

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

FORM 10-K

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

For the fiscal year ended December 31, 2023

or

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

For the transition period from _____ to _____

Commission File No. 001-7784

LUMEN[®]

Lumen Technologies, Inc.

(Exact name of registrant as specified in its charter)

Louisiana

(State or other jurisdiction of
incorporation or organization)

100 CenturyLink Drive,

Monroe, Louisiana

(Address of principal executive offices)

72-0651161

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

71203

(Zip Code)

(318) 388-9000

(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, par value \$1.00 per share	LUMN	New York Stock Exchange
Preferred Stock Purchase Rights	N/A	New York Stock Exchange

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

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

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

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

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

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

Large Accelerated Filer ☒ Accelerated Filer ☐ Non-accelerated Filer ☐ 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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☒

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the

registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

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

On February 20, 2024, 1,009,755,821 shares of common stock were outstanding. The aggregate market value of the voting stock held by non-affiliates as of June 30, 2023 was \$ 2.3 billion.

DOCUMENTS INCORPORATED BY REFERENCE:

Portions of the Registrant's Proxy Statement to be furnished in connection with the 2024 annual meeting of shareholders are incorporated by reference in Part III of this report.

Auditor Name: KPMG LLP

Auditor Location: Denver, Colorado

Auditor Firm ID: 185

TABLE OF CONTENTS

PART I

<u>Special Note Regarding Forward-Looking Statements</u>	<u>3</u>
<u>Item 1. Business</u>	<u>5</u>
<u>Item 1A. Risk Factors</u>	<u>21</u>
<u>Item 1B. Unresolved Staff Comments</u>	<u>36</u>
<u>Item 1C. Cybersecurity</u>	<u>36</u>
<u>Item 2. Properties</u>	<u>39</u>
<u>Item 3. Legal Proceedings</u>	<u>39</u>
<u>Item 4. Mine Safety Disclosures</u>	<u>39</u>

PART II

<u>Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities</u>	<u>40</u>
<u>Item 6. [Reserved]</u>	<u>40</u>
<u>Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations</u>	<u>40</u>
<u>Item 7A. Quantitative and Qualitative Disclosures About Market Risk</u>	<u>62</u>
<u>Item 8. Consolidated Financial Statements and Supplementary Data</u>	<u>63</u>
<u>Consolidated Statements of Operations</u>	<u>66</u>
<u>Consolidated Statements of Comprehensive (Loss) Income</u>	<u>67</u>
<u>Consolidated Balance Sheets</u>	<u>68</u>
<u>Consolidated Statements of Cash Flows</u>	<u>69</u>
<u>Consolidated Statements of Stockholders' Equity</u>	<u>71</u>
<u>Notes to Consolidated Financial Statements</u>	<u>72</u>
<u>Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure</u>	<u>143</u>
<u>Item 9A. Controls and Procedures</u>	<u>143</u>
<u>Item 9B. Other Information</u>	<u>144</u>
<u>Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections</u>	<u>144</u>

PART III

<u>Item 10. Directors, Executive Officers and Corporate Governance</u>	<u>145</u>
<u>Item 11. Executive Compensation</u>	<u>145</u>
<u>Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters</u>	<u>146</u>
<u>Item 13. Certain Relationships and Related Transactions and Director Independence</u>	<u>146</u>
<u>Item 14. Principal Accountant Fees and Services</u>	<u>146</u>

PART IV

<u>Item 15. Exhibits and Financial Statement Schedules</u>	<u>147</u>
<u>Item 16. Summary Business and Financial Information</u>	<u>156</u>
<u>Signatures</u>	<u>157</u>

Unless the context requires otherwise, (i) references in this report on Form 10-K, for all periods presented, to "Lumen Technologies, Inc.," "Lumen Technologies" or "Lumen," "we," "us," the "Company" and "our" refer to Lumen Technologies, Inc. and its consolidated subsidiaries and (ii) references in this report to "Level 3" refer to Level 3 Parent, LLC and its predecessor, Level 3 Communications, Inc., which we acquired on November 1, 2017.

PART I

Special Note Regarding Forward-Looking Statements

This report and other documents filed by us under the federal securities law include, and future oral or written statements or press releases by us and our management may include, forward-looking statements about our business, financial condition, operating results or prospects. These "forward-looking" statements are defined by, and are subject to the "safe harbor" protections under the federal securities laws. These statements include, among others:

- forecasts of our anticipated future results of operations, cash flows or financial position;
- statements concerning the anticipated impact of our completed, pending or proposed transactions, investments, product development, participation in government programs, Quantum Fiber buildout plans, and other initiatives, including synergies or costs associated with these initiatives;
- statements about our liquidity, profitability, profit margins, tax position, tax assets, tax rates, asset values, contingent liabilities, growth opportunities, growth rates, acquisition and divestiture opportunities, business prospects, regulatory and competitive outlook, market share, product capabilities, investment and expenditure plans, business strategies, securities repurchase plans, leverage, capital allocation plans, financing or refinancing alternatives and sources, and pricing plans; and
- other similar statements of our expectations, beliefs, future plans and strategies, anticipated developments and other matters that are not historical facts, many of which are highlighted by words such as "may," "will," "would," "could," "should," "plans," "believes," "expects," "anticipates," "estimates," "forecasts," "projects," "proposes," "targets," "intends," "likely," "seeks," "hopes," or variations or similar expressions with respect to the future.

These forward-looking statements are based upon our judgment and assumptions as of the date such statements are made concerning future developments and events, many of which are beyond our control. These forward-looking statements, and the assumptions upon which they are based, (i) are not guarantees of future results, (ii) are inherently speculative and (iii) are subject to a number of risks and uncertainties. Actual events and results may differ materially from those anticipated, estimated, projected or implied by us in those statements if one or more of these risks or uncertainties materialize, or if our underlying assumptions prove incorrect. All of our forward-looking statements are qualified in their entirety by reference below to factors that could cause our actual results to differ materially from those anticipated, estimated, projected or implied by us in those forward-looking statements. These factors include but are not limited to:

- the effects of intense competition from a wide variety of competitive providers, including decreased demand for our more mature service offerings and increased pricing pressures;
- the effects of new, emerging or competing technologies, including those that could make our products less desirable or obsolete;
- our ability to successfully and timely attain our key operating imperatives, including simplifying and consolidating our network, simplifying and automating our service support systems, attaining our Quantum Fiber buildout schedule, replacing aging or obsolete plant and equipment, strengthening our relationships with customers and attaining projected cost savings;
- our ability to safeguard our network, and to avoid the adverse impact of cyber-attacks, security breaches, service outages, system failures, or similar events impacting our network or the availability and quality of our services;

- the effects of ongoing changes in the regulation of the communications industry, including the outcome of legislative, regulatory or judicial proceedings relating to content liability standards, intercarrier compensation, universal service, service standards, broadband deployment, data protection, privacy and net neutrality;
- our ability to generate cash flows sufficient to fund our financial commitments and objectives, including our capital expenditures, operating costs, debt repayments, taxes, pension contributions and other benefits payments;
- our ability to effectively retain and hire key personnel and to successfully negotiate collective bargaining agreements on reasonable terms without work stoppages;
- our ability to successfully adjust to changes in customer demand for our products and services, including increased demand for high-speed data transmission services and artificial intelligence services;
- our ability to successfully maintain the quality and profitability of our existing product and service offerings, to introduce profitable new offerings on a timely and cost-effective basis and to transition customers from our legacy products to our newer offerings;
- our ability to successfully and timely implement our corporate strategies, including our deleveraging and buildout strategies;
- our ability to successfully and timely realize the anticipated benefits from our 2022 and 2023 divestitures, and to successfully operate and transform our remaining business;
- changes in our operating plans, corporate strategies, or capital allocation plans, whether based upon changes in our cash flows, cash requirements, financial performance, financial position, market or regulatory conditions or otherwise;
- the impact of any future material acquisitions or divestitures that we may transact;
- the negative impact of increases in the costs of our pension, healthcare, post-employment or other benefits, including those caused by changes in markets, interest rates, mortality rates, demographics or regulations;
- the potential negative impact of customer and shareholder complaints, government investigations, security breaches or service outages impacting us or our industry;
- adverse changes in our access to credit markets on favorable terms, whether caused by changes in our financial position, lower credit ratings, unstable markets, debt covenant restrictions or otherwise;
- our ability to meet the terms and conditions of our debt obligations and covenants, including our ability to make transfers of cash in compliance therewith;
- the impact of any purported notice of default or notice of acceleration arising from alleged breach of covenants under our credit documents;
- our ability to consummate the transactions contemplated by our amended and restated transaction support agreement entered into on January 22, 2024 (the "TSA") on the currently anticipated timeline or at all, including the ability of the parties to successfully negotiate definitive agreements with respect to all matters covered by the term sheet included therein and the occurrence of events that may give rise to failure to satisfy any of the conditions to consummating such transactions or a right of any of the parties to terminate the TSA;
- our ability to maintain favorable relations with our security holders, key business partners, suppliers, vendors, landlords and lenders;
- our ability to timely obtain necessary hardware, software, equipment, services, governmental permits and other items on favorable terms;

- our ability to meet evolving environmental, social and governance ("ESG") expectations and benchmarks, and effectively communicate and implement our ESG strategies;
- the potential adverse effects arising out of allegations regarding the release of hazardous materials into the environment from network assets owned or operated by us or our predecessors, including any resulting governmental actions, removal costs, litigation, compliance costs, or penalties;
- our ability to collect our receivables from, or continue to do business with, financially-troubled customers;
- our ability to continue to use or renew intellectual property used to conduct our operations;
- any adverse developments in legal or regulatory proceedings involving us;
- changes in tax, pension, healthcare or other laws or regulations, in governmental support programs, or in general government funding levels, including those arising from governmental programs promoting broadband development;
- our ability to use our net operating loss carryforwards in the amounts projected;
- the effects of changes in accounting policies, practices or assumptions, including changes that could potentially require additional future impairment charges;
- the effects of adverse weather, terrorism, epidemics, pandemics, rioting, vandalism, societal unrest, or other natural or man-made disasters or disturbances;
- the potential adverse effects if our internal controls over financial reporting have weaknesses or deficiencies, or otherwise fail to operate as intended;
- the effects of changes in interest rates or inflation;
- the effects of more general factors such as changes in exchange rates, in operating costs, in public policy, in the views of financial analysts, or in general market, labor, economic, public health or geopolitical conditions; and
- other risks referenced in the "Risk Factors" section or other portions of this report or other of our filings with the U.S. Securities and Exchange Commission (the "SEC").

Additional factors or risks that we currently deem immaterial, that are not presently known to us or that arise in the future could also cause our actual results to differ materially from our expected results. Given these uncertainties, investors are cautioned not to unduly rely upon our forward-looking statements, which speak only as of the date made. We undertake no obligation to publicly update or revise any forward-looking statements for any reason, whether as a result of new information, future events or developments, changed circumstances, or otherwise. Furthermore, any information about our intentions contained in any of our forward-looking statements reflects our intentions as of the date of such forward-looking statement, and is based upon, among other things, existing regulatory, technological, industry, competitive, economic and market conditions, and our assumptions as of such date. We may change our intentions, strategies or plans (including our capital allocation plans) at any time and without notice, based upon any changes in such factors, in our assumptions or otherwise.

ITEM 1. BUSINESS

Business Overview and Purpose

We are a facilities-based technology and communications company that provides a broad array of integrated products and services to our domestic and global business customers and our domestic mass markets customers. We operate one of the world's most interconnected networks. Our platform empowers our customers to swiftly adjust digital programs to meet immediate demands, create efficiencies, accelerate market access and reduce costs, which allows our customers to rapidly evolve their IT programs to address dynamic changes. Our specific products and services are detailed below under the heading "Segments and Products & Services."

We conduct our operations under the following three brands:

- "Lumen," which is our flagship brand for serving the enterprise and wholesale markets
- "Quantum Fiber," which is our brand for providing fiber-based services to residential and small business customers
- "CenturyLink," which is our long-standing brand for providing mass-marketed copper-based services, managed for cash flow and optimal efficiency.

