Company's transition from the London Interbank Offered Rate ("LIBOR") to an alternative reference rate. The election of the optional expedient is expected to allow for the continuation of the existing contract with no impact on the Company's condensed consolidated financial statements.

In December 2019, the FASB issued authoritative accounting guidance to simplify the accounting for income taxes. The guidance identifies specific exceptions to be removed from the calculation and reporting of income taxes. The Company adopted this guidance effective January 1, 2021. The adoption of this guidance did not have a material impact on the Company's condensed consolidated financial statements.

NOTE C. REVENUE

Revenue is recognized as each distinct performance obligation within a contract is satisfied. A performance obligation is a promise in a contract to transfer a distinct good or service to the customer. The Company enters into long-term agreements (“LTAs”) and distributor agreements with certain customers. The LTAs and distributor agreements do not include committed volumes until underlying purchase orders are issued; therefore, the Company determined that purchase orders are the contract with a customer. A contract’s transaction price is allocated to each distinct performance obligation and recognized as revenue when the performance obligation is satisfied, as there is no right of return.

Some of the Company's contracts include multiple performance obligations, most commonly the sale of both a transmission and Extended Transmission Coverage ("ETC"). The Company allocates the contract’s transaction price to each performance obligation based on the standalone selling price of each distinct good or service in the contract.

The Company may also use volume-based discounts and rebates as marketing incentives in the sales of both transmissions and service parts, which are accounted for as variable consideration. The Company records the impact of the incentives as a reduction to revenue when it is determined that the adjustment is not likely to reverse, historically on a quarterly basis. The Company estimates the impact of all other incentives based on the related sales and market conditions in the end market vocation. The Company recorded no material adjustments based on variable consideration during the three months ended March 31, 2021 and 2020.

Net sales are made on credit terms, generally 30 days, based on an assessment of the customer’s creditworthiness. For certain goods or services, the Company receives consideration prior to satisfying the related performance obligation. Such consideration is recorded as a contract liability in current and non-current Deferred revenue as of March 31, 2021 and December 31, 2020. See Note J, “Deferred Revenue” for more information, including the amount of revenue earned during the three months ended March 31, 2021 and 2020 that had been previously deferred. The Company had no material contract assets as of March 31, 2021 and December 31, 2020.

The Company has one operating segment and reportable segment. The Company is in one line of business, which is the manufacture and distribution of vehicle propulsion solutions. The following presents disaggregated revenue by categories that best depict how the nature, amount, timing and uncertainty of revenue and cash flows are affected by economic factors (dollars in millions):

	Three Months Ended March 31,	
	2021	**2020**
North America On-Highway	**$ 319**	$ 352
North America Off-Highway	**2**	8
Defense	**45**	40
Outside North America On-Highway	**84**	72
Outside North America Off-Highway	**16**	27
Service Parts, Support Equipment and Other	**122**	138
Total Net Sales	**$ 588**	$ 637

NOTE D. INVENTORIES

Inventories consisted of the following components (dollars in millions):

	March 31, 2021	December 31, 2020
Purchased parts and raw materials	**$ 91**	$ 88
Work in progress	**14**	15
Service parts	**41**	43
Finished goods	**47**	35
Total inventories	**$ 193**	$ 181

Inventory components shipped to third parties, primarily cores, parts to re-manufacturers, and parts to contract manufacturers, which the Company has an obligation to buy back, are included in purchased parts and raw materials, with an offsetting liability in Other current liabilities. See NOTE L, "Other Current Liabilities" for more information.

NOTE E. GOODWILL AND OTHER INTANGIBLE ASSETS

As of March 31, 2021 and December 31, 2020, the carrying value of the Company's Goodwill was $2,064 million.

The following presents a summary of other intangible assets (dollars in millions):

	March 31, 2021			December 31, 2020		
	Intangible assets, gross	Accumulated amortization	Intangible assets, net	Intangible assets, gross	Accumulated amortization	Intangible assets, net
Other intangible assets:						
Trade name	**$ 791**	**$ —**	**$ 791**	$ 791	$ —	$ 791
In-process research and development	**25**	**—**	**25**	25	—	25
Customer relationships — commercial	**839**	**(719)**	**120**	839	(708)	131
Proprietary technology	**478**	**(477)**	**1**	478	(477)	1
Customer relationships — defense	**62**	**(48)**	**14**	62	(47)	15
Total	**$ 2,195**	**$ (1,244)**	**$ 951**	$ 2,195	$ (1,232)	$ 963

As of March 31, 2021 and December 31, 2020, the carrying value of the Company's Goodwill and Intangible assets, net was $3,015 million and $3,027 million, respectively.

Amortization expense related to other intangible assets for the next five fiscal years is expected to be (dollars in millions):

	2022	2023	2024	2025	2026
Amortization expense	$ 45	$ 43	$ 8	$ 4	$ 1

NOTE F. FAIR VALUE OF FINANCIAL INSTRUMENTS

In accordance with the FASB’s authoritative accounting guidance on fair value measurements, fair value is the price (exit price) that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The Company utilizes market data or assumptions that market participants would use in pricing the asset or liability, including assumptions about risk and the risks inherent in the inputs to the valuation technique. These inputs can be readily observable, market corroborated, or generally unobservable. The Company primarily applies the market approach for recurring fair value measurements and utilizes the best available information that maximizes the use of observable inputs and minimizes the use of unobservable inputs. The Company is able to classify fair value balances based on the observability of those inputs. The accounting guidance establishes a fair value hierarchy that prioritizes the inputs used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurement) and the lowest priority to unobservable inputs (Level 3 measurement). The three levels of the fair value hierarchy defined by the relevant guidance are as follows:

Level 1 — Quoted prices are available in active markets for identical assets or liabilities as of the reporting date. Active markets are those in which transactions for the asset or liability occur in sufficient frequency and volume to provide pricing information on an ongoing basis. Level 1 primarily consists of financial instruments such as exchange-traded derivatives, listed equities and publicly traded bonds.

Level 2 — Pricing inputs are other than quoted prices in active markets included in Level 1, which are either directly or indirectly observable as of the reported date. Level 2 includes financial instruments that are valued using quoted prices in markets that are not active and those financial instruments that are valued using models or other valuation methodologies. These models are primarily industry standard models that consider various assumptions, including quoted forward prices for commodities, time value, volatility factors, and current market and contractual prices for the underlying instruments, as well as other relevant economic measures. Substantially all of these assumptions are observable in the marketplace throughout the full term of the instrument, can be derived from observable data or are supported by observable levels at which transactions are executed in the marketplace.

Level 3 — Pricing inputs include significant inputs that are generally less observable from objective sources. These inputs may be used with internally developed methodologies that result in management’s best estimate of fair value. At each balance sheet date, the Company performs an analysis of all instruments subject to authoritative accounting guidance and includes, in Level 3, all of those whose fair value is based on significant unobservable inputs. As of March 31, 2021 and December 31, 2020, the Company did not have any Level 3 financial assets or liabilities.

The Company’s assets and liabilities that are measured at fair value include cash equivalents, derivative instruments, assets held in a rabbi trust and a deferred compensation obligation. The Company’s cash equivalents consist of short-term U.S. government backed securities. The Company’s derivative instruments consist of interest rate swaps. The Company’s assets held in the rabbi trust consist principally of publicly available mutual funds and target date retirement funds. The Company’s deferred compensation obligation is directly related to the fair value of assets held in the rabbi trust.

The Company’s valuation techniques used to calculate the fair value of cash and cash equivalents, assets held in the rabbi trust and the deferred compensation obligation represent a market approach in active markets for identical assets that qualify as Level 1 in the fair value hierarchy. The Company’s valuation techniques used to calculate the fair value of derivative instruments represent a market approach with observable inputs that qualify as Level 2 in the fair value hierarchy.

The Company uses valuations from the issuing financial institutions for the fair value measurement of interest rate swaps. The floating-to-fixed interest rate swaps are based on LIBOR, which is observable at commonly quoted intervals. The fair values are included in other current and non-current assets and liabilities in the Condensed Consolidated Balance Sheets.