With approximately 170,000 on-net buildings and 350,000 route miles of fiber optic cable globally, we are among the largest providers of communications services to domestic and global enterprise customers. Our terrestrial fiber optic long-haul network throughout North America and Asia Pacific connects to metropolitan fiber networks that we operate.

As further discussed immediately below under the heading "Acquisitions and Divestitures," we sold (i) our Latin American business and a portion of our incumbent local exchange business ("ILEC") during 2022 and (ii) our business conducted in Europe, the Middle East and Africa ("EMEA") during 2023.

For a discussion of certain risks applicable to our business, see "Risk Factors" in Item 1A of Part I of this report.

Acquisitions and Divestitures

General

Since being incorporated in 1968, we have grown principally through acquisitions. By 2008, we had become one of the largest providers of rural telephone services in the United States. Since then, we acquired Embarq Corporation in mid-2009, Qwest Communications International Inc. in early 2011 and Level 3 Communications, Inc. in late 2017. These acquisitions substantially changed our customer base, geographic footprint, business strategies and mix of products and services.

We continue to evaluate the possibility of acquiring additional assets or divesting assets in exchange for cash, securities or other properties, and at any given time may be engaged in discussions or negotiations regarding additional acquisitions or divestitures. We generally do not announce our acquisitions or divestitures until we have entered into a preliminary or definitive agreement.

Divestitures of the Latin American, ILEC and EMEA Businesses

On August 1, 2022, affiliates of Level 3 Parent, LLC, an indirect wholly-owned subsidiary of Lumen Technologies, Inc., sold Lumen's Latin American business. On October 3, 2022, we and certain of our affiliates sold the portion of our facilities-based ILEC business primarily conducted within 20 Midwestern and Southeastern states. On November 1, 2023, affiliates of Level 3 Parent, LLC sold Lumen's operations in Europe, the Middle East and Africa (the "EMEA business").

See Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses to our consolidated financial statements in Item 8 of Part II of this report for additional information on these transactions.

Financial Highlights

The following table summarizes the results of our consolidated operations:

	Years Ended December 31,		
	2023 ⁽¹⁾	2022 ⁽¹⁾	2021
	(Dollars in millions)		
Operating revenue	\$ 14,557	17,478	19,687
Operating expenses	24,141	17,383	15,402
Operating (loss) income	\$ (9,584)	95	4,285
Net (loss) income	\$ (10,298)	(1,548)	2,033

⁽¹⁾ During 2023 and 2022, we recorded non-cash, non-tax-deductible goodwill impairment charges of \$10.7 billion and \$3.3 billion, respectively. For additional information, see Note 3—Goodwill, Customer Relationships and Other Intangible Assets to our consolidated financial statements in Item 8 of Part II of this report.

During 2023, 2022 and 2021, approximately 6.5%, 8.6% and 9.4%, respectively, of our consolidated revenue was derived outside the U.S.

The following table summarizes certain selected financial information from our consolidated balance sheets:

	As of December 31,	
	2023	2022
	(Dollars in millions)	
Total assets	\$ 34,018	45,612
Total long-term debt ⁽¹⁾	19,988	20,572
Total stockholders' equity	417	10,374

⁽¹⁾ For additional information on our total long-term debt, see Note 7—Long-Term Debt and Credit Facilities to our consolidated financial statements in Item 8 of Part II of this report. For information on our total obligations, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Future Contractual Obligations" in Item 7 of Part II of this report.

The summary financial information appearing above should be read in conjunction with, and is qualified by reference to, our consolidated financial statements and notes thereto in Item 8 of Part II of this report and "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Item 7 of Part II of this report.

Strategy

Our over-arching strategic goal is to digitally connect people, data, and applications quickly, securely, and effortlessly. To attain this goal, we strive to, among other things:

- strengthen our digital self-service product ordering platforms;
- expand our offering of secure edge computing services;
- create a more adaptive network;
- expand our network capacity through our Quantum Fiber buildout plan and other initiatives;
- monetize our non-core assets and deliver cost-effective operations;
- manage our non-fiber business for cash flow; and
- strengthen our financial position and performance through debt and cost reduction efforts.

Our Stakeholders

We believe that regular communications with our stakeholders is a vital component of Lumen's success. Our "North Star" guides us to operate with transparency and infuses clarity into the communications we have with all of our stakeholders including our investors, employees, customers, vendors, partners and our global community.

Employees and Human Capital Resources

To position Lumen for growth and success, we have made changes to our executive leadership team that have played a critical role in modernizing our business, attracting new talent and invigorating our culture. Lumen's highly competitive business requires attracting, developing and retaining a motivated team inspired by leadership, engaged in meaningful work, motivated by career growth opportunities and thriving in a culture that embraces diversity, inclusion and belonging. Understanding and anticipating the priorities of our current and future employees is important to our future success. We aim to bring together the best mix of diverse talent to develop the brightest ideas to transform industries across the globe. At December 31, 2023, we had approximately 28,000 employees world-wide, including approximately 3,700 outside the U.S.

Attracting, Developing and Retaining Talent

Our recruiting, development and retention objectives focus on treating talent as a differentiator and a leading indicator of business performance. We strive to hire and retain the best talent available to provide outstanding opportunities for career advancement and to champion fair selections and best hiring practices. We have implemented diverse interview panels, which include at least one woman or person of color, to minimize the potential for unconscious bias in our recruitment process. We have also developed a non-biased pre-hire assessment process. We have established a framework of competency-based success profiles and regular career development and training programs, which we believe empower our employees to pursue their professional goals and improve employee engagement and retention. We invest in broad-based development for our employees in various ways such as skills-building programs, on-demand learning options, tuition reimbursement and tailored intern and mentoring programs, along with a suite of leadership development courses. In an effort to create more development opportunities for all employees, we are expanding our mentoring and leadership development programs, with added focus on development for diverse employees.

We believe we have made significant strides in attracting, engaging, and hiring a diverse group of early career employees through our internship program, our numerous sales and operations academies, and our "pathways in technology" program. We have also increased our focus on fostering internal mobility and providing more visibility and career advancement opportunities to our workforce through our internal communications platforms. Developing strong leaders who can move our company forward is a priority for Lumen.

We gauge the efficacy of our programs, identify opportunities for improvement, and pursue solutions through tracking and analyzing data in a variety of ways, including conducting annual talent reviews and measuring our progress toward goals specified in our development, diversity and inclusion plans.

Diversity, Inclusion & Belonging

We believe that diversity stimulates creativity, spurs innovation and helps drive profitability, which is why we strive to create inclusive, welcoming workplaces where everyone can feel at home, be their authentic selves and thrive. Realizing greater diversity across all levels of an organization is, and will continue to be, an ongoing journey. Our Diversity & Inclusion Steering Committee, comprised of a cross-functional team of senior executives, including our Chief Diversity & Inclusion Officer, oversees and champions our diversity, inclusion and belonging strategy. We aim for the highest standards of fairness and equal opportunity in recruitment, hiring, promotions, job assignments and compensation (including undertaking periodic gender and race/ethnicity pay equity studies of our U.S., non-represented employees and making pay adjustments when warranted). Inclusive recruiting and outreach programs for diverse candidates, supportive and engaging employee resource groups, and management-led listening circles are among some of Lumen's initiatives to create greater diversity and belonging among our employees.

Positive Corporate Culture

Our employees are critical to Lumen's success and we believe creating a positive, inclusive culture is essential to attracting and retaining engaged employees. We want our employees to be proud to work with us and fully engaged to share in our purpose maximize the world's digital potential. Lumen is transforming from the bottom up by building a culture of teamwork, trust, and transparency. Lumen's cultural transformation strategy incorporates a wide variety of communication and training activities encouraging collaboration among our colleagues around the world. We measure the program's efficacy and identify opportunities for improvements through an engagement survey distributed approximately every six months.

Health & Wellness

We are committed to promoting the health, safety and well-being of our employees, business partners and global communities. Lumen strives for an above-average safety performance as we continue our investments in programs and training to support health and safety. We want all of our employees to thrive, and we regularly re-evaluate how to best support our employees' well-being through benefits and resources. We design our current benefit and wellness programs to drive engagement that positively impacts our culture, job satisfaction, recruiting and retention programs. We offer progressive employee benefits and enhancements that recognize the diverse needs of our people and their families.

Labor Relations

At December 31, 2023, approximately 21% of our U.S. workforce was represented by a union, either the Communications Workers of America or the International Brotherhood of Electrical Workers. A small number of our overseas employees are represented by unions or another representative body. We recognize the critical role that our supervisors and managers play in fostering a productive and respectful work environment, and we encourage employees to work directly with their supervisors, where possible, to efficiently and effectively resolve workplace concerns. We also respect our employees' rights to voluntarily establish and join unions and similar associations without unlawful interference. We strive to work collaboratively with the unions, councils and associations that represent our workers.

Customer Success

Our customers range from individual households to global enterprises. Whether our network supports remote education to under-served communities or a multi-national work-from-home enterprise, all customers are impacted by the quality and reliability of our products and services. Understanding how each customer accesses and uses our products and services informs the type of customer engagement to best meet their expectations. Lumen's Customer Experience ("CX") team takes the lead in driving customer obsession and guiding the company toward our North Star by listening and learning from our customers, then acting to meet their needs. This assists us in accomplishing our mission of igniting business growth by connecting people, data and applications - quickly, securely, and effortlessly. We believe a strong experience leads to satisfied customers and engaged employees who are encouraged to recommend creative solutions.

We highly value both customer and employee suggestions. We offer our customers several channels for communicating with us, including voice, text, email, chat and social media, among others. We are driving a digital-first culture that allows our customers to configure, order and rapidly deploy our services through an all-digital, self-service set of tools. Since 2019, we have hosted an annual CX event, during which we invite customers to collaborate directly with us.

While careful listening to customers is the best source of customer experience feedback, we believe overlaying it with employee feedback is the most effective way to continuously improve. We regularly invite our front-line employees to provide feedback on opportunities to improve our capabilities.

Partners and Vendors

We seek to engage with those partners and vendors who best contribute to our customers' success. Lumen seeks to co-innovate with a comprehensive group of strategic partners to create solutions focused exclusively on our customers' business and IT requirements. Through our open and interoperable approach, we seek to identify the optimal platform for serving our customers – whether ours or a third party's. When necessary, Lumen incorporates market-leading technologies to optimize application performance and streamline integration throughout the IT stack to ensure seamless integration and interoperability. Lumen has collaborated with a host of technology partners, in an effort to integrate different technologies to improve our products and services. We believe this collaboration has strengthened our capability to tailor and manage scalable solutions that customers control.

Given these efforts to better serve our customers, we are materially reliant on a wide range of vendors to support our organization and partners to support our strategy. We work with, and rely on, other communications companies that lease us transmission capacity or sell us various services necessary for our current operations, as well as a wide range of software, hardware and equipment suppliers. We believe that co-innovating with other companies enables us to more rapidly improve our customer offerings.

In addition, we provide services to our customers in Latin America and EMEA through contractual relationships with third-party carriers. Under these arrangements, the third-party carriers invoice us for their services, and we pass along those charges to our customers through our invoices.

Environmental Stewardship and Sustainability

We believe our commitment to environmental sustainability promotes the financial health of our business and strengthens our relations with our employees, communities, customers and investors.

In early 2022, we formed the Sustainability Management Committee ("SMC") comprised of employees from across the business. The SMC designs and oversees our company-wide sustainability program, including the monitoring of climate-related issues, and is responsible for driving our sustainability agenda with the Board and senior leadership. Additionally, our Environment, Health and Safety ("EHS") team is responsible for overseeing and implementing our EHS and environmental sustainability initiatives.

The EHS program framework focuses on the following key areas:

- **Environmental compliance and management:** The Lumen EHS team assesses and reviews our company programs, operational facilities and waste management vendors. We monitor environmental legislative activity and collaborate with other internal groups to develop documented practices and procedures that support compliance with applicable laws and regulations.
- **Energy and emissions:** In an effort to reduce our carbon footprint, we continue to identify and implement energy efficiency and greenhouse gas ("GHG") emissions reduction initiatives. In November 2023, we announced early achievement of our 2018-2025 science-based GHG emissions-reduction targets. We remain committed to exploring ways to reduce GHG emissions through our operational, customer and employee initiatives.

- **Water:** Lumen uses the World Resource Institute's Aqueduct Water Risk Atlas to assess susceptibility to future water stress across our areas of operation. We strive to reduce our water consumption, especially in the water-stressed communities where we operate. We track our usage and closely monitor abnormalities to improve water efficiencies and reduce site discharge.
- **Waste:** We are committed to reusing and recycling products, minimizing material use and carefully managing our waste. Each year, we divert millions of pounds of electronic and communications equipment from landfills. We recycle telecommunications equipment, and our modem/router takeback program allows customers to return their equipment, which are then either reused or sent to an R2-certified recycler.
- **Supplier environmental assessment:** We expect our suppliers to embrace and share our commitment to compliance and sustainability efforts. As reflected in our Supplier Code of Conduct, we expect our suppliers to use reasonable efforts to employ environmentally preferred and energy-efficient services, and to work with their own suppliers to assess and address environmental and sustainability issues within their supply chains.
- **Climate preparedness:** We evaluate various climate change risks to our ongoing operations when we consider expanding our network or facilities. Our comprehensive business continuity program focuses on prevention, collaboration, communication, response and recovery to assist us in quickly resolving disruptive events. Weather events such as severe flooding and hurricanes can impact our ability to deliver services, so business resiliency and adaptability is key to the long-term viability of our business.
- **Occupational Health and Safety:** The EHS team conducts risk assessments, reviews safety incident data and monitors health and safety legislation to develop policies and procedures designed to minimize safety hazards and support compliance with applicable laws and regulations. We continuously monitor safety performance to identify trends and evaluate opportunities to eliminate or reduce the risks of workplace hazards.

Our Network

Our network, through which we provide most of our products and services, consists of fiber-optic and copper cables, high-speed transport equipment, electronics, voice switches, data switches, routers, and various other equipment. We operate part of our network with leased assets, and a substantial portion of our equipment with licensed software.

At December 31, 2023, our network (owned and leased) included (i) approximately 350,000 route miles of fiber optic plant and (ii) multiple gateway and transmission facilities used in connection with operating our network throughout North America.

At December 31, 2023, our domestic network connected to (i) approximately 170,000 buildings, which we refer to as "Fiber On-net" buildings, serving our enterprise customer base and (ii) approximately 21.8 million broadband-enabled units capable of serving our Mass Markets customer base. At December 31, 2023, approximately 3.7 million of our Mass Markets broadband-enabled units were capable of receiving services from our fiber-based infrastructure, with the remainder connected with copper-based infrastructure. Our domestic network also included at such date central office and other equipment that enables us to provide telephone service as an ILEC.

As discussed in "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Item 7 of Part II of this report and Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses to our consolidated financial statements in Item 8 of Part II of this report, we sold portions of our network during 2022 and 2023.

As noted elsewhere in this report, we view our network as one of our most critical assets. We have devoted, and plan to continue to devote, substantial resources to (i) simplify and modernize our network and legacy systems (ii) retire aging or obsolete systems and plant and (iii) expand our network to address demand for enhanced or new products. A key element of our network expansion plan is our Quantum Fiber buildout project. Under this project, we propose over the next several years to construct additional fiber optic infrastructure to enable us to provide Quantum Fiber broadband services to several million additional urban and suburban locations in our remaining ILEC markets.

Although we own most of our network, we lease a substantial portion of our core fiber network from several other communication companies under arrangements that will periodically need to be renewed or replaced to support our current network operations.

As a critical infrastructure provider, we are a constant target of cyber-attacks from a wide range of intruders, including advanced persistent threat actors. From time to time in the ordinary course of our business, we experience security incidents and disruption in our services. We develop and maintain systems and programs designed to protect against cyber-attacks and network outages. The development, maintenance and operation of these systems and programs is costly and requires ongoing monitoring and updating as technologies change and efforts to bypass security measures become more sophisticated and evolve rapidly.

For additional information regarding our systems, network assets, network risks, capital expenditure requirements and reliance upon third parties, see "Risk Factors" in Item 1A of Part I of this report.

Competition

We compete in a dynamic and highly competitive market in which demand for high-speed, secure data services continues to grow. We expect continued intense competition from a wide variety of sources under these evolving market conditions. In addition to competition from large international communications providers, we are facing competition from a growing number of sources, including systems integrators, hyperscalers, cloud service providers, software networking companies, infrastructure companies, cable companies, wireless service providers, device providers, resellers and smaller niche providers.

Our ability to compete hinges upon effectively enhancing and better integrating our existing products, introducing new products on a timely and cost-effective basis, meeting changing customer needs, providing high-quality information security to build customer confidence and combat cyber-attacks, extending our core technology into new applications and anticipating emerging technological and industry changes. Depending on the applicable market and services, competition can be intense, especially if competitors in the market have network assets better suited to customer needs, faster transmission speeds or lower prices, or, in certain overseas markets, are national or regional incumbent communications providers that have a longer history of providing service in the market.

We compete to provide services to business customers based on a variety of factors, including the comprehensiveness and reliability of our network, our data transmission speeds, price, the latency of our available network services, the scope of our integrated offerings, the reach and peering capacity of our IP network, and customer service. Competition from large communications providers, systems integrators, hyperscalers and others have increased pricing pressures with respect to several key products and services that we offer to our enterprise and wholesale business customers. In particular, several hyperscalers have recently built their own data transmission facilities, which has reduced demand for our network services.

Competition to provide broadband services to our mass markets customers remains high. Market demand for our broadband services could be adversely affected by (i) advanced wireless data transmission technologies, including fixed wireless and low-earth-orbit satellite services, and (ii) continued enhancements to cable-based services, each of which generally provides faster average broadband transmission speeds than our copper-based infrastructure. In addition, several established or new communications companies, infrastructure companies or municipalities have built or are building new fiber-based networks to provide high-speed broadband services in existing or unserved markets, frequently with the support of governmental subsidies. Our network expansion and innovation strategy is focused largely on addressing these competitive pressures. To meet these demands and remain competitive, we are continuing to invest in network capacity, security, reliability, flexibility and design innovations, including through our Quantum Fiber buildout initiative.

For our traditional voice services, providers of wireless voice, social networking, videoconferencing and electronic messaging services are significant competitors as many customers are increasingly using these services to communicate, resulting in the long-term systemic decline in our traditional voice services. Other potential sources of competition include non-carrier systems that are capable of bypassing our local networks, either partially or completely, through various means. Developments in software have permitted new competitors to offer affordable networking products that historically required more expensive hardware investment. We anticipate that all these trends will continue to place downward pressures on the use of our voice network.

Additionally, the Telecommunications Act of 1996 obligates ILECs, including those operated by us, to permit competitors to interconnect their facilities to the ILEC's network and to take various other steps that are designed to promote competition, including obligations to (i) negotiate interconnection agreements in good faith, (ii) provide nondiscriminatory "unbundled" access to specific portions of the ILEC's network and (iii) permit competitors to physically or virtually collocate their plant on the ILEC's property. As a result of the above-described regulatory and technological developments, we also face competition from competitive local exchange carriers ("CLECs"), particularly in densely populated areas. CLECs provide competing services through (i) reselling an ILEC's local services, (ii) using an ILEC's unbundled network elements, (iii) operating their own facilities or (iv) a combination thereof.

Additional information about competitive pressures is located under the heading "Risk Factors—Business Risks" in Item 1A of Part I of this report.

Sales and Marketing

Sales Channels

Our enterprise sales and marketing approach focuses on solving complex customer problems with advanced technology and network solutions – striving to make core networks services compatible with digital tools. We also rely on our call center personnel and a variety of channel partners to promote sales of services that meet the needs of our customers. To meet the needs of different customers, our offerings include both stand-alone services and bundled services designed to provide a complete offering of integrated services.

Our business customers range from small business offices to the world's largest global enterprise customers. Our direct sales representatives generally market our business services to members of in-house IT departments or other highly-sophisticated customers with deep technological experience. These individuals typically satisfy their IT requirements by contracting with us or a rapidly evolving group of competitors, or by deploying in-house solutions. We also market our products and services through inbound call centers, telemarketing and third parties, including telecommunications agents, system integrators, value-added resellers and other telecommunications firms. We support our distribution through digital advertising, events, television advertising, website promotions and public relations. We maintain local offices in most major and secondary markets within the U.S. and many of the primary markets of the other countries in which we provide services.

Similarly, our sales and marketing approach to our mass market customers emphasizes customer-oriented sales, marketing and service with a local presence. Our approach includes marketing our products and services primarily through direct sales representatives, inbound call centers, telemarketing and third parties, including retailers, satellite television providers, door to door sales agents and digital marketing firms.

Segments and Products & Services

We structure our segments and customer-facing sales channels to align with how we support our customers. We believe this reporting structure provides greater transparency into how we are performing against our strategy, including focusing on growth opportunities and managing declining legacy services.

Segments

We report our financial performance using two segments, as described below:

- *Business Segment:* Under our Business segment, we provide our products and services under four sales channels to meet the needs of our enterprise and commercial customers; and

- *Mass Markets Segment:* Under our Mass Markets segment, we provide products and services to residential and small business customers.

The following table shows the composition of our operating revenue by segment for the years ended December 31, 2023, 2022 and 2021:

	Years Ended December 31,			Percent Change	
	2023	2022	2021	2023 vs 2022	2022 vs 2021
Percentage of revenue:					
Business	79 %	75 %	72 %	4 %	3 %
Mass Markets	21 %	25 %	28 %	(4)%	(3)%
Total operating revenue	100 %	100 %	100 %		

For additional information on our segment data, including information on certain centrally-managed assets and expenses not reflected in our segment results, see Note 17—Segment Information to our consolidated financial statements in Item 8 of Part II of this report and "Management's Discussion and Analysis of Financial Condition and Results of Operations—Reporting Segments" in Item 7 of Part II of this report.

Products & Services

At December 31, 2023, we categorized our products and services revenue among the following product categories for the Business segment:

- *Grow, which includes products and services that we anticipate will grow, including:*
 - *Dark Fiber.* We control an extensive array of unlit optical fiber known as "dark fiber," which has been laid but not yet been equipped with the equipment necessary for it to transmit data. We provide access to this unlit optical fiber to customers who are interested in building their networks with this high-bandwidth, highly secure optical technology. We also provide professional services to engineer these networks, and in some cases, manage them for customers;
 - *Edge Cloud Services.* We provide access to both public and private cloud solutions that allow our customers to optimize cost and performance by offloading workloads. Lumen's cloud access products are designed to leverage our network edge to provide low-latency secure services for our customers. Additionally, we provide cloud orchestration tools that allow customers to shift work between cloud environments dynamically;
 - *Internet Protocol ("IP").* Our IP services provide global internet access over a high performance, diverse network. Our fiber network spans approximately 350,000 route miles globally with extensive off-net access solutions across North America and Asia Pacific;
 - *Managed Security Services.* We provide enterprise security solutions that help our customers secure networks, mitigate malicious attacks and identify potential security threats. These services include DDoS mitigation, remote and premise-based firewalls, professional consulting and management services, and threat intelligence services;
 - *Software-Defined Wide Area Networks ("SD WAN").* We offer Lumen-managed and co-managed SD-WAN solutions to help reduce the complexity and business risk of network transformation on a single, automated platform that coordinates the full spectrum of connectivity types. Our tools, technology and hands-on expertise provide the ability to design, deploy and evolve with business needs while maintaining complete visibility, security and control;
 - *Secure Access Service Edge ("SASE").* We offer Lumen Secure Access Service Edge (SASE) as a comprehensive network and security solution using a cloud-first architecture, centered around zero-trust security principles. The service is delivered from a choice of multiple SASE software partners, offers flexible service management options, and is available on our IP backbone with several access options to connect and protect customer networks;