The following table summarizes the fair value of the Company's financial assets and (liabilities) as of March 31, 2021 and December 31, 2020 (dollars in millions):

	Fair Value Measurements Using					
	Quoted Prices in Active Markets for Identical Assets (Level 1)		Significant Other Observable Inputs (Level 2)		TOTAL	
	March 31, 2021	December 31, 2020	March 31, 2021	December 31, 2020	March 31, 2021	December 31, 2020
Cash equivalents	**$ 185**	$ 160	**$ —**	$ —	**$ 185**	$ 160
Rabbi trust assets	**17**	17	**—**	—	**17**	17
Deferred compensation obligation	**(17)**	(17)	**—**	—	**(17)**	(17)
Derivative liabilities, net	**—**	—	**(46)**	(60)	**(46)**	(60)
Total	**$ 185**	$ 160	**$ (46)**	$ (60)	**$ 139**	$ 100

NOTE G. DEBT

Long-term debt and maturities are as follows (dollars in millions):

	March 31, 2021	December 31, 2020
Long-term debt:		
Senior Secured Credit Facility Term Loan, variable, due 2026	**$ 636**	$ 638
Senior Notes, fixed 4.75%, due 2027	**400**	400
Senior Notes, fixed 5.875%, due 2029	**500**	500
Senior Notes, fixed 3.75%, due 2031	**1,000**	1,000
Total long-term debt	**$ 2,536**	$ 2,538
Less: current maturities of long-term debt	**6**	6
deferred financing costs, net	**24**	25
Total long-term debt, net	**$ 2,506**	$ 2,507

As of March 31, 2021, the Company had $2,536 million of indebtedness associated with Allison Transmission, Inc.'s ("ATI"), the Company's wholly-owned subsidiary, 4.75% Senior Notes due October 2027 ("4.75% Senior Notes"), ATI's 5.875% Senior Notes due June 2029 ("5.875% Senior Notes"), ATI's 3.75% Senior Notes due January 2031 ("3.75% Senior Notes" and, together with the 4.75% Senior Notes and 5.875% Senior Notes, the "Senior Notes") and the Second Amended and Restated Credit Agreement dated as of March 29, 2019, as amended (the "Credit Agreement"), governing ATI's new term loan facility in the amount of $636 million due March 2026 ("New Term Loan") and ATI's new revolving credit facility with commitments in the amount of $650 million due September 2025 ("New Revolving Credit Facility" and, together with the New Term Loan, the "New Senior Secured Credit Facility").

The fair value of the Company's long-term debt obligations as of March 31, 2021 was $2,580 million. The fair value is based on quoted Level 2 market prices of the Company's debt as of March 31, 2021. It is not expected that the Company would be able to repurchase a significant amount of its debt at these levels. The difference between the fair value and carrying value of the long-term debt is driven primarily by trends in the financial markets.

New Senior Secured Credit Facility

In November 2020, the Company and ATI entered into an amendment to the Credit Agreement to increase the commitments under the New Revolving Credit Facility by $50 million to $650 million. The amendment also extended the New Revolving Credit Facility termination date from September 2024 to September 2025.

The borrowings under the New Senior Secured Credit Facility are collateralized by a lien on substantially all assets of the Company, ATI and each of the existing and future U.S. subsidiary guarantors, with certain exceptions set forth in the Credit Agreement, and ATI's capital stock and all of the capital stock or other equity interests held by the Company, ATI and each of ATI's existing and future U.S. subsidiary guarantors (subject to certain limitations for equity interest of foreign subsidiaries and other exceptions set forth in the Credit Agreement). Interest on the New Term Loan, as of March 31, 2021, is either (a) 1.75% over a LIBOR rate on deposits in U.S. dollars for one-, two-, three- or six-month periods (or twelve-month or shorter periods if, at the time of the borrowing, available from all relevant lenders) (the "LIBOR Rate"), or (b) 0.75% over the greater of the prime lending rate as quoted by the administrative agent, the LIBOR Rate for an interest period of one month plus 1.00% and the federal funds effective rate published by the Federal Reserve Bank of New York plus 0.50%, subject to a 1.00% floor (the "Base Rate"). As of March 31, 2021, the Company elected to pay the lowest all-in rate of LIBOR plus the applicable margin, or 1.86%, on the New Term Loan. The Credit Agreement requires minimum quarterly principal payments on the New Term Loan, as well as prepayments from certain net cash proceeds of non-ordinary course asset sales and casualty and condemnation events, the incurrence of certain debt and from a percentage of excess cash flow, if applicable. The minimum required quarterly principal payment on the New Term Loan through its maturity date of March 2026 is $2 million. As of March 31, 2021, there had been no payments required for certain net cash proceeds of non-ordinary course asset sales and casualty and condemnation events. The remaining principal balance is due upon maturity.

The New Senior Secured Credit Facility also provides a New Revolving Credit Facility, net of an allowance for up to $75 million in outstanding letters of credit commitments. As of March 31, 2021, the Company had $645 million available under the New Revolving Credit Facility, net of $5 million in letters of credit. Borrowings under the New Revolving Credit Facility bear interest at a variable base rate plus an applicable margin based on the Company’s first lien net leverage ratio. When the Company’s first lien net leverage ratio is above 4.00x, interest on the New Revolving Credit Facility is (a) 0.75% over the Base Rate or (b) 1.75% over the LIBOR Rate; when the Company’s first lien net leverage ratio is equal to or less than 4.00x and above 3.50x, interest on the New Revolving Credit Facility is (i) 0.50% over the Base Rate or (ii) 1.50% over the LIBOR Rate; and when the Company’s first lien net leverage ratio is equal to or below 3.50x, interest on the New Revolving Credit Facility is (y) 0.25% over the Base Rate or (z) 1.25% over the LIBOR Rate. As of March 31, 2021, the applicable margin for the New Revolving Credit Facility was 1.25%. In addition, there is an annual commitment fee, based on the Company’s first lien net leverage ratio, on the average unused revolving credit borrowings available under the New Revolving Credit Facility. As of March 31, 2021, the commitment fee is 0.25%. Borrowings under the New Revolving Credit Facility are payable at the option of the Company throughout the term of the New Senior Secured Credit Facility with the balance due in September 2025.

The New Senior Secured Credit Facility requires the Company to maintain a specified maximum first lien net leverage ratio of 5.50x when revolving loan commitments remain outstanding on the New Revolving Credit Facility at the end of a fiscal quarter. As of March 31, 2021, the Company had no amounts outstanding under the New Revolving Credit Facility; however, the Company would have been in compliance with the maximum first lien net leverage ratio, achieving a 0.49x ratio. Additionally, within the terms of the New Senior Secured Credit Facility, a first lien net leverage ratio at or below 4.00x results in the elimination of excess cash flow payments on the New Senior Secured Credit Facility for the applicable year.

In addition, the Credit Agreement, among other things, includes customary restrictions (subject to certain exceptions) on the Company’s ability to incur certain indebtedness, grant certain liens, make certain investments, engage in acquisitions, consolidations and mergers, declare or pay certain dividends or repurchase shares of the Company’s common stock. As of March 31, 2021, the Company was in compliance with all covenants under the Credit Agreement.

4.75% Senior Notes

The 4.75% Senior Notes are unsecured and are guaranteed by each of ATI's domestic subsidiaries that is a borrower under or guarantees the New Senior Secured Credit Facility and are unconditionally guaranteed, jointly and severally, by any of ATI's future domestic subsidiaries that are borrowers under or guarantee the New Senior Secured Credit Facility. None of ATI's domestic subsidiaries currently guarantee its obligations under the New Senior Secured Credit Facility, and therefore none of ATI's domestic subsidiaries currently guarantee the 4.75% Senior Notes. The indenture governing the 4.75% Senior Notes contains negative covenants restricting or limiting the Company's ability to, among other things: incur or guarantee additional indebtedness, incur liens, pay dividends on, redeem or repurchase the Company's capital stock, make certain investments, permit payment or dividend restrictions on certain of the Company's subsidiaries, sell assets, engage in certain transactions with affiliates, and consolidate or merge or sell all or substantially all of the Company's assets. As of March 31, 2021, the Company was in compliance with all covenants under the indenture governing the 4.75% Senior Notes.