- *Unified Communications and Collaboration ("UC&C")*. We provide access to various unified communications platforms. This offering includes both individual, license-based service models and more robust options that transform a customer's inbound and outbound calling platform; and
- *Optical Services*. We deliver high bandwidth optical wavelength networks to customers requiring an end-to-end solution with ethernet technology for a scalable amount of bandwidth connecting sites or providing high-speed access to cloud computing resources.
- *Nurture, which includes our more mature offerings, such as:*
 - *Ethernet*. We deliver a robust array of networking services built on ethernet technology. Ethernet services include point-to-point and multi-point equipment configurations that facilitate data transmissions across metropolitan areas and larger enterprise-class wide area networks. Our ethernet technology is also used by wireless service providers for data transmission via our fiber-optic cables connected to their towers; and
 - *VPN Data Networks*. Leveraging our extensive fiber-optic network, we create private networks tailored to our customers' needs. These technologies enable service providers, enterprises and government entities to streamline multiple networks into a single, cost-effective solution that simplifies the transmission of voice, video, and data over a single secure network.
- *Harvest, which includes our legacy services managed for cash flow, including:*
 - *Voice Services*. We offer our customers a complete portfolio of traditional Time Division Multiplexing ("TDM") voice services including primary rate interface service, local inbound service, switched one-plus, toll free, long distance and international services; and
 - *Private Line*. We deliver private line services, a direct circuit or channel specifically dedicated for connecting two or more organizational sites. Private line service offers a high-speed, secure solution for frequent transmission of large amounts of data between sites, including wireless backhaul transmissions.
- *Other, which includes:*
 - *Equipment*. We sell and install certain communications equipment.
 - *IT Solutions*. We craft technology solutions for our customers and often manage these solutions on an ongoing basis. These services frequently enhance equipment or networks owned, acquired, or controlled by the customer and often include our consulting or software development services; and
 - *Other Legacy Services*. We continue to provide certain services based on older platforms to support our customers as they transition to newer technology. These services include Synchronous Optical Network ("SONET") based ethernet, legacy data hosting services, and conferencing services.

At December 31, 2023, we reported our products and services revenue among the following categories for the Mass Markets segment:

- *Fiber Broadband*, under which we provide high speed broadband services to residential and small business customers utilizing our fiber-based network infrastructure;
- *Other Broadband*, under which we provide primarily lower speed broadband services to residential and small business customers utilizing our copper-based network infrastructure; and
- *Voice and Other*, under which we derive revenues from (i) providing local and long-distance voice services, professional services, and other ancillary services, and (ii) federal broadband and state support programs.

Research, Development & Intellectual Property

As of December 31, 2023, we held approximately 3,100 patents and patent applications in the U.S. and other countries. We have also received licenses to use patents held by others, which give us the freedom to operate our business without the risk of interruption from the holder of the patented technology. We plan to continue to file new patent applications as we enhance and develop products and services, and we plan to continue to seek opportunities to expand our patent portfolio through strategic acquisitions and licensing.

In addition to our patent rights, we have rights in various trade names, trademarks, copyrights and other intellectual property that we use to conduct our business. Our services often use the intellectual property of others, including licensed software. We also occasionally license our intellectual property to others as we deem appropriate.

For information on various litigation risks associated with owning and using intellectual property rights, see "Risk Factors—Business Risks" in Item 1A of Part I of this report, and Note 18—Commitments, Contingencies and Other Items to our consolidated financial statements in Item 8 of Part II of this report.

Regulation of Our Business

Our domestic operations are regulated by the Federal Communications Commission (the "FCC"), by various state regulatory commissions and occasionally by local agencies. Our non-domestic operations are regulated by supranational groups (such as the European Union, or EU), national agencies and frequently state, provincial or local bodies. Generally, we must obtain and maintain operating licenses from these bodies in most areas where we offer regulated services.

Changes in the composition and leadership of the FCC, state regulatory commissions and other agencies that regulate our business could have significant impacts on our revenue, expenses, competitive position and prospects. Changes in the composition and leadership of these agencies are often difficult to predict, which makes future planning more difficult.

The following description discusses some of the major regulations affecting our operations, but others could have a substantial impact on us as well. For additional information, see "Risk Factors" in Item 1A of Part I of this report.

Federal Regulation of Domestic Operations

General

The FCC regulates the interstate services we provide, including the business data service charges we bill for wholesale network transmission and intercarrier compensation, including the interstate access charges that we bill other communications companies in connection with the origination and termination of interstate phone calls. Additionally, the FCC regulates several aspects of our business related to international communications services, privacy, public safety and network infrastructure, including (i) our access to and use of local telephone numbers, (ii) our provision of emergency 911 services and (iii) our use or removal (potentially on a reimbursable basis) of equipment produced by certain vendors deemed to cause potential national security risks. We could incur substantial penalties if we fail to comply with the FCC's applicable regulations.

Many of the FCC's regulations adopted in recent years remain subject to judicial review and additional rule-makings, thus increasing the difficulty of determining the ultimate impact of these changes on us and our competitors.

Universal Service

Between 2015 and 2021, we received approximately \$500 million annually through Phase II of the FCC's Connect America Fund ("CAF II"), a program that ended on December 31, 2021. In connection with the CAF II funding, we were required to meet certain specified infrastructure buildout requirements in 33 states by the end of 2021, which required substantial capital expenditures. In the first quarter of 2022, we recognized \$59 million of previously deferred revenue related to the conclusion of the CAF II program based upon our final buildout and filing submissions. The government has the right to audit our compliance with the CAF II program. The ultimate outcome of any remaining examinations is unknown, but could result in a liability to us in excess of our reserve accruals established for these matters.

In January 2020, the FCC created the Rural Digital Opportunity Fund ("RDOF") program, a federal support program designed to fund broadband deployment in rural America. For the first phase of this program, RDOF Phase I, the FCC ultimately awarded \$6.4 billion in support payments to be paid in equal monthly installments over 10 years. We were awarded RDOF funding in several of the states in which we operate and began receiving monthly support payments during the second quarter of 2022. We received approximately \$17 million in annual RDOF Phase I support payments for each of the years ended December 31, 2023 and 2022 and expect to receive this same amount each year thereafter during the program period.

Federal officials have proposed changes to current programs and laws that could impact us, including proposals designed to increase broadband access, increase competition among broadband providers, lower broadband costs and re-adopt "net neutrality" rules similar to those adopted under a prior administration. In late 2021, the U.S. Congress enacted legislation that appropriated \$65 billion to improve broadband affordability and access, primarily through federally funded state grants. As of the date of this report, various state and federal agencies are continuing to take steps to make this funding available to eligible applicants, including us. Although it remains premature to speculate on the ultimate impact of this legislation on us, we anticipate that the release of this funding would increase competition for broadband customers in newly-served areas.

For additional information about these programs, see (i) Note 4—Revenue Recognition to our consolidated financial statements in Item 8 of Part II of this report and (ii) "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Item 7 of Part II of this report.

Broadband Regulation

In February 2015, the FCC adopted an order regulating broadband internet access services ("BIAS") as a Title II utility service under the Communications Act of 1934. In December 2017, the FCC voted to repeal the classification of BIAS as a Title II utility service and to preempt states from imposing substantial regulations on broadband services. Opponents of this change appealed this action in federal court. Several states have also opposed the change and have proposed, implemented or enacted laws or orders focused on state-specific Internet service regulation. In October 2019, the federal court upheld the FCC's classification decision but vacated a part of its preemption ruling. Various courts are considering or have ruled upon the issue of the enforceability of state broadband regulation, and additional litigation and appeals are expected with respect to this issue. In addition, members of the current administration and various consumer interest groups have advocated in favor of reclassifying BIAS as a Title II utility service. The ultimate impact of these pending judicial matters and calls for additional regulation are currently unknown to us, although the imposition of heightened regulation of our Internet operations could potentially hamper our ability to operate our data networks efficiently, restrict our ability to implement network management practices necessary to ensure quality service, increase the cost of operating, maintaining and upgrading our network, and otherwise negatively impact our current operations.

State Regulation of Domestic Operations

Historically ILECs, including ours, have been regulated as "common carriers," and state regulatory commissions have generally exercised jurisdiction over intrastate voice telecommunications services and their associated facilities. In recent years, most states have reduced their regulation of ILECs. State regulatory commissions generally continue to (i) set the rates that telecommunications companies charge each other for exchanging traffic, (ii) administer support programs designed to subsidize the provision of services to high-cost rural areas, (iii) regulate the purchase and sale of ILECs, (iv) require ILECs to provide service under publicly-filed tariffs setting forth the terms, conditions and prices of regulated services, (v) limit ILECs' ability to borrow and pledge their assets, (vi) regulate transactions between ILECs and their affiliates and (vii) impose various other service standards.

In most states, switched and business data services and interconnection services are subject to price regulation, although the extent of regulation varies by type of service and geographic region. In addition, Voice-Over-Internet Protocol services are regulated by state regulators, but more lightly than ILEC services. State agencies also regulate certain aspects of non-ILEC communications businesses, including administering the payment of federal subsidies to support broadband infrastructure construction.

Data Privacy Laws and Regulations

Various foreign, federal and state laws govern our storage, maintenance and use of customer data, including a wide range of consumer protection, data protection, privacy, intellectual property and similar laws. Data privacy regulations are complex and vary across jurisdictions. As a company providing global services, we must comply with various jurisdictional data privacy regulations, including the General Data Protection Regulation ("GDPR") in the EU and similar laws adopted by various other jurisdictions in certain of our domestic and overseas markets. Domestically, the number of state privacy laws continues to increase. The application, interpretation and enforcement of these laws are often uncertain, and may be interpreted and applied inconsistently from jurisdiction to jurisdiction. These regulations require careful handling of personal and customer data and could have a significant impact on our business, especially if we violate any of those regulations.

Anti-Bribery and Corruption Regulations

As a provider of global services, we must comply with complex foreign and U.S. laws and regulations governing business ethics and practices, such as the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act and other local laws prohibiting corrupt payments to governmental officials and anti-competition regulations. We have compliance policies, programs and training designed to prevent non-compliance with such anti-corruption regulations in the U.S. and other jurisdictions.

Regulation of International Operations

Our subsidiaries operating outside of the U.S. are subject to various regulations in the markets where service is provided. The scope of regulation varies from country to country. The communications regulatory regimes in certain of our non-domestic markets are in the process of development. Many issues, including the pricing of services, have not been addressed fully, or even at all.

Our overseas operations are also subject to various other domestic or non-domestic laws or regulations, including various laws or regulations governing exports and imports of various goods or technologies and certain sanctioned business activities.

In 2020, the United Kingdom ("UK") terminated its membership in the EU ("Brexit") and has entered into related separation agreements with the EU regarding data sharing, financial services and other matters. Following the sale of our EMEA operations on November 1, 2023, we conduct only limited operations within the UK and EU. Consequently, we do not anticipate Brexit will have a substantial impact on our business.

Other Regulations

Our networks and properties are subject to numerous federal, state and local laws and regulations, including laws and regulations governing the use, storage and disposal of hazardous materials, the release of pollutants into the environment and the remediation of contamination. Our contingent liabilities under these laws are further described in Note 18—Commitments, Contingencies and Other Items. Certain federal and state agencies, including attorneys general, monitor and exercise oversight related to consumer protection issues. We are also subject to codes that regulate our trenching and construction operations or that require us to obtain permits, licenses or franchises to operate. Such regulations are enacted by municipalities, counties, state, federal or other regional governmental bodies, and can vary widely from jurisdiction to jurisdiction as a result. Such regulations may also require us to pay substantial fees.

Seasonality

Overall, our business is not materially impacted by seasonality. Our network-related operating expenses are, however, generally higher in the second and third quarters of the year. From time to time, weather related problems have resulted in increased costs to repair our network and respond to service calls in some of our markets. The amount and timing of these costs are subject to the weather patterns of any given year but have generally been highest during the third quarter and have been related to damage from severe storms, including hurricanes, tropical storms and tornadoes in our markets along the Atlantic and Gulf of Mexico coastlines.

Additional Information

From time to time, we may make investments in other communications or technology companies. For further information on regulatory, technological and competitive factors that could impact our revenue, see "Regulation" and "Competition" above under this Item 1 and "Risk Factors" below under Item 1A. For more information on the financial contributions of our various services, see "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Item 7 of Part II of this report.

Website Access and Important Investor Information

We were incorporated in Louisiana in 1968. Our website is www.lumen.com. We routinely post important investor information in the "Investor Relations" section of our website at ir.lumen.com. The information contained on, or that may be accessed through, our website is not part of this report or any other periodic reports that we file with the SEC. Any references to our website in this report or any other periodic reports that we file with the SEC are provided for convenience only, and are not intended to make any of our website information a part of this or such other reports. You may obtain free electronic copies of annual reports on Form 10-K, quarterly reports on Form 10-Q, and current reports on Form 8-K of us and two of our principal subsidiaries, and amendments to those reports, in the "Investor Relations" section of our website (ir.lumen.com) under the heading "FINANCIALS" and subheading "SEC Filings." These reports are also available on the SEC's website at www.sec.gov. From time to time, we also use our website to webcast our earnings calls and certain of our meetings with investors or other members of the investment community.

We have adopted a written code of conduct that serves as the code of ethics applicable to our directors, officers and employees, in accordance with applicable laws and rules promulgated by the SEC and the New York Stock Exchange. In the event that we make any changes (other than by a technical, administrative or non-substantive amendment) to, or provide any waivers from, the provisions of our code of conduct applicable to our directors or executive officers, we intend to disclose these events on our website or in a report on Form 8-K filed with the SEC. The code of conduct, as well as copies of our guidelines on significant governance issues and the charters of our key board committees, are also available in the "Governance" section of our website at www.lumen.com/en-us/about/governance or in print to any shareholder who requests them by sending a written request to our Corporate Secretary at Lumen Technologies, Inc., 100 CenturyLink Drive, Monroe, Louisiana, 71203.

In connection with filing this report, our chief executive officer and chief financial officer made the certifications regarding our financial disclosures required under the Sarbanes-Oxley Act of 2002, and its related regulations. In addition, during 2023, our chief executive officer certified to the New York Stock Exchange that she was unaware of any violations by us of the New York Stock Exchange's corporate governance listing standards.

As a large complex organization, we are from time to time subject to litigation, disputes, governmental or internal investigations, consent decrees, service outages, security breaches or other adverse events. We typically publicly disclose these occurrences (and their ultimate outcomes) only when we determine these disclosures to be material to investors or otherwise required by applicable law.

We typically disclose material non-public information by disseminating press releases, making public filings with the SEC, or disclosing information during publicly accessible meetings or conference calls. Nonetheless, from time to time we have used, and intend to continue to use, our website and social media accounts to augment our disclosures.

Although at various times we answer questions raised by securities analysts, it is against our policy to disclose to them selectively any material non-public information or other confidential information. Investors should not assume that we agree with any statement or report issued by an analyst with respect to our past or projected performance. To the extent that reports issued by securities analysts contain any projections, forecasts or opinions, such reports are not our responsibility.

Unless otherwise indicated, information contained in this report and other documents filed by us under the federal securities laws concerning our views and expectations regarding the technology or communications industries are based on estimates made by us using data from industry sources and making assumptions based on our industry knowledge and experience. You should be aware that we have not independently verified data from industry or other third-party sources and cannot guarantee its accuracy or completeness.

We have developed methodologies for calculating certain of our statistical data, including route miles, broadband subscribers, broadband-enabled units, on-net buildings and similar metrics. We may calculate these amounts differently from other industry participants.

Our principal executive offices and telephone number are listed on the cover page of this report.

ITEM 1A. RISK FACTORS

The following discussion identifies material factors that could (i) materially and adversely affect our business, financial condition, results of operations or prospects or (ii) cause our actual results to differ materially from our anticipated results, projections or other expectations. The following information should be read in conjunction with the other portions of this annual report, including "Special Note Regarding Forward-Looking Statements", "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Item 7 and our consolidated financial statements and related notes in Item 8. All references to "Notes" in this Item 1A of Part I refer to the Notes to Consolidated Financial Statements included in Item 8 of Part II of this report. Please note the following discussion is not intended to comprehensively list all risks or uncertainties faced by us. Our operations or actual results could also be similarly impacted by additional risks and uncertainties that are not currently known to us, that we currently deem to be immaterial, that arise in the future or that are not specific to us. In addition, certain of the risks described below apply only to a part or segment of our business.

Business Risks

Challenges with integrating or modernizing our existing applications and systems could harm our performance.

To succeed, we need to integrate, update and upgrade our existing applications and systems, including many legacy systems from past acquisitions. We cannot assure you we will be able to integrate our legacy IT systems, modernize our infrastructure, timely retire aging or obsolete systems or deploy a master data management platform. These modernization efforts will require efficient allocation of resources, development capacity, greater use of artificial intelligence ("AI") and other emerging technologies, access to subject-matter experts, development of a sustainable operating model and successful collaboration between legal, privacy and security personnel. Any failure to timely accomplish these initiatives may negatively affect our (i) customer and employee experiences, (ii) ability to meet regulatory, legal or contractual obligations, (iii) network stability, (iv) ability to realize anticipated efficiencies, (v) ability to timely repair infrastructure and respond to service outages or (vi) ability to deliver services to our customers at required speed and scale.

We may not be able to create the global digital experience expected by customers.

Our customers expect us to create and maintain a global digital experience, including (i) automation and simplification of our offerings and (ii) digital self-service access to our products, services and customer support. To do so, we must timely and successfully complete the digital transformation of our operations that is currently underway. Effective digital transformation is a complex, dynamic process requiring efficient allocation and prioritization of resources, simplification of our product portfolio, faster product deployments, retirement of obsolete systems, migration of data and corresponding workforce and system development. We cannot assure you we will be able to timely effect the successful digital transformation necessary to develop or deliver a global digital experience expected by our customers. If we are unable to do so, we could lose existing customers or fail to attract new ones, either of which could prevent us from attaining our financial goals.

We operate in an intensely competitive industry and existing and future competitive pressures could harm our performance.

Each of our business and mass market offerings faces increasingly intense competition, with increased pressure to timely offer digitally integrated services, from a wide range of sources under evolving market conditions that have increased the number and variety of companies that compete with us. Some of our current and potential competitors: (i) offer products or services that are substitutes for our traditional wireline services, including wireless broadband, wireless voice and non-voice communication services, (ii) offer a more comprehensive range of communications products and services, (iii) operate systems that enable them to provision services easier and faster, (iv) have greater financial, provisioning, technical, engineering, research, development, marketing, customer relations or other resources, (v) conduct operations or raise capital at a lower cost, (vi) are subject to less regulation, (vii) have stronger brand names, (viii) have deeper or more long-standing relationships with key customers, or (ix) have larger operations than ours, any of which may enable them to compete more successfully for customers, strategic partners and acquisitions. In recent years, competitive pressures have commoditized pricing for some of our products and services and lowered market prices for many of our other products and services. Continued competitive pressures will likely place further downward pressure on market pricing.

Our ability to successfully compete could be hampered if we fail to timely develop and market innovative technology solutions that address changing customer demands.

The technology and communications industry has been and continues to be impacted by significant technological changes, which are enabling an increasing variety of companies to compete with us. Many of these technological changes are (i) displacing or reducing demand for certain of our services, (ii) enabling the development of competitive products or services, (iii) enabling customers to reduce or bypass use of our networks or (iv) reducing our profit margins. For example, as service providers continue to invest in 5G and low earth orbit satellite networks and services, their services could reduce demand for our network services. Increasingly, customers are demanding more technologically advanced products that suit their evolving needs, including traditional and generative AI services. As we note below, several of our competitors have dedicated substantially more resources to their development. If we fail to develop competitive AI services, our business and financial performance could be adversely impacted.

To remain competitive, we will need to accurately predict and respond to changes in technology, to continue developing products and services attractive to our customers, to timely provision our products and services, to maintain and expand our network to enable it to support customer demands for greater transmission capacity and speeds, and to discontinue outdated products and services on a cost-effective basis. Our ability to do so could be restricted by various factors, including limitations of our existing network, technology, capital or personnel. If we fail at that, we could lose customers or fail to attract new ones.

We may be unable to attract, develop and retain leaders and employees with the right skillsets and technical expertise.

We may be unable to attract and retain skilled and motivated leaders and employees who possess the right skillsets and technical, managerial and development expertise to execute our plans for transformation, innovation and strategic growth. We operate in a highly competitive and expanding industry, where competition for highly skilled employees has grown increasingly intense and competitors have targeted hiring our employees. We have experienced, and may continue to experience, higher than anticipated levels of employee attrition. Further, the increased availability of remote working arrangements, largely driven by the COVID-19 pandemic, has expanded the pool of companies that can compete for our employees and employee candidates. We believe some of our competitors with greater resources and fewer cost constraints than us have from time to time been able to offer compensation, benefits or accommodations in excess of what we are able to offer. These risks to attracting and retaining key personnel may have been exacerbated by the impacts of the low trading price of our common stock, which, as discussed below, restricted our ability in 2023 to offer competitive equity incentive compensation to our key employees. Our failure to successfully attract and retain key personnel could materially adversely impact our business or financial performance.

Under our current work guidelines implemented in 2022, nearly half of our employees work fully from home, and a substantial portion of the remainder work partly from home under "hybrid" work schedules. These work arrangements may impair our ability to maintain our collaborative and innovative culture, and may cause disruptions among our employees, including decreases in productivity, challenges in collaboration between on-site and off-site employees and, potentially, employee dissatisfaction and attrition. If our attempts to operate under a hybrid working environment are not successful, our business could be adversely impacted.

The pandemic, inflation and other events over the past couple years have increased employees' expectations regarding compensation, workplace flexibility and work-home balance. These developments have intensified certain of our above-described challenges and made it relatively more difficult for us to attract and retain top talent.

Uncertainty regarding our future prospects could adversely impact our ability to maintain satisfactory relations with our employees, customers, vendors and others.

Developments related to our negotiations with creditors, coupled with concerns regarding continued declines in our revenues and increased leverage, have (i) created uncertainties about our future ability to improve our financial performance and refinance or extend our upcoming debt maturities and (ii) placed downward pressure on the per share trading price of our common stock.

These uncertainties coupled with a low stock trading price could adversely impact our ability to attract, retain and motivate our employees. We grant equity-based incentive awards to key personnel, the value of which is tied to our stock price, our financial performance or both. During 2023, the low trading price of our stock limited our ability under our 2018 equity incentive plan to grant equity incentive awards in aggregate amounts consistent with our prior practices. Our ability to attract, retain and motivate our employees could be weakened if (i) the anticipated value of such equity-based incentive awards does not materialize, (ii) our equity-based compensation otherwise ceases to be viewed as a valuable benefit, (iii) our total compensation package is not viewed as being competitive, or (iv) we do not obtain the shareholder approval needed to continue granting equity-based incentive awards in the amounts we believe are necessary.

Similarly, customers, vendors, landlords, banks or other third parties may be less willing to transact business with us if they believe our future is uncertain, any of which could adversely impact our business, financial performance, financial position or future prospects.

Under certain specified circumstances, a low stock price could also cause the New York Stock Exchange to initiate proceedings to delist our securities from trading on the New York Stock Exchange. If our securities were ultimately delisted for any reason, we believe the liquidity and market price of our shares would decrease and fewer investors would be willing to own our shares. In addition, a low stock price could limit our ability to raise capital through the issuance of capital stock and could limit the number of financial analysts willing to publish reports about us.

We could be harmed if our reputation is damaged.