5.875% Senior Notes

The 5.875% Senior Notes are unsecured and are guaranteed by each of ATI's domestic subsidiaries that is a borrower under or guarantees the New Senior Secured Credit Facility and are unconditionally guaranteed, jointly and severally, by any of ATI's future domestic subsidiaries that are borrowers under or guarantee the New Senior Secured Credit Facility. None of ATI's domestic subsidiaries currently guarantee its obligations under the New Senior Secured Credit Facility, and therefore none of ATI's domestic subsidiaries currently guarantee the 5.875% Senior Notes. The indenture governing the 5.875% Senior Notes contains negative covenants restricting or limiting the Company's ability to, among other things: incur or guarantee additional indebtedness, incur liens, pay dividends on, redeem or repurchase the Company's capital stock, make certain investments, permit payment or dividend restrictions on certain of the Company's subsidiaries, sell assets, engage in certain transactions with affiliates, and consolidate or merge or sell all or substantially all of the Company's assets. As of March 31, 2021, the Company was in compliance with all covenants under the indenture governing the 5.875% Senior Notes.

3.75% Senior Notes

In November 2020, ATI completed an offering of $1,000 million of the 3.75% Senior Notes. The 3.75% Senior Notes were offered in a private placement exempt from registration under the Securities Act of 1933, as amended. The net proceeds from the offering, together with cash on hand, were used to redeem all of ATI's outstanding 5.0% Senior Notes due 2024 plus accrued and unpaid interest and related transaction expenses. As a result of the offering, the Company recorded $10 million as deferred financing fees in the Consolidated Balance Sheet as of December 31, 2020.

The 3.75% Senior Notes are unsecured and are guaranteed by each of ATI's domestic subsidiaries that is a borrower under or guarantees the New Senior Secured Credit Facility and are unconditionally guaranteed, jointly and severally, by any of ATI's future domestic subsidiaries that are borrowers under or guarantee the New Senior Secured Credit Facility. None of ATI's domestic subsidiaries currently guarantee its obligations under the New Senior Secured Credit Facility, and therefore none of ATI's domestic subsidiaries currently guarantee the 3.75% Senior Notes. The indenture governing the 3.75% Senior Notes contains negative covenants restricting or limiting the Company's ability to, among other things: incur or guarantee additional indebtedness, incur liens, pay dividends on, redeem or repurchase the Company's capital stock, make certain investments, permit payment or dividend restrictions on certain of the Company's subsidiaries, sell assets, engage in certain transactions with affiliates, and consolidate or merge or sell all or substantially all of the Company's assets. As of March 31, 2021, the Company was in compliance with all covenants under the indenture governing the 3.75% Senior Notes.

NOTE H. DERIVATIVES

The Company is subject to interest rate risk related to the New Senior Secured Credit Facility and enters into interest rate swaps that are based on LIBOR to manage a portion of this exposure. The interest rate swaps are designated as cash flow hedges that qualify for hedge accounting under the hypothetical derivative method. Fair value adjustments are recorded as a component of accumulated other comprehensive loss ("AOCL") in the Condensed Consolidated Balance Sheets. Balances in AOCL are reclassified to earnings when transactions related to the underlying risk are settled. As of March 31, 2021, the Company held interest rate swaps effective from September 2019 to September 2025 with notional values totaling $250 million and a weighted average LIBOR fixed rate of 3.04%, interest rate swaps effective from September 2019 to September 2022 with notional values totaling $250 million and a weighted average LIBOR fixed rate of 3.01% and interest rate swaps effective from September 2022 to September 2025 with notional values totaling $250 million and a weighted average LIBOR fixed rate of 2.82%. See NOTE F, "Fair Value of Financial Instruments" for information regarding the fair value of the Company's interest rate swaps.

The following tabular disclosures further describe the Company's interest rate derivatives qualifying and designated for hedge accounting and their impact on the financial condition of the Company (dollars in millions):

		Fair Value	
	Balance Sheet Location	**March 31, 2021**	**December 31, 2020**
Derivatives designated as hedging instruments:			
Interest rate swaps	Other current liabilities	**$ 13**	$ 14
	Other non-current liabilities	**33**	46
Total derivatives designated as hedging instruments		**$ 46**	$ 60

The balance of derivative losses recorded in AOCL as of March 31, 2021 was $46 million. See NOTE O, "Accumulated Other Comprehensive Loss" for information regarding activity recorded as a component of AOCL during the three months ended March 31, 2021 and 2020. As of March 31, 2021, the Company had $14 million of derivative losses recorded in AOCL expected to be reclassified to earnings within the next twelve months.

NOTE I. PRODUCT WARRANTY LIABILITIES

As of March 31, 2021, current and non-current product warranty liabilities were $32 million and $30 million, respectively. As of March 31, 2020, current and non-current product warranty liabilities were $25 million and $26 million, respectively.

Product warranty liability activities consist of the following (dollars in millions):

	Three Months Ended March 31,	
	2021	2020
Beginning balance	$ **66**	$ 52
Payments	**(8)**	(7)
Increase in liability (warranty issued during period)	**4**	5
Net adjustments to liability	**—**	1
Ending balance	$ **62**	$ 51

NOTE J. DEFERRED REVENUE

As of March 31, 2021, current and non-current deferred revenue was $35 million and $107 million, respectively. As of March 31, 2020, current and non-current deferred revenue was $34 million and $106 million, respectively.

Deferred revenue activity consists of the following (dollars in millions):

	Three Months Ended March 31,	
	2021	2020
Beginning balance	$ **143**	$ 139
Increases	**7**	11
Revenue earned	**(8)**	(10)
Ending balance	$ **142**	$ 140

Deferred revenue recorded in current and non-current liabilities related to ETC as of March 31, 2021 was $29 million and $88 million, respectively. Deferred revenue recorded in current and non-current liabilities related to ETC as of March 31, 2020 was $27 million and $87 million, respectively.

NOTE K. LEASES

Contracts are assessed by the Company to determine if the contract conveys the right to control an identified asset in exchange for consideration during a period of time. The Company classifies all identified leases as either operating or finance leases. As of March 31, 2021, the Company was not a party to any finance leases. Contracts that contain leases are assessed to determine if the consideration in the contract is related to a lease component, non-lease component or other components not related to the lease. Lease components are recorded as right-of-use ("ROU") assets and lease liabilities while any non-lease component is expensed as incurred. The consideration in the contract related to other components not related to the lease is allocated among the lease component and the non-lease component, as applicable, based on the stand-alone selling price of the lease and non-lease components.

Certain lease contracts may contain an option to extend or terminate the lease. The Company considers the economic impact of extension and termination options by contract. If the Company concludes it is reasonably certain an option will be exercised, that option is included in the lease term and impacts the amount recorded as an ROU asset and lease liability at inception of the contract.

The Company's lease liability is determined by discounting the future cash flows over the lease period. The Company determines its discount rates utilizing current secured financing rates based on the length of the lease period plus the Company's margin over LIBOR on the New Term Loan. The Company believes this rate effectively represents a borrowing rate the Company could obtain on a debt instrument possessing similar terms as the lease. Any lease liability is classified between current and non-current liabilities based on the terms of the underlying leases. The weighted average discount rate on operating leases as of both March 31, 2021 and December 31, 2020 was 4.37%.

As of March 31, 2021, the Company recorded current and non-current operating lease liabilities of $4 million and $16 million, respectively. As of December 31, 2020, the Company recorded current and non-current operating lease liabilities of $4 million and $17 million, respectively. The following table reconciles total operating lease liabilities as of March 31, 2021 to future undiscounted cash flows for operating leases:

	March 31, 2021
2021	$ 4
2022	4
2023	3
2024	2
2025	2
Thereafter	9
Total lease payments	$ 24
Less: Interest	4
Present value of lease liabilities	$ 20

ROU assets are calculated as the related lease liability adjusted for lease incentives, prepayments and the effect of escalating lease payments on period expense. The below table depicts the ROU assets held by the Company based on the underlying asset:

	March 31, 2021
Buildings	$ 18
Land	1
Vehicles	1
Total right-of-use assets	$ 20

The weighted average remaining lease term as of March 31, 2021 and March 31, 2020 was 7.4 years and 7.7 years, respectively.