We believe our Lumen and other brand names and our reputation are important corporate assets that help us attract and retain customers and talented employees. However, our corporate reputation is susceptible to material damage by events such as disputes with customers or competitors, cyber-attacks or service outages, internal control deficiencies, delivery failures, compliance violations, government investigations or legal proceedings. Similar events impacting one of our competitors could result in negative publicity for our entire industry that indirectly harms our business. We may also experience reputational damage if customers, vendors, employees, advocacy groups, regulators, investors, the media, social media influencers or others criticize our services, operations or public positions. For instance, we could be harmed if our customer experience scores, as measured by "NPS" (Net Promoter Score) and "CHS" (Customer Health Score), for our products and services are low or declining relative to our competitors. In addition, the reputational risk of unauthorized disclosure of confidential company or customer data could increase to the extent our employees inappropriately use social networking sites or other emerging technologies, such as generative AI tools.

There is a risk that negative or inaccurate information about Lumen, even if based on rumor or misunderstanding, could adversely affect our business. Damage to our reputation could be difficult, expensive and time-consuming to repair. Damage to our reputation could also reduce the value and effectiveness of the Lumen brand name and could reduce investor confidence in us, having a material adverse impact on the value of our securities.

We could be harmed by cyber-attacks.

Our vulnerability to cyber-attacks is heightened by several features of our operations, including (i) our material reliance on our owned and leased networks to conduct our operations, (ii) our transmission of large amounts of data over our systems and (iii) our processing and storage of sensitive customer data.

As further described in Item 1C of this annual report, cyber-attacks on our systems may stem from a variety of sources and take many forms. Cyber-attacks can put at risk personally identifiable customer data or protected health information, thereby implicating stringent domestic and foreign data protection laws. These threats may also arise from failure or intrusions of systems owned, operated or controlled by other unaffiliated operators, upon whom we are materially reliant to operate our business. Various other factors could intensify these risks, including, (i) our maintenance of information in digital form stored on servers connected to the Internet, (ii) our use of open and software-defined networks, (iii) the challenges of operating and maintaining our complex multi-continent network composed of legacy and acquired properties, which is more difficult to safeguard than newer fully-integrated networks, (iv) growth in the size and sophistication of our customers and their service requirements, (v) increased use of our network due to greater demand for data services, (vi) our increased incidence of employees working from remote locations and (vii) the increased difficulty of defending against attacks that use AI-generated social engineering, increasingly malicious code and increasingly sophisticated phishing techniques.

As a critical infrastructure service provider, we and our customers are constant targets of cyber-attacks. The number of these attacks against us increased in 2023. Despite our efforts to prevent these events, some of these attacks have resulted in security incidents. On March 27, 2023, we filed with the U.S. Securities and Exchange Commission a Current Report on Form 8-K announcing two cybersecurity incidents, including one that involved a sophisticated threat actor that had accessed our internal information technology systems. Since filing that report, we have taken the measures described therein to assess, contain and remediate both incidents, including working with outside forensic firms. Based on information known to us at this time, we continue to believe that these incidents have neither had nor are likely to have a material adverse impact on our ability to serve our customers or our business, operations or financial results.

We believe the importance of our network to global internet data flows will continue to make it a target to a wide range of threat actors, including nation state actors and other advanced persistent threat actors. Moreover, the risk of incidents is likely to continue to increase due to several factors, including (i) the increasing sophistication of cyber-attacks, (ii) the wider accessibility of cyber-attack tools and (iii) growing threats from Chinese, Russian and other state actors due to heightened geopolitical tensions. It should also be noted that defenses against cyber-attacks currently available to us and others are unlikely to prevent intrusions by a highly-determined, highly-sophisticated threat actor. Consequently, you should assume that we will continue to experience cyber incidents in the future. Thus far, none of our past security incidents have had a material adverse effect on us, and we continue to take steps designed to limit our cyber risks. Nonetheless, we cannot assure you that future cyber incidents or events will not ultimately have a material adverse impact on our ability to serve our customers or our business, operations or financial results.

Although we maintain insurance coverage that may, subject to policy terms and conditions (including self-insured deductibles, coverage restrictions and monetary coverage caps), cover certain aspects of our cyber risks, such insurance coverage may be unavailable or insufficient to cover our losses.

Cyber-attacks could (i) disrupt the proper functioning of our networks and systems, which could in turn disrupt the operations of our customers, (ii) result in the destruction, loss, theft, misappropriation or release of proprietary, confidential, sensitive, classified or otherwise valuable information of ours, our employees, our customers or our customers' end users, (iii) require us to notify customers, regulatory agencies or the public of data incidents, (iv) damage our reputation or result in a loss of business, (v) require us to provide credits for future service to our customers or to offer expensive incentives to retain customers, (vi) subject us to claims by our customers or regulators for damages, fines, penalties, license or permit revocations or other remedies, (vii) result in the loss of industry certifications or (viii) require significant management attention or financial resources to remedy the resulting damages or to change our systems. Any or all of the foregoing developments could have a material adverse impact on us.

We could be harmed by outages in our network or various platforms, or other failures of our services.

From time to time in the ordinary course of our business, we experience outages in our network, hosting, cloud or IT platforms, or failures of our products or services (including basic and enhanced 911 emergency services) to perform in the manner anticipated. These disruptions expose us to several of the same risks listed above for cyber-attacks, including the loss of customers, the issuance of credits or refunds, and regulatory fines. We remain vulnerable to future disruptions due to several factors, including the challenges of maintaining and replacing aging or obsolete network elements, human error, continuous changes in our network, the introduction of new products or technologies, vulnerabilities in our vendors or supply chain, aberrant employees and hardware and software limitations. The process for remediating any interruptions, outages, delays or cessations of service could be more expensive, time-consuming, disruptive and resource intensive than planned. Delayed sales, lower margins, fines or lost customers resulting from future disruptions could have a material adverse impact on our business, reputation, results of operations, financial condition, cash flows and stock price.

Several of our services continue to experience declining revenue, and our efforts to offset these declines may not be successful.

Primarily as a result of the competitive and technological changes discussed above, we have experienced a prolonged systemic decline in our local voice, long-distance voice, network access and private line revenues. Consequently, we have experienced declining consolidated revenues (excluding acquisitions) for a prolonged period and have not been able to realize cost savings sufficient to fully offset the decline. More recently, we have experienced declines in revenue derived from a broader array of our products and services, including those marketed to our enterprise customers and customers with global locations. We have thus far been unable to reverse our annual revenue losses (excluding acquisitions). In addition, most of our more recent product and service offerings generate lower profit margins and may have shorter lifespans than our traditional communication services, and some can be expected to experience slowing or no growth in the future. Some of our new product offerings have reduced or displaced our sale of older product offerings. Accordingly, we may not be successful in attaining our goal of achieving future revenue growth.

Our operations, financial performance and liquidity are materially reliant on key suppliers, vendors and other third parties.

Our ability to conduct our operations could have a material adverse impact on us if certain of our arrangements with third parties were terminated, including those further described below.

Reliance on other communications providers. To offer certain services in certain of our markets, we must either purchase services or lease network capacity from, or interconnect our network with, the infrastructure of other communications carriers or cloud companies who typically compete against us in those markets. Our reliance on these supply or interconnection arrangements limits our control over the delivery and quality of our services. In addition, we are exposed to the risk that other companies may be unwilling or unable to continue or renew these arrangements in the future. Those risks are heightened when the other company is a competitor who may benefit from terminating the agreement or imposing price increases. Additionally, several companies rely on our network to transmit their data or voice traffic. Their reliance on our network exposes us to the risk that they may transfer all or a portion of this traffic from our network to alternative networks owned, constructed or leased by them, thereby reducing our revenue. Certain of our hyperscaler customers have built infrastructure that has reduced their reliance on us.

Reliance on key suppliers and vendors. We depend on a limited number of suppliers and vendors to provide us, directly or through other suppliers, with equipment and services relating to our network infrastructure, including fiber optic cable, software, optronics, transmission electronics, digital switches, routing equipment, customer premise equipment, and related components. We also rely on software and service vendors or other parties to assist us with operating, maintaining and administering our business, including billing, security, provisioning and general operations. Our operations could be adversely affected if any of these vendors experience business interruptions, security incidents, litigation or other issues that interfere with their ability to deliver their products or services on a timely basis.

Reliance on key licensors. We rely on key technologies licensed from third parties to deliver certain of our products and services. Our agreements with these licensors may expire or be terminated, and some of the licenses may not be available to us in the future on terms acceptable to us or at all. Moreover, if we incorporate licensed technology into our network, we may have limited flexibility to deploy different technologies from alternative licensors.

Reliance on key customer contracts. We have several complex high-value national and global customer contracts. These contracts are frequently impacted by a variety of factors that could reduce or eliminate the profitability of these contracts. Moreover, we would be adversely impacted if we fail to renew major contracts upon their expiration.

Reliance on landowners. We rely on rights-of-way, colocation agreements, franchises and other authorizations granted by governmental bodies, railway companies, utilities, carriers and other third parties to locate a portion of our network equipment over, on or under their respective properties. A significant number of these authorizations are scheduled to lapse over the next five to ten years, unless we are able to extend or renew them. Further, some of our operations are subject to licensing and franchising requirements imposed by municipalities or other governmental authorities. Our operations could be adversely affected if any of these authorizations are cancelled, or otherwise terminate or lapse, or if the landowner requests price increases. Similarly, our buildout plans can be delayed if we cannot receive necessary landowner authorizations or governmental permits. We cannot assure you we will be able to successfully extend these arrangements when their terms expire, or to enter into new arrangements that may be necessary to implement our network expansion opportunities.

Climate change could disrupt our operations, cause us to incur substantial additional capital and operating costs or negatively affect our business.

A substantial number of our domestic facilities are located in coastal states, which subjects them to the risks associated with severe tropical storms, hurricanes and tornadoes, and many other of our facilities are subject to the risk of earthquakes, floods, fires, tornadoes or other similar casualty events. From time to time these events (including Hurricane Ian in 2022 in Florida) have disrupted our operations, and similar future events could cause substantial damages, including downed transmission lines, flooded facilities, power outages, fuel shortages, network delays or failures, damaged or destroyed property and equipment, and work interruptions. Due to substantial deductibles, coverage limits and exclusions, and limited availability, we have typically recovered only a portion of our losses through insurance. Our system redundancy and other measures we take to protect our infrastructure and operations from the impacts of such events may be ineffective or inadequate to sustain our operations following such events. Any of these occurrences could result in lost revenues from business interruption, damage to our reputation and reduced profits.

Climate change may increase the frequency or severity of natural disasters and other extreme weather events in the future, which would increase our exposure to the above-cited risks and could disrupt our supply chain from our key suppliers and vendors.

Our environmental, social and governance (ESG) commitments, programs and disclosures may expose us to reputational, legal and business risks.

Our reputation and brands could be impacted by our public commitments to various corporate environmental, social and governance (ESG) initiatives, including our political contributions, our advocacy positions, and our goals for sustainability, inclusion and diversity. These initiatives, goals, or commitments could be difficult to achieve and costly to implement. To the extent that our required and voluntary disclosures about ESG matters increase, we could be criticized for their accuracy, adequacy, or completeness. We could fail to achieve, or be perceived to fail to achieve, our ESG-related initiatives, goals, or commitments. In addition, we could be criticized for the timing, scope or nature of these initiatives, goals, commitments, or for any revisions to them. Our actual or perceived failure to achieve our ESG-related initiatives, goals, commitments, or to meet evolving stakeholder expectations or standards could adversely impact us by resulting in legal or regulatory proceedings against us, customer or employee attrition, reputational damage, or other negative impacts on our business.

We face other business risks.

We face other business risks, including among others, (i) the difficulties of managing and administering an organization that offers a complex set of products to a diverse range of customers across several continents, (ii) the risks and uncertainties inherent in acquiring or disposing of businesses, or engaging in other strategic transactions, and (iii) the adverse effects of terrorism, rioting, vandalism or social unrest.

Legal and Regulatory Risks

We are subject to an extensive, evolving regulatory framework that could create operational or compliance costs.

As explained in greater detail elsewhere in this annual report, (i) our domestic operations are regulated by the FCC and other federal, state and local agencies and (ii) our international operations are regulated by a wide range of various foreign and international bodies. We cannot assure you we will be successful in obtaining or retaining all regulatory licenses necessary to carry out our business in our various markets. Even if we are, the prescribed service standards and conditions imposed on us under these licenses and related laws may increase our costs, limit our operational flexibility or result in third-party claims.

We are subject to numerous requirements and interpretations under various international, federal, state and local laws, rules and regulations, which are often quite detailed and occasionally in conflict with each other. Accordingly, we cannot ensure we will always be considered to be in compliance with all these requirements at any single point in time.

Various governmental agencies, including state attorneys general with jurisdiction over our operations, have routinely in the past investigated our business practices either in response to customer complaints or on their own initiative, and are expected to continue to do the same in the future. Certain of these investigations have resulted in substantial fines in the past. On occasion, we have resolved such matters by entering into consent decrees, which are court orders that frequently restrict our future conduct. If breached by us, these consent decrees expose us not only to contractual remedies, but also to judicial enforcement via contempt of court proceedings, any of which could have material adverse consequences. Additionally, future investigations can potentially result in enforcement actions, litigation, fines, settlements or reputational harm, or could cause us to change our sales practices or operations.

Our prior participation in the FCC's CAF II program and current participation in the FCC's RDOF program subjects us to certain financial risks. If we are not in compliance with FCC measures by the end of the CAF II and RDOF programs, we could incur substantial penalties or forfeitures, including but not limited to being suspended or barred from future governmental programs or contracts for a significant period of time, which could have a material adverse impact on our financial condition.

We provide products or services to various federal, state and local agencies. Our failure to comply with complex governmental regulations and laws applicable to these programs, or the terms of our governmental contracts, could result in us suffering substantial negative publicity or penalties, being suspended or barred from future governmental programs or contracts for a significant period of time and in certain instances could lead to the revocation of our FCC licenses. Moreover, certain governmental agencies frequently reserve the right to terminate their contracts for convenience or if funding is unavailable. If our governmental contracts are terminated for any reason, or if we are suspended or barred from governmental programs or contracts, it could have a material adverse impact on our results of operations and financial condition.

A variety of state, national, foreign and international laws and regulations apply to the collection, use, retention, protection, security, disclosure, transfer and other processing of personal and other data. The European Union and other international regulators, as well as some state governments, have recently enacted or enhanced data privacy legal requirements, and other governments are considering establishing similar or stronger protections. Many of these laws are complex and change frequently and often conflict with the laws in other jurisdictions. Some of our customers impose similar requirements on us that are equally or more demanding. If we fail to comply with any of these governmental or contractual requirements, we could incur potential substantial penalties and reputational damage.

Adapting and responding to changing regulatory requirements has historically materially impacted our operations. We believe evolving regulatory developments and regulatory uncertainty could continue to have a material impact on our business. In particular, our business could be materially impacted if the U.S. Congress amends or eliminates current federal law limitations on the liability of private network providers, such as us, against claims related to third party content stored or transmitted on private networks, as currently proposed by certain governmental officials, legislative leaders and consumer interest groups. We could also be materially affected if currently pending proposals to increase the regulation of internet service providers or to further strengthen data privacy laws are implemented. In addition, federal and state agencies that regulate the support program payments we receive or the fees that we charge for certain of our regulated services can, and from time to time do, reduce the amounts we receive or can charge. The variability of these laws could also hamper the ability of us and our customers to plan for the future or establish long-term strategies.

Third-party content stored or transmitted on our networks could result in liability or otherwise damage our reputation.

While we disclaim liability for third-party content in most of our service contracts, as a private network provider we potentially could be exposed to legal claims relating to third-party content stored or transmitted on our networks. Such claims could involve, among others, allegations of defamation, invasion of privacy, copyright infringement, or aiding and abetting restricted activities such as online gambling or pornography. Although we believe our liability for these types of claims is limited under current law, suits against other carriers have been successful and we cannot assure you that our defenses will prevail. Such third-party content could also result in adverse publicity and damage our reputation. Moreover, as noted above, pending proposals to change the law could materially heighten our legal exposure.

Our pending legal proceedings could have a material adverse impact on us.

There are several potentially material proceedings pending against us. Results of these legal proceedings cannot be predicted with certainty. As of any given date we could have exposure to losses under proceedings in excess of our accrued liability. For each of these reasons, any of the proceedings described in Note 18—Commitments, Contingencies and Other Items, as well as current litigation not described therein or future litigation, could have a material adverse effect on our business, reputation, financial position, operating results, the trading price of our securities and our ability to access the capital markets. We can give you no assurances as to the ultimate impact of these matters on us.

We may not be successful in protecting and enforcing our intellectual property rights.

We rely on various patents, copyrights, trade names, trademarks, service marks, trade secrets and other similar intellectual property rights, as well as confidentiality agreements and procedures, to establish and protect our proprietary rights. For a variety of reasons, however, these steps may not fully protect us, including due to inherent limitations on the ability to enforce these rights. If we are unsuccessful in protecting or enforcing our intellectual property rights, our business, competitive position, results of operations and financial condition could be adversely affected.

Issues related to the development and use of artificial intelligence (AI) could give rise to legal or regulatory actions, damage our reputation or otherwise materially harm our business.

We currently incorporate AI technology in certain of our products and services and in our business operations. AI is currently being developed in a highly competitive and rapidly evolving environment by a wide variety of technology companies, many of which are dedicating substantially more resources than we are to research and development initiatives. Due to the complexity of its design and algorithms, AI presents various risks and challenges, and its use could have unintended adverse consequences. While we aim to develop and use AI responsibly and attempt to identify and mitigate ethical and legal issues presented by its use, we may be unsuccessful in identifying or resolving issues before they arise. The Company's use of AI may give rise to risks related to harmful content, inaccurate output, bias, intellectual property infringement or misappropriation, defamation, privacy incidents, and cybersecurity vulnerabilities, among others. The United States, the European Union and other governmental bodies have taken initial steps to regulate AI, which could ultimately increase AI's legal risks or decrease its usefulness. For all these reasons, we cannot assure you that our use of AI will not harm our business, operations or reputation.

We have been accused of infringing the intellectual property rights of others and will likely face similar accusations in the future.

We routinely receive notices from third parties or are named in lawsuits filed by third parties claiming we have infringed or are infringing their intellectual property rights. We are currently responding to several of these notices and claims and expect this industry-wide trend will continue. If these claims succeed, we could be required to pay significant monetary damages, to cease using the applicable technology or to make royalty payments to continue using the applicable technology. If we are required to take one or more of these actions, our revenues or profit margins may decline, our operations could be materially impaired or we may be required to stop selling or redesign one or more of our products or services, any of which could have a material adverse impact on our business. Similarly, from time to time, we may need to obtain the right to use certain patents or other intellectual property from third parties to be able to offer new products and services. If we cannot obtain rights to use any required technology from a third party on reasonable terms, our ability to offer new products and services may be prohibited, restricted, made more costly or delayed.

Failure to extend or renegotiate our collective bargaining agreements or work stoppages could have a material impact on us.

As of December 31, 2023, approximately 21% of our employees were members of various bargaining units represented by labor unions. Although we have agreements with these labor unions, we cannot predict the outcome of our future negotiations of these agreements. We may be unable to reach new agreements, and union employees may engage in strikes, work slowdowns or other labor actions, which could materially disrupt our ability to provide services and increase our costs. Even if we succeed in reaching new or replacement agreements, they may impose significant new costs on us that impair our competitive position.

Our international operations expose us to various regulatory, currency, tax, legal and other risks.

Our international operations are subject to U.S. and non-U.S. laws and regulations regarding operations in international jurisdictions in which we provide services, either directly or indirectly through our contractual arrangements with other carriers. These numerous and sometimes conflicting laws and regulations include anti-corruption laws, anti-competition laws, trade restrictions, economic sanctions, tax laws, immigration laws, environmental laws, privacy laws and accounting requirements. Many of these laws are complex and change frequently. There is a risk that these laws or regulations may materially restrict our ability to deliver services in various international jurisdictions or expose us to the risk of fines, penalties or license revocations if we are determined to have violated applicable laws or regulations. Additionally, these laws or regulations may potentially impact our customers and result in foregone business or penalties to us if we fail to comply with any applicable sanctions or restrictions on our activities.

Many non-U.S. laws and regulations relating to communications services are more restrictive than U.S. laws and regulations. We are subject to the GDPR of the European Union and the United Kingdom, as well as various other laws governing privacy rights, data protection and cybersecurity laws in other regions. These laws and regulations continue to proliferate and evolve, are becoming more complex and increasingly conflict among the various countries in which we operate, which has resulted in greater compliance risk and cost for us. Moreover, many countries are still in the early stages of providing for and adapting to a liberalized telecommunications market, which could make it more difficult for us to obtain licenses and conduct our operations.

In addition to these international regulatory risks, some of the other risks inherent in conducting business internationally include: economic, social and political instability, with the attendant risks of terrorism, kidnapping, extortion, civic unrest, potential seizure or nationalization of assets; currency and exchange controls, repatriation restrictions and fluctuations in currency exchange rates, problems collecting accounts receivable; the difficulty or inability in certain jurisdictions to enforce contract or intellectual property rights; reliance on certain third parties with whom we lack extensive experience; supply chain challenges; and challenges in securing and maintaining the necessary physical and telecommunications infrastructure.

Our operations and financial results could be impacted by changes in multilateral conventions, treaties, tariffs or other arrangements between or among sovereign nations, including most recently Brexit.

Media reports concerning our legacy infrastructure could expose us to governmental actions, removal costs, litigation, compliance costs, penalties or reputational damage.

Media reports issued in mid-2023 alleged that certain lead-sheathed cables that are part of our copper-based network infrastructure pose public health and environmental risks. Such allegations may subject us to legislative or regulatory actions, removal costs, litigation, compliance costs or penalties. Accordingly, we may incur substantial expenses, which could have a material adverse impact on our financial results or condition.

We may also experience reputational harm from negative assertions about the public health or environmental impact of our lead-sheathed cables, which could adversely affect our business, even if such allegations ultimately prove to be inaccurate. Such damage to our reputation could be difficult, expensive and time-consuming to repair. Damage to our reputation could reduce investor confidence in us and have a material adverse impact on the value of our securities.

Financial Risks

Our significant debt levels expose us to a broad range of risks.

As of December 31, 2023, we had approximately \$11.4 billion of outstanding consolidated secured indebtedness, \$8.5 billion of outstanding consolidated unsecured indebtedness (excluding (i) finance lease obligations, (ii) unamortized premiums, net and (iii) unamortized debt issuance costs) and approximately \$1.8 billion of unused borrowing capacity under our revolving credit facility.

Our significant levels of debt and related debt service obligations could adversely affect us in several respects, including:

- requiring us to dedicate a substantial portion of our cash flow from operations to the payment of interest and principal on our debt, thereby reducing the funds available to us for other purposes, including acquisitions, capital expenditures and strategic initiatives;
- hindering our ability to capitalize on business opportunities and to plan for or react to changing market, industry, competitive or economic conditions;
- making us more vulnerable to economic or industry downturns, including interest rate increases (especially with respect to our variable rate debt);
- placing us at a competitive disadvantage compared to less leveraged companies;
- adversely impacting other parties' perception of Lumen, including but not limited to existing or potential customers, vendors, employees or creditors;
- making it more difficult or expensive for us to obtain any necessary future financing or refinancing, including the risk that this could force us to sell assets or take other less desirable actions to raise capital; and
- increasing the risk that we may not meet the financial or non-financial covenants contained in our debt agreements or timely make all required debt payments, either of which could result in the acceleration of some or all of our outstanding indebtedness.

The effects of each of these factors could be intensified if we increase our borrowings or experience any downgrade in our credit ratings or those of our affiliates. Subject to certain limitations and restrictions, the current terms of our debt instruments and our subsidiaries' debt instruments permit us or them to incur additional indebtedness.

We expect to periodically require financing, and we cannot assure you we will be able to obtain such financing on terms that are acceptable to us, or at all.