Operating lease expense was $1 million in each of the three months ended March 31, 2021 and 2020, recorded within Selling, general and administrative expense and Engineering - research and development on the Company's Condensed Consolidated Statements of Comprehensive Income. There was no short-term operating lease expense for the three months ended March 31, 2021 and 2020.

The calculation of the Company's ROU assets and lease liabilities did not include cash consideration as of March 31, 2021 and December 31, 2020. During the three months ended March 31, 2021 and 2020, the Company recorded zero and $1 million, respectively, of new ROU assets obtained in exchange for lease obligations.

NOTE L. OTHER CURRENT LIABILITIES

Other current liabilities consist of the following (dollars in millions):

	March 31, 2021	December 31, 2020
Payroll and related costs	**$ 53**	$ 47
Accrued interest payable	**34**	12
Taxes payable	**26**	11
Sales allowances	**18**	20
Vendor buyback obligation	**15**	16
Derivative liabilities	**13**	14
Lease liability	**4**	4
Non-trade payables	**2**	2
Other accruals	**13**	14
Total	**$ 178**	$ 140

NOTE M. EMPLOYEE BENEFIT PLANS

Components of net periodic benefit cost (credit) consist of the following (dollars in millions):

	Pension Plans For the Three Months Ended March 31,		Post-retirement Benefits For the Three Months Ended March 31,	
	2021	2020	2021	2020
Net periodic benefit cost (credit):				
Service cost	**$ 3**	$ 2	**$ —**	$ —
Interest cost	**1**	2	**—**	1
Expected return on assets	**(2)**	(2)	**—**	—
Prior service credit	**—**	—	**(2)**	(3)
Net periodic benefit cost (credit)	**$ 2**	$ 2	**$ (2)**	$ (2)

The components of net periodic benefit cost (credit) other than the service cost component are included in Other income (expense), net in the Condensed Consolidated Statements of Comprehensive Income.

NOTE N. INCOME TAXES

For the three months ended March 31, 2021, the Company recorded total income tax expense of $34 million. The effective tax rate for the three months ended March 31, 2021 was 22%. For the three months ended March 31, 2020, the Company recorded total income tax expense of $42 million. The effective tax rate for the three months ended March 31, 2020 was 23%.

The need to establish a valuation allowance against the deferred tax assets is assessed periodically based on a more-likely-than-not realization threshold, in accordance with authoritative accounting guidance. Appropriate consideration is given to all positive and negative evidence related to that realization. This assessment considers, among other matters, the nature, frequency and severity of recent losses, forecasts of future profitability, the duration of statutory carry-forward periods, experience with tax attributes expiring unused, and tax planning alternatives. The weight given to these considerations depends upon the degree to which they can be objectively verified.

The Company continues to provide for a valuation allowance on certain of its foreign deferred tax assets and an anticipated capital loss carryforward. The Company has determined, based on the evaluation of both objective and subjective evidence available, that this valuation allowance is necessary and that it is more likely than not that the deferred tax assets are not fully realizable.

In accordance with the FASB's authoritative guidance on accounting for income taxes, the Company has recorded a liability for unrecognized tax benefits related to a 2010 Research and Development Credit as of March 31, 2021 and December 31, 2020. The accounting guidance prescribes a recognition threshold and measurement attributes for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. The Company's returns will remain subject to examination by the various taxing authorities for the duration of the applicable statute of limitations (generally three years from the later of the date of filing or the due date of the return).

NOTE O. ACCUMULATED OTHER COMPREHENSIVE LOSS

The following tables reconcile changes in AOCL by component (net of tax, dollars in millions):

	Pension and OPEB liability adjustment	Interest rate swaps	Foreign currency items	Total
AOCL as of December 31, 2019	$ 8	$ (26)	$ (34)	$ (52)
Other comprehensive loss before reclassifications	—	(29)	(2)	(31)
Amounts reclassified from AOCL	(5)	—	—	(5)
Income tax benefit	1	6	—	7
Net current period other comprehensive loss	$ (4)	$ (23)	$ (2)	$ (29)
AOCL as of March 31, 2020	$ 4	$ (49)	$ (36)	$ (81)
AOCL as of December 31, 2020	$ (19)	$ (46)	$ (24)	$ (89)
Other comprehensive income before reclassifications	—	**14**	**(6)**	**8**
Amounts reclassified from AOCL	**(2)**	—	—	**(2)**
Income tax benefit	—	**(3)**	—	**(3)**
Net current period other comprehensive (loss) income	**$ (2)**	**$ 11**	**$ (6)**	**$ 3**
AOCL as of March 31, 2021	**$ (21)**	**$ (35)**	**$ (30)**	**$ (86)**

AOCL Components	Amounts reclassified from AOCL: Three months ended March 31, 2021	Amounts reclassified from AOCL: Three months ended March 31, 2020	Affected line item in the Condensed Consolidated Statements of Comprehensive Income
Amortization of benefit items:			
Prior service cost	**$ 2**	$ 5	Other income (expense), net
Total reclassifications, before tax	**$ 2**	$ 5	Income before income taxes
Income tax expense	**—**	(1)	Income tax expense
Total reclassifications, net of tax	**$ 2**	$ 4	

Prior service cost and actuarial loss are included in the computation of the Company's net periodic benefit cost (credit). See NOTE M, "Employee Benefit Plans" for additional details.

NOTE P. COMMITMENTS AND CONTINGENCIES

Environmental Matters

The Company has an agreement with the Environmental Protection Agency to perform remedial activities at the Company's Indianapolis, Indiana manufacturing facilities related to historical soil and groundwater contamination. As of March 31, 2021, the Company had a liability recorded in the amount of $3 million.

Claims, Disputes, and Litigation

The Company is party to various legal actions and administrative proceedings and subject to various claims arising in the ordinary course of business. These proceedings primarily involve commercial claims, product liability claims, personal injury claims and workers' compensation claims. The Company believes that the ultimate liability, if any, in excess of amounts already provided for in the condensed consolidated financial statements or covered by insurance on the disposition of these matters will not have a material adverse effect on the financial position, results of operations or cash flows of the Company.

NOTE Q. EARNINGS PER SHARE

The Company presents both basic and diluted earnings per share ("EPS") amounts. Basic EPS is calculated by dividing net income by the weighted average number of common shares outstanding during the reporting period. Diluted EPS is calculated by dividing net income by the weighted average number of common shares and common equivalent shares outstanding during the reporting period that are calculated using the treasury stock method for stock-based awards. The treasury stock method assumes that the Company uses the proceeds from the exercise of awards to repurchase common stock at the average market price during the period. The assumed proceeds under the treasury stock method include the purchase price that the grantee will pay in the future and compensation cost for future service that the Company has not yet recognized. For the three months ended March 31, 2021, there were 1 million outstanding stock options excluded from the diluted EPS calculation because they were anti-dilutive. For the three months ended March 31, 2020, there were no outstanding stock options excluded from the diluted EPS calculation because they were anti-dilutive.

The following table reconciles the numerators and denominators used to calculate basic EPS and diluted EPS (in millions, except per share data):

	Three Months Ended March 31, 2021	Three Months Ended March 31, 2020
Net income	**$ 120**	$ 139
Weighted average shares of common stock outstanding	**111**	116
Dilutive effect of stock-based awards	**1**	—
Diluted weighted average shares of common stock outstanding	**112**	116
Basic earnings per share attributable to common stockholders	**$ 1.08**	$ 1.20
Diluted earnings per share attributable to common stockholders	**$ 1.07**	$ 1.20

NOTE R. COMMON STOCK

The Company's current stock repurchase program (the "Repurchase Program") was announced on November 14, 2016 when the Board of Directors authorized the Company to repurchase up to $1,000 million of its common stock on the open market or through privately negotiated transactions. On November 8, 2017, July 30, 2018 and May 9, 2019, the Board of Directors authorized the Company to repurchase an additional $500 million, $500 million and $1,000 million, respectively, of its common stock, bringing the total amount authorized under the Repurchase Program to $3,000 million. The Repurchase Program has no termination date. The timing and amount of stock purchases are subject to market conditions and corporate needs. The Repurchase Program may be modified, suspended or discontinued at any time at the Company's discretion.

During the three months ended March 31, 2021, the Company repurchased $96 million of its common stock under the Repurchase Program, leaving $731 million of authorized repurchases remaining under the Repurchase Program as of March 31, 2021.