We expect to periodically require financing in the future to refinance existing indebtedness and potentially for other purposes. Our ability to arrange additional financing will depend on, among other factors, our financial position, performance, credit ratings, and debt covenants. Prior allegations that we have breached covenants in our credit documents could dissuade potential lenders from extending credit to us, unless and until we satisfactorily address these concerns through the execution of additional credit agreements, the receipt of waivers or other similar actions. Our ability to obtain additional financing could also depend on prevailing market conditions, which could be adversely affected by (i) general market conditions, such as disruptions in domestic or overseas sovereign or corporate debt markets, geo-political instabilities, trade restrictions, pandemics, contractions or limited growth in the economy or other similar adverse economic developments in the U.S. or abroad, and (ii) specific conditions in the communications industry. Instability in the domestic or global financial markets has from time to time resulted in periodic volatility and disruptions in capital markets that have partially or severely limited the ability of leveraged companies like us to obtain debt financing. For these and other reasons, we can give no assurance additional financing for any of these purposes will be available on terms acceptable to us, or at all.

If we are unable to make required debt payments or refinance our debt, we would likely have to consider other options, such as selling assets, issuing additional securities, cutting or delaying costs or otherwise reducing our cash requirements, or negotiating with our lenders to restructure our applicable debt. Our current and future debt instruments may restrict, or market or business conditions may limit, our ability to complete some of these actions on favorable terms, or at all. For these and other reasons, we cannot assure you we could implement these steps in a sufficient or timely manner, or at all. Nor can we assure you that these steps, even if successfully implemented, would not be detrimental to our operations, financial performance or future prospects.

We have a highly complex debt structure, which could impact the rights of our investors.

Lumen Technologies, Inc. and various of its subsidiaries owe substantial sums pursuant to various debt and financing arrangements, certain of which are guaranteed by other principal subsidiaries. Over half of the debt of Lumen Technologies, Inc. is guaranteed by certain of its principal domestic subsidiaries, some of which have pledged substantially all of their assets (including certain of their respective subsidiaries) to secure their guarantees. The remainder of the debt of Lumen Technologies, Inc. is neither guaranteed nor secured. Over half of the debt of Level 3 Financing, Inc. is (i) secured by a pledge of substantially all of its assets and (ii) guaranteed on a secured basis by certain of its affiliates. The remainder of the debt of Level 3 Financing, Inc. is not secured by any of its assets, but is guaranteed on an unsecured basis by certain of its affiliates. As of the date of this annual report, substantial amounts of debt are also owed by two direct or indirect subsidiaries of Qwest Communications International Inc. Most of the over 200 subsidiaries of Lumen Technologies, Inc. have neither borrowed money nor guaranteed any of the debt of Lumen Technologies, Inc. or its affiliates. As such, investors in our consolidated debt instruments should be aware that (i) determining the priority of their rights as creditors is a complex matter which is substantially dependent upon the assets and earning power of the entities that issued or guaranteed (if any) the applicable debt and (ii) a substantial portion of such debt is structurally subordinated to all liabilities of the non-guarantor subsidiaries of Lumen Technologies, Inc. to the extent of the value of those subsidiaries that are obligors.

Our various debt agreements include restrictions and covenants that could (i) limit our ability to conduct operations or borrow additional funds, (ii) restrict our ability to engage in inter-company transactions, and (iii) lead to the acceleration of our repayment obligations in certain instances.

Under our consolidated debt and financing arrangements, the issuer of the debt is subject to various covenants and restrictions, the most restrictive of which pertain to the debt of Lumen Technologies, Inc. and Level 3 Financing, Inc.

Lumen Technologies, Inc.'s senior secured credit facilities and secured notes contain several significant limitations restricting our ability to, among other things, borrow additional money or issue guarantees; pay dividends or other distributions to shareholders; make loans; create liens on assets; sell assets; transact with its affiliates and engage in mergers, consolidations or other similar transactions. These restrictive covenants could have a material adverse impact on our ability to operate or reconfigure our business, to issue additional priority debt, to pursue acquisitions, divestitures or strategic transactions, or to otherwise pursue our plans and strategies.

The debt and financing arrangements of Level 3 Financing, Inc. contain substantially similar limitations that restrict their operations on a standalone basis as a separate restricted group. Consequently, certain of these covenants may significantly restrict our ability to engage in transactions with Level 3, including receiving cash from Level 3, or distributing cash from Level 3 to other of our affiliated entities.

Lumen Technologies, Inc.'s senior secured credit facilities, as well as the term loan debt of Qwest Corporation, also contain financial maintenance covenants which are described further in Note 7—Long-Term Debt and Credit Facilities.

The failure of Lumen Technologies, Inc. or any of its subsidiaries to comply with the above-described restrictive or financial covenants could result in an event of default, which, if not cured or waived, could accelerate our debt repayment obligations. Certain of our debt instruments have cross-default or cross-acceleration provisions. When present, these provisions could have a wider impact on liquidity than might otherwise arise from a default or acceleration of a single debt instrument.

Certain debtholders of Level 3 may seek to claim that Level 3's use of proceeds following the sale of its Latin American business resulted in potential defaults under its credit documents.

On July 25, 2023, the Company received a letter from representatives purporting to act on behalf of holders of approximately 37% of Lumen Technologies, Inc.'s funded debt and approximately 56% of Level 3's funded debt requesting a meeting to discuss the Company's upcoming debt maturities as well as what the letter referred to as an apparent event of default by Level 3 relating to Level 3's use of proceeds from the divestiture of its Latin American business.

If the transactions contemplated by the TSA are consummated, the participating creditors would waive and release us from any claims or remedies arising out of any such breaches to the extent permitted under the Company's debt agreements and applicable law. However, there can be no assurance that these transactions will be consummated, or that other creditors will not seek to assert claims against us. If the transactions contemplated by the TSA are not consummated, there can be no assurance that participating creditors would not attempt to deliver purported notices of default, or seek to declare the principal amount of their debt holdings due and payable, together with accrued interest. Any such acceleration also could allow lenders under our senior secured credit facilities to declare all funds borrowed to be due and payable, to terminate their commitments thereunder, and to cease making further loans. Secured debtholders could also institute foreclosure proceedings against their collateral. Although the Company would vigorously dispute any and all such actions, any such actions may result in an outcome that could have a material adverse impact on our business, operations and financial condition, and any such actions could force us to seek bankruptcy protection. In addition, responding to or defending against any claims of default, including through litigation, may require us to expend significant funds and management time and attention, and could adversely impact our ability to obtain financing in the future or to refinance our existing indebtedness.

The transactions contemplated by the TSA may not be consummated as contemplated, on the currently expected timeline or at all, and even if such transactions are consummated, we may not achieve their anticipated benefits.

We expect that the completion of the transactions contemplated by the TSA will enhance our liquidity and extend our debt maturities. However, completion of these transactions is subject to the satisfaction of certain conditions and the TSA permits certain specified lender groups and the Company to terminate the agreement under various specified circumstances.

As a result, any or all of the transactions may not be consummated as originally contemplated, on the currently expected timeline, or at all. Accordingly, we may not be able to realize the expected benefits from these transactions on a timely basis or at all. Even if we are successful in completing the transactions contemplated by the TSA, we may not realize some or all of the expected benefits from such transactions. We have incurred, and will continue to incur, significant costs, expenses and fees for professional services and other transaction costs in connection with the transactions contemplated by the TSA, and these fees and costs are payable by us regardless of whether such transactions are consummated.

If we are successful in completing the transactions contemplated by the TSA, the Company will be subject to higher levels of interest, which could have important consequences, including, (i) limiting our ability to obtain additional financing to fund future working capital, capital expenditures, acquisitions or other general corporate requirements, and increasing our cost of borrowing; (ii) requiring a substantial portion of our cash flows to be dedicated to payments on our obligations instead of for other purposes; and (iii) each of the other factors specified above under the heading ""—Our significant debt levels expose us to a broad range of risks."

In addition, the agreements that will govern the Company's indebtedness to be executed in connection with the consummation of the transactions contemplated by the TSA will contain significant additional restrictions that could limit the Company's ability to engage in activities that may be in our long-term best interest, including certain restrictions on our ability to incur indebtedness, incur liens, enter into mergers or consolidations, dispose of assets, enter into affiliate transactions, pay dividends, make acquisitions and make investments, loans and advances. These restrictions may affect our ability to execute our business strategies, limit our ability to raise additional debt or equity financing needed to operate our business, including during economic or business downturns, and limit our ability to compete effectively or take advantage of new business opportunities. Our failure to comply with those covenants could result in an event of default which, if not cured or waived, could result in the acceleration of all our debt.

Our cash flows may not adequately fund all of our cash requirements.

Each segment of our business is very capital intensive. We expect to continue to require significant capital to pursue our Quantum Fiber buildout plans and to otherwise maintain, upgrade and expand our network infrastructure and product offerings, based on several factors, including (i) changes in customers' service requirements; (ii) our need to replace aging or obsolete infrastructure; (iii) our continuing need to expand and improve our network to remain competitive and meet customer demand; and (iv) our regulatory commitments. Any failure to make appropriate capital expenditures could adversely impact our financial performance or prospects. We will also continue to need substantial amounts of cash to meet our fixed commitments and other business objectives, including without limitation funding our debt repayments, operating costs, maintenance expenses, tax obligations, periodic pension contributions and other benefits payments. As discussed elsewhere in this annual report, our revenues have decreased for several years, which, coupled with asset divestitures and other factors, has placed downward pressure on our cash flows. For all these reasons, we cannot assure you our future cash flows from operating activities will be sufficient to fund all of our cash requirements in the manner currently contemplated.

As a holding company, we rely on payments from our operating companies to meet our obligations.

As a holding company, substantially all of our income and operating cash flow is dependent upon the earnings of our subsidiaries and their distribution of those earnings to us in the form of dividends, loans or other payments. As a result, we rely upon our subsidiaries to generate cash flows in amounts sufficient to fund our obligations, including the payment of our long-term debt. Our subsidiaries are separate and distinct legal entities and have no obligation to pay any amounts owed by us, except to the extent they have guaranteed such payments. Similarly, subject to limited exceptions for tax-sharing or cash management purposes, our non-guarantor subsidiaries have no obligation to make any funds available to us to repay our obligations, whether by dividends, loans or other payments. As discussed in greater detail elsewhere herein, restrictions imposed by credit instruments or other agreements applicable to Level 3 and certain of our other subsidiaries limit the amount of funds our subsidiaries are permitted to transfer to us, including the amount of dividends that may be paid to us. Moreover, our rights to receive assets of any subsidiary upon its liquidation or reorganization would be effectively subordinated to the claims of creditors of that subsidiary, including trade creditors. In addition, the laws under which our subsidiaries were organized typically restrict the amount of dividends they may pay. The ability of our subsidiaries to transfer funds could be further restricted under applicable state or federal tax laws, regulatory orders or regulations. For all these reasons, you should not assume our subsidiaries will be able in the future to generate and distribute to us cash in amounts sufficient to fund our cash requirements.

We may not be able to fully utilize our NOLs.

As of December 31, 2023, we had approximately \$800 million of federal net operating loss carryforwards ("NOLs"), which remain subject to limitations under Section 382 of the Internal Revenue Code and related regulations ("Section 382"). These limitations could restrict our ability to use these NOLs in the amounts we project. In an effort to safeguard our NOLs, we have maintained an NOL rights agreement which is scheduled to lapse in late 2026, assuming it is ratified by our shareholders at our 2024 annual shareholder meeting. At December 31, 2023, we also had substantial state NOLs which we believe are subject to legal and practical limitations on our ability to realize their full benefit. We cannot assure you we will be able to utilize these NOLs as projected or at all.

Increases in costs for pension and healthcare benefits for our active and retired employees may have a material impact on us.

As of December 31, 2023, our company-sponsored benefit plans that cover our current and former U.S.-based employees had approximately 24,000 active employee participants, approximately 55,000 active and retired employees and surviving spouses eligible for post-retirement healthcare benefits, approximately 21,000 pension retirees and approximately 7,000 former employees with vested pension benefits. As of such date, our domestic pension plans and our other domestic post-retirement benefit plans were substantially underfunded from an accounting standpoint. We