ITEM 2. Management’s Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis is intended to help the reader understand our business, financial condition, results of operations, liquidity and capital resources. You should read this discussion in conjunction with our condensed consolidated interim financial statements and the related notes contained elsewhere in this Quarterly Report on Form 10-Q.

The statements in this discussion regarding industry trends, our expectations regarding our future performance, liquidity and capital resources and other non-historical statements are forward-looking statements. These forward-looking statements are subject to numerous risks and uncertainties, including, but not limited to, the risks and uncertainties described in “Cautionary Note Regarding Forward-Looking Statements” and Part II, Item 1A “Risk Factors” below, and in Part I, Item 1A "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2020 as filed with the Securities and Exchange Commission ("SEC") on February 18, 2021. Our actual results may differ materially from those contained in or implied by any forward-looking statements.

Overview

Allison Transmission Holdings, Inc. and its subsidiaries (“Allison,” the “Company,” “we,” “us” or “our”) design and manufacture vehicle propulsion solutions, including commercial-duty on-highway, off-highway and defense fully automatic transmissions and electric hybrid and fully electric systems. The business was founded in 1915 and has been headquartered in Indianapolis, Indiana since inception. Allison was an operating unit of General Motors Corporation from 1929 until 2007, when Allison once again became a stand-alone company. In March 2012, Allison began trading on the New York Stock Exchange under the symbol “ALSN”.

Although approximately 79% of revenues were generated in North America in 2020, we have a global presence by serving customers in Europe, Asia, South America and Africa. We serve customers through an independent network of approximately 1,400 independent distributor and dealer locations worldwide.

Trends Impacting Our Business

In March 2020, the World Health Organization categorized the novel coronavirus ("COVID-19") as a pandemic. In the first quarter of 2021, the COVID-19 pandemic continued to create volatility in our business performance and impact global markets and supply chains. Our net sales are driven by commercial vehicle production, which tends to be highly correlated to macroeconomic conditions. We expect our net sales for 2021 to increase compared to 2020 principally driven by the global On-Highway, Service Parts, Support Equipment & Other and North America Off-Highway end markets as a result of the ongoing global economic recovery and price increases on certain products. We continue to monitor and proactively mitigate risks in our supply chain, including the global shortage of semiconductors and its impact on the availability of our transmission control modules. We, our suppliers and our customers are all taking actions to reduce the impact of the semiconductor shortage; however, if the shortage persists, the impact on our business could be material.

To limit the spread of COVID-19, governments continue to take various actions including the administration of vaccinations, travel bans and restrictions, quarantines, curfews, stay-at-home orders, social distancing guidelines and business shutdowns and closures. We are also continuing to take a variety of measures to promote the safety and security of our employees and to maintain operations with as minimal impact as possible to our stakeholders, including increased frequency of cleaning and disinfecting of facilities, social distancing, occupancy limits, mask wearing requirements, onsite testing, remote working, travel restrictions, limitations on visitor access to facilities and, most recently, administration of vaccinations at our corporate headquarters. As a result, we have been able to continue our manufacturing operations and deliver our products to customers with minimal disruptions.

First Quarter Net Sales by End Market (dollars in millions)

End Market	Q1 2021 Net Sales	Q1 2020 Net Sales	% Variance
North America On-Highway	**$ 319**	$ 352	(9)%
North America Off-Highway	**2**	8	(75)%
Defense	**45**	40	13%
Outside North America On-Highway	**84**	72	17%
Outside North America Off-Highway	**16**	27	(41)%
Service Parts, Support Equipment and Other	**122**	138	(12)%
Total Net Sales	**$ 588**	$ 637	(8)%

North America On-Highway end market net sales were down 9% for the first quarter 2021 compared to the first quarter 2020, principally driven by lower demand due to the continued effects of the COVID-19 pandemic.

North America Off-Highway end market net sales were down $6 million for the first quarter 2021 compared to the first quarter 2020, principally driven by lower demand for hydraulic fracturing applications.

Defense end market net sales were up 13% for the first quarter 2021 compared to the first quarter 2020, principally driven by higher demand for Tracked vehicle applications.

Outside North America On-Highway end market net sales were up 17% for the first quarter 2021 compared to the first quarter 2020, principally driven by higher demand in Asia.

Outside North America Off-Highway end market net sales were down $11 million for the first quarter 2021 compared to the first quarter 2020, principally driven by lower demand in the energy sector.

Service Parts, Support Equipment and Other end market net sales were down 12% for the first quarter 2021 compared to the first quarter 2020, principally driven by lower demand for North America service parts.

Key Components of our Results of Operations

Net sales

We generate our net sales primarily from the sale of vehicle propulsion solutions, service and component parts, support equipment, defense kits, engineering services, royalties and extended transmission coverage to a wide array of original equipment manufacturers, distributors and the U.S. government. Sales are recorded net of provisions for customer allowances and other rebates. Engineering services are recorded as net sales in accordance with the terms of the contract. The associated costs are recorded in cost of sales. We also have royalty agreements with third parties that provide net sales as a result of joint efforts in developing marketable products.

Cost of sales

Our primary components of cost of sales are purchased parts, overhead expense related to our manufacturing operations and direct labor associated with the manufacture and assembly of transmissions and parts. For the three months ended March 31, 2021, direct material costs were approximately 65%, overhead costs were approximately 26%, and direct labor costs were approximately 9% of total cost of sales. We are subject to changes in our cost of sales caused by movements in underlying commodity prices. We seek to hedge against this risk by using long-term agreements, as appropriate. See Part I, Item 3 “Quantitative and Qualitative Disclosures about Market Risk—Commodity Price Risk” included below.

Selling, general and administrative

The principal components of our selling, general and administrative expenses are salaries and benefits for our office personnel, advertising and promotional expenses, product warranty expense, expenses relating to certain information technology systems and amortization of our intangibles.

Engineering — research and development

We incur costs in connection with research and development programs that are expected to contribute to future earnings. Such costs are expensed as incurred.

Non-GAAP Financial Measures

We use Adjusted Earnings before Interest, Taxes, Depreciation, and Amortization ("EBITDA") and Adjusted EBITDA as a percent of net sales to measure our operating profitability. We believe that Adjusted EBITDA and Adjusted EBITDA as a percent of net sales provide management, investors and creditors with useful measures of the operational results of our business and increase the period-to-period comparability of our operating profitability and comparability with other companies. Adjusted EBITDA as a percent of net sales is also used in the calculation of management's incentive compensation program. The most directly comparable U.S. generally accepted accounting principles ("GAAP") measure to Adjusted EBITDA and Adjusted EBITDA as a percent of net sales is Net income and Net income as a percent of net sales, respectively. Adjusted EBITDA is calculated as earnings before interest expense, income tax expense, amortization of intangible assets, depreciation of property, plant and equipment and other adjustments as defined by the Second Amended and Restated Credit Agreement dated as of March 29, 2019, as amended (the "Credit Agreement") governing Allison Transmission, Inc.'s ("ATI"), our wholly-owned subsidiary, term loan facility in the amount of $636 million due March 2026 ("New Term Loan"). Adjusted EBITDA as a percent of net sales is calculated as Adjusted EBITDA divided by net sales.

We use Adjusted free cash flow to evaluate the amount of cash generated by our business that, after the capital investment needed to maintain and grow our business and certain mandatory debt service requirements, can be used for repayment of debt, stockholder distributions and strategic opportunities, including investing in our business. We believe that Adjusted free cash flow enhances the understanding of the cash flows of our business for management, investors and creditors. Adjusted free cash flow is also used in the calculation of management's incentive compensation program. The most directly comparable GAAP measure to Adjusted free cash flow is Net cash provided by operating activities. Adjusted free cash flow is calculated as Net cash provided by operating activities after additions of long-lived assets.

The following is a reconciliation of Net income and Net income as a percent of net sales to Adjusted EBITDA and Adjusted EBITDA as a percent of net sales and a reconciliation of Net cash provided by operating activities to Adjusted free cash flow:

(unaudited, dollars in millions)	Three Months Ended March 31, 2021	Three Months Ended March 31, 2020
Net income (GAAP)	**$ 120**	$ 139
plus:		
Income tax expense	**34**	42
Interest expense, net	**29**	33
Depreciation of property, plant and equipment	**25**	22
Amortization of intangible assets	**12**	16
Stock-based compensation expense (a)	**3**	3
Unrealized (gain) loss on foreign exchange (b)	**(1)**	2
Adjusted EBITDA (Non-GAAP)	**$ 222**	$ 257
Net sales (GAAP)	**$ 588**	$ 637
Net income as a percent of net sales (GAAP)	**20.4%**	21.8%
Adjusted EBITDA as a percent of net sales (Non-GAAP)	**37.8%**	40.3%
Net cash provided by operating activities (GAAP)	**$ 128**	$ 148
Deductions to reconcile to Adjusted free cash flow:		
Additions of long-lived assets	**(21)**	(21)
Adjusted free cash flow (Non-GAAP)	**$ 107**	$ 127

(a) Represents stock-based compensation expense (recorded in Cost of sales, Selling, general and administrative, and Engineering - research and development).

(b) Represents (gains) losses (recorded in Other income (expense), net) on intercompany financing transactions related to investments in plant assets for our India facility.

Results of Operations

Comparison of three months ended March 31, 2021 and 2020

The following table sets forth certain financial information for the three months ended March 31, 2021 and 2020. The following table and discussion should be read in conjunction with the information contained in our condensed consolidated financial statements and the notes thereto included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

	Three Months Ended March 31,			
(unaudited, dollars in millions)	2021	% of net sales	2020	% of net sales
Net sales	**$ 588**	**100%**	$ 637	100%
Cost of sales	**297**	**51**	311	49
Gross profit	**291**	**49**	326	51
Operating expenses:				
Selling, general and administrative	**73**	**12**	75	12
Engineering — research and development	**38**	**6**	36	6
Total operating expenses	**111**	**18**	111	18
Operating income	**180**	**31**	215	33
Interest expense, net	**(29)**	**(5)**	(33)	(5)
Other income (expense), net	**3**	**—**	(1)	—
Income before income taxes	**154**	**26**	181	28
Income tax expense	**(34)**	**(6)**	(42)	(6)
Net income	**$ 120**	**20%**	$ 139	22%

Net sales

Net sales for the quarter ended March 31, 2021 were $588 million compared to $637 million for the quarter ended March 31, 2020, a decrease of 8%. The decrease was principally driven by a $33 million, or 9%, decrease in net sales in the North America On-Highway end market principally driven by lower demand due to the continued effects of the COVID-19 pandemic, a $16 million, or 12%, decrease in net sales in the Service Parts, Support Equipment and Other end market principally driven by lower demand for North America service parts, an $11 million, or 41%, decrease in net sales in the Outside North America Off-Highway end market principally driven by lower demand in the energy sector and a $6 million, or 75%, decrease in net sales in the North America Off-Highway end market principally driven by lower demand for hydraulic fracturing applications, partially offset by a $12 million, or 17%, increase in net sales in the Outside North America On-Highway end market principally driven by higher demand in Asia and a $5 million, or 13%, increase in net sales in the Defense end market principally driven by higher demand for Tracked vehicle applications.

Cost of sales

Cost of sales for the quarter ended March 31, 2021 was $297 million compared to $311 million for the quarter ended March 31, 2020, a decrease of 5%. The decrease was principally driven by decreased direct material and manufacturing expense commensurate with decreased net sales, partially offset by unfavorable material costs and higher incentive compensation expense.

Gross profit

Gross profit for the quarter ended March 31, 2021 was $291 million compared to $326 million for the quarter ended March 31, 2020, a decrease of 11%. The decrease was principally driven by $34 million related to decreased net sales, $7 million of unfavorable material costs and $6 million of higher incentive compensation expense, partially offset by $10 million of price increases on certain products. Gross profit as a percent of net sales for the three months ended March 31, 2021 decreased 170 basis points compared to the same period in 2020 principally driven by decreased net sales, unfavorable material costs and higher incentive compensation expense, partially offset by price increases on certain products.

Selling, general and administrative

Selling, general and administrative expenses for the quarter ended March 31, 2021 were $73 million compared to $75 million for the quarter ended March 31, 2020, a decrease of 3%. The decrease was principally driven by $5 million of lower commercial activities spending and $4 million of lower intangible amortization expense, partially offset by higher incentive compensation expense.

Engineering — research and development

Engineering expenses for the quarter ended March 31, 2021 were $38 million compared to $36 million for the quarter ended March 31, 2020, an increase of 6%. The increase was principally driven by higher incentive compensation expense, partially offset by the intra-year timing of product initiatives spending.

Interest expense, net

Interest expense, net for the quarter ended March 31, 2021 was $29 million compared to $33 million for the quarter ended March 31, 2020, a decrease of 12%. The decrease was principally driven by $3 million of decreased interest expense due to lower interest rates as a result of our long-term debt refinancing in the fourth quarter of 2020 that extended maturities at lower fixed interest rates.

Other income (expense), net

Other income (expense), net for the quarter ended March 31, 2021 was $3 million compared to ($1) million for the quarter ended March 31, 2020. The change was principally driven by $3 million of favorable foreign exchange on intercompany financing and $2 million of favorable change associated with assets held in a rabbi trust.

Income tax expense

Income tax expense for the three months ended March 31, 2021 was $34 million, resulting in an effective tax rate of 22%, compared to $42 million of income tax expense and an effective tax rate of 23% for the three months ended March 31, 2020. The decrease in income tax expense was principally driven by decreased taxable income. The decrease in the effective tax rate was principally driven by increased estimated U.S. federal income tax deductions.

Liquidity and Capital Resources

We generate cash primarily from our operations to fund our operating, investing and financing activities. Our principal uses of cash are operating expenses, capital expenditures, working capital needs, debt service, dividends on common stock, stock repurchases and strategic growth initiatives, including acquisitions. Our ability to generate cash in the future and our future uses of cash are subject to general economic, financial, competitive, legislative, regulatory and other factors that may be beyond our control. We had total available cash and cash equivalents of $295 million and $310 million as of March 31, 2021 and December 31, 2020, respectively. Of the available cash and cash equivalents, $110 million and $150 million were deposited in operating accounts as of March 31, 2021 and December 31, 2020, respectively, while $185 million and $160 million were invested in U.S. government backed securities as of March 31, 2021 and December 31, 2020, respectively.

As of March 31, 2021, the total of cash and cash equivalents held by foreign subsidiaries was $79 million, the majority of which was located in China and Europe. We manage our worldwide cash requirements considering available funds among the subsidiaries through which we conduct our business and the cost effectiveness with which those funds can be accessed. As a result, we do not currently anticipate any local liquidity restrictions will preclude us from funding our targeted initiatives or operating needs with local resources.

We have not recognized any deferred tax liabilities associated with earnings in foreign subsidiaries, except for our subsidiary located in China, as they are intended to be permanently reinvested and used to support foreign operations or have no associated tax requirements. We have recorded a deferred tax liability of $3 million for the tax liability associated with the remittance of previously taxed income and unremitted earnings for our subsidiary located in China. The remaining deferred tax liabilities, if recorded, related to unremitted earnings that are indefinitely reinvested are not material.

Our liquidity requirements are significant, primarily due to our debt service requirements. As of March 31, 2021, we had $636 million of indebtedness associated with ATI’s New Term Loan, $400 million of indebtedness associated with ATI’s 4.75% Senior Notes due October 2027 (“4.75% Senior Notes”), $500 million of indebtedness associated with ATI’s 5.875% Senior Notes due June 2029 (“5.875% Senior Notes”) and $1,000 million of indebtedness associated with ATI’s 3.75% Senior Notes due January 2031 (“3.75% Senior Notes” and, together with the 4.75% Senior Notes and 5.875% Senior Notes, the “Senior Notes”). Short-term and long-term debt service liquidity requirements consist of $2 million of minimum required quarterly principal payments on ATI’s New Term Loan through its maturity date of March 2026 and periodic interest payments on ATI’s New Term Loan and the Senior Notes. There are no required quarterly principal payments on ATI’s Senior Notes. Long-term debt service liquidity requirements also consist of the payment in full of any remaining principal balance of ATI’s New Term Loan and the Senior Notes upon their respective maturity dates.

We made $2 million of principal payments on the New Term Loan during each of the three months ended March 31, 2021 and 2020. Our ability to make payments on and refinance our indebtedness and to fund planned capital expenditures and growth initiatives will depend on our ability to generate cash in the future.

The New Senior Secured Credit Facility provides for a $650 million New Revolving Credit Facility, net of an allowance for up to $75 million in outstanding letter of credit commitments. As of March 31, 2021, we had $645 million available under the New Revolving Credit Facility, net of $5 million in letters of credit. If we have commitments outstanding on the New Revolving Credit Facility at the end of a fiscal quarter, the New Senior Secured Credit Facility requires us to maintain a specified maximum first lien net leverage ratio of 5.50x. Additionally, within the terms of the New Senior Secured Credit Facility, a first lien net leverage ratio at or below 4.00x results in the elimination of excess cash flow payments on the New Senior Secured Credit Facility for the applicable year. As of March 31, 2021, our first lien net leverage ratio was 0.49x. The New Senior Secured Credit Facility also provides certain financial incentives based on our first lien net leverage ratio. A first lien net leverage ratio at or below 4.00x and above 3.50x results in a 25 basis point reduction to the applicable margin on the New Revolving Credit Facility. A first lien net leverage ratio at or below 3.50x results in an additional 25 basis point reduction to the applicable margin on the New Revolving Credit Facility. These reductions remain in effect as long as we achieve a first lien net leverage ratio at or below the related threshold.

In addition, the Credit Agreement includes, among other things, customary restrictions (subject to certain exceptions) on our ability to incur certain indebtedness, grant certain liens, make certain investments, engage in acquisitions, consolidations and mergers, declare or pay certain dividends, and repurchase shares of our common stock. The indentures governing the Senior Notes contain negative covenants restricting or limiting our ability to, among other things, incur or guarantee additional indebtedness, incur liens, pay dividends on, redeem or repurchase our capital stock, make certain investments, permit payment or dividend restrictions on certain of our subsidiaries, sell assets, engage in certain transactions with affiliates, and consolidate or merge or sell all or substantially all of our assets. As of March 31, 2021, we are in compliance with all covenants under the New Senior Secured Credit Facility and indentures governing the Senior Notes.

Our credit ratings are reviewed by Moody’s Investors Service (“Moody’s”) and Fitch Ratings (“Fitch”). Moody’s rates our corporate credit at ‘Ba2’, the New Term Loan at ‘Baa3’, the 4.75% Senior Notes at ‘Ba3’, the 5.875% Senior Notes at 'Ba3' and the 3.75% Senior Notes at ‘Ba3’. Fitch rates our corporate credit at ‘BB’, the New Term Loan at ‘BB+’, the 4.75% Senior Notes at ‘BB’, the 5.875% Senior Notes at 'BB' and the 3.75% Senior Notes at ‘BB’.

On November 14, 2016, our Board of Directors authorized us to repurchase up to $1,000 million of our common stock pursuant to a stock repurchase program (the "Repurchase Program"). On November 8, 2017, July 30, 2018 and May 9, 2019, our Board of Directors increased the authorization by $500 million, $500 million and $1,000 million, respectively, bringing the total amount authorized under the Repurchase Program to $3,000 million. During the three months ended March 31, 2021, we repurchased $96 million of our common stock under the Repurchase Program. All of the repurchase transactions during the three months ended March 31, 2021 were settled in cash during the same period. As of March 31, 2021, we had $731 million available under the Repurchase Program.

The following table shows our sources and uses of funds for the three months ended March 31, 2021 and 2020 (in millions):

	Three Months Ended March 31,	
Statements of Cash Flows Data	**2021**	**2020**
Cash flows provided by operating activities	**$ 128**	$ 148
Cash flows used for investing activities	**$ (21)**	$ (21)
Cash flows used for financing activities	**$ (121)**	$ (203)

Generally, cash provided by operating activities has been adequate to fund our operations. We have significant liquidity, including $295 million of cash and cash equivalents and $645 million available under the New Revolving Credit Facility, net of $5 million of letters of credit, as of March 31, 2021. At this time, we believe cash provided by operating activities, cash and cash equivalents and borrowing capacity under the New Senior Secured Credit Facility will be sufficient to meet our cash requirements for the next twelve months.

Cash provided by operating activities

Operating activities for the three months ended March 31, 2021 generated $128 million of cash compared to $148 million for the three months ended March 31, 2020. The decrease was principally driven by higher operating working capital requirements and lower gross profit, partially offset by lower cash incentive compensation expense and lower cash income taxes.

Cash used for investing activities

Investing activities for each of the three months ended March 31, 2021 and 2020 used $21 million of cash.

Cash used for financing activities

Financing activities for the three months ended March 31, 2021 used $121 million of cash compared to $203 million for the three months ended March 31, 2020. The decrease was principally driven by an $84 million decrease in stock repurchases.

Contingencies

We are a party to various legal actions and administrative proceedings and subject to various claims arising in the ordinary course of business, including those relating to commercial transactions, product liability, personal injury and workers' compensation, safety, health, taxes, environmental and other matters. For more information, see NOTE P, "Commitments and Contingencies" of our condensed consolidated financial statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

Critical Accounting Policies and Significant Accounting Estimates

A discussion of our critical accounting policies and significant accounting estimates is included in Part II, Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in our Annual Report on Form 10-K for the year ended December 31, 2020 as filed with the Securities and Exchange Commission on February 18, 2021. The preparation of the condensed consolidated financial statements in accordance with GAAP requires management to make estimates and assumptions that affect the reported amounts of some assets and liabilities and, in some instances, the reported amounts of revenues and expenses during the applicable reporting period. Actual results could differ materially from these estimates. Changes in estimates are recorded in results of operations in the period that the events or circumstances giving rise to such changes occur. Within the context of these critical accounting estimates, we are not currently aware of any reasonably likely events or circumstances that would result in different policies or estimates being reported for the three months ended March 31, 2021.

Off-Balance Sheet Arrangements

We are not a party to any off-balance sheet arrangements.

Recently Issued Accounting Pronouncements

See NOTE B, “Summary of Significant Accounting Policies” in Part I, Item 1, of this Quarterly Report on Form 10-Q.

Cautionary Note Regarding Forward-Looking Statements

This Quarterly Report on Form 10-Q contains forward-looking statements. The words “believe,” “expect,” “anticipate,” “intend,” “estimate” and other expressions that are predictions of or indicate future events and trends and that do not relate to historical matters identify forward-looking statements. You should not place undue reliance on these forward-looking statements. Although forward-looking statements reflect management’s good faith beliefs, reliance should not be placed on forward-looking statements because they involve known and unknown risks, uncertainties and other factors, which may cause actual results, performance or achievements to differ materially from anticipated future results, performance or achievements expressed or implied by such forward-looking statements. Forward-looking statements speak only as of the date the statements are made. We undertake no obligation to publicly update or revise any forward-looking statement, whether as a result of new information, future events, changed circumstances or otherwise. These forward-looking statements are subject to numerous risks and uncertainties, including, but not limited to: the duration and spread of the COVID-19 pandemic, including new variants of the virus and the pace and availability of vaccines, mitigating efforts deployed by government agencies and the public at large, and the overall impact from such outbreak on economic conditions, financial market volatility and our business, including but not limited to the operations of our manufacturing and other facilities, our supply chain, our distribution processes and demand for our products and the corresponding impacts to our net sales and cash flow; increases in cost, disruption of supply or shortage of raw materials or components used in our products, including as a result of the COVID-19 pandemic; risks related to our substantial indebtedness; our participation in markets that are competitive; the highly cyclical industries in which certain of our end users operate; uncertainty in the global regulatory and business environments in which we operate; our ability to prepare for, respond to and successfully achieve our objectives relating to technological and market developments, competitive threats and changing customer needs; the concentration of our net sales in our top five customers and the loss of any one of these; the failure of markets outside North America to increase adoption of fully automatic transmissions; the success of our research and development efforts, the outcome of which is uncertain; U.S. and foreign defense spending; risks associated with our international operations, including increased trade protectionism; general economic and industry conditions; the discovery of defects in our products, resulting in delays in new model launches, recall campaigns and/or increased warranty costs and reduction in future sales or damage to our brand and reputation; our ability to identify, consummate and effectively integrate acquisitions; labor strikes, work stoppages or similar labor disputes, which could significantly disrupt our operations or those of our principal customers; and our intention to pay dividends and repurchase shares of our common stock.

Important factors that could cause actual results to differ materially from our expectations are disclosed in Part I, Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2020 as filed with the SEC on February 18, 2021 and Part II, Item 1A of this Quarterly Report on Form 10-Q. All written and oral forward-looking statements attributable to us, or persons acting on our behalf, are expressly qualified in their entirety by these cautionary statements as well as other cautionary statements that are made from time to time in our other SEC filings or public communications. You should evaluate all forward-looking statements made in this Quarterly Report on Form 10-Q in the context of these risks and uncertainties.

ITEM 3. Quantitative and Qualitative Disclosures About Market Risk

Our exposure to market risk consists of changes in interest rates, foreign currency rate fluctuations and movements in commodity prices.

Interest Rate Risk

We are subject to interest rate market risk in connection with a portion of our long-term debt. Our principal interest rate exposure relates to outstanding amounts under our New Senior Secured Credit Facility. Our New Senior Secured Credit Facility provides for variable rate borrowings of up to $1,281 million, including $645 million under our New Revolving Credit Facility, net of $5 million of letters of credit. A one-eighth percent increase or decrease in assumed interest rates for the New Senior Secured Credit Facility, if fully drawn as of March 31, 2021, would have an impact of approximately $1 million on interest expense per year. As of March 31, 2021, we had no outstanding borrowings against the New Revolving Credit Facility.

From time to time, we enter into interest rate swap agreements to hedge the risk associated with our variable interest rate debt. As of March 31, 2021, we held interest rate swaps effective from (i) September 2019 to September 2022 with notional values totaling $250 million and a weighted average LIBOR fixed rate of 3.01%, (ii) September 2019 to September 2025 with notional values totaling $250 million and a weighted average LIBOR fixed rate of 3.04% and (iii) September 2022 to September 2025 with notional values totaling $250 million and a weighted average LIBOR fixed rate of 2.82%.

Exchange Rate Risk

While our net sales and costs are denominated primarily in U.S. Dollars, net sales, costs, assets and liabilities are generated in other currencies including Brazilian Real, British Pound, Canadian Dollar, Chinese Yuan Renminbi, Euro, Hungarian Forint, Indian Rupee and Japanese Yen. The expansion of our business outside North America may further increase the risk that cash flows resulting from these activities may be adversely affected by changes in currency exchange rates.

Assuming current levels of foreign currency transactions, a 10% aggregate increase or decrease in the Japanese Yen, Euro, Indian Rupee and Chinese Yuan Renminbi would correspondingly change our earnings, net of tax, by an estimated $6 million per year. We believe our other exposure to foreign currencies is immaterial.

Commodity Price Risk

We are subject to changes in our cost of sales caused by movements in underlying commodity prices. As of March 31, 2021, approximately 65% of our cost of sales consists of purchased components with significant raw material content. A substantial portion of the purchased parts are made of aluminum and steel. The cost of aluminum parts includes an adjustment factor on future purchases for fluctuations in aluminum prices based on accepted industry indices. In addition, a substantial amount of steel-based contracts also include an index-based component. As our costs change, we are able to pass through a portion of the changes in commodity prices to certain of our customers according to our long-term agreements (“LTAs”). We historically have not entered into long-term purchase contracts related to the purchase of aluminum and steel.

Assuming current levels of commodity purchases, a 10% variation in the price of aluminum and steel would correspondingly change our earnings by approximately $4 million and $5 million per year, respectively.

Many of our LTAs have incorporated a cost-sharing arrangement related to potential future commodity price fluctuations. For purposes of the sensitivity analysis above, the impact of these cost sharing arrangements has not been included.

ITEM 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the “Exchange Act”)) as of the end of the period covered by this report. In designing and evaluating the disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply its judgment in evaluating the benefits of possible controls and procedures relative to their costs.

Based on the evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures as of the end of the period covered by this Quarterly Report on Form 10-Q were effective to provide reasonable assurance that information we are required to disclose in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the period covered by this Quarterly Report on Form 10-Q that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

From time to time, we are a party to various legal actions in the normal course of our business, including those related to commercial transactions, product liability, personal injury and workers' compensation, safety, health, taxes, environmental and other matters. Information pertaining to legal proceedings can be found in NOTE P, "Commitments and Contingencies" in the notes to the condensed consolidated financial statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q and is incorporated herein by reference.

Item 1A. Risk Factors

There have been no material changes from our risk factors as previously reported in Part I, Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2020 as filed with the Securities and Exchange Commission on February 18, 2021.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

The following table sets forth information related to our repurchases of our common stock on a monthly basis in the three months ended March 31, 2021:

	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs(1)	Approximate Dollar Value of Shares that May Yet Be Purchased Under Plans(1)
January 1 – January 31, 2021	133,091	$ 41.78	133,091	$ 821,398,668
February 1 – February 28, 2021	617,124	$ 38.65	617,124	$ 797,548,162
March 1 – March 31, 2021	1,639,884	$ 40.88	1,639,884	$ 730,502,021
Total	2,390,099	$ 40.36	2,390,099	

(1) These values reflect the amounts that may be repurchased under the Repurchase Program approved by the Board of Directors on November 14, 2016 and the increases approved by the Board of Directors on November 8, 2017, July 30, 2018 and May 9, 2019 which, in the aggregate, authorized total repurchases of $3,000 million. The Repurchase Program has no termination date.

Item 6. Exhibits

(a) Exhibits

Exhibit Number	Description
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a)/15d-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a)/15d-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
32.1	Certification of Periodic Report by Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (filed herewith)
101	The following financial information from the Registrant’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2021, formatted in Inline XBRL (eXtensible Business Reporting Language): (i) the Condensed Consolidated Balance Sheets; (ii) the Condensed Consolidated Statements of Comprehensive Income; (iii) the Condensed Consolidated Statements of Cash Flows; (iv) the Condensed Consolidated Statements of Stockholders’ Equity; and (v) the Notes to Condensed Consolidated Financial Statements
104	Cover Page Interactive Data File – The cover page from the Registrant’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2021, formatted in Inline XBRL and contained in Exhibit 101

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

ALLISON TRANSMISSION HOLDINGS, INC.

Date: April 29, 2021	By:	/s/ David S. Graziosi	
		Name:	David S. Graziosi
		Title:	President and Chief Executive Officer (Principal Executive Officer)
Date: April 29, 2021	By:	/s/ G. Frederick Bohley	
		Name:	G. Frederick Bohley
		Title:	Senior Vice President, Chief Financial Officer and Treasurer (Principal Financial Officer and Principal Accounting Officer)

Exhibit 31.1

CERTIFICATION PURSUANT TO RULE 13a-14(a)/15d-14(a) OF THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, David S. Graziosi, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Allison Transmission Holdings, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

    a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c) evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d) disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

    a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

    b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Dated: April 29, 2021

/s/ David S. Graziosi

Name: David S. Graziosi
Title: President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION PURSUANT TO RULE 13a-14(a)/15d-14(a) OF THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, G. Frederick Bohley, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Allison Transmission Holdings, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

   a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

   b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Dated: April 29, 2021

/s/ G. Frederick Bohley

Name: G. Frederick Bohley
Title: Senior Vice President, Chief Financial Officer and Treasurer
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of Allison Transmission Holdings, Inc. (the “Company”) on Form 10-Q for the quarter ending March 31, 2021 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), we, David S. Graziosi, President and Chief Executive Officer of the Company, and G. Frederick Bohley, Senior Vice President, Chief Financial Officer and Treasurer of the Company, certify, pursuant to 18 U.S.C. § 1350 as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: April 29, 2021

/s/ David S. Graziosi
David S. Graziosi
President and Chief Executive Officer
(Principal Executive Officer)

Dated: April 29, 2021

/s/ G. Frederick Bohley
G. Frederick Bohley
Senior Vice President, Chief Financial Officer and Treasurer
(Principal Financial Officer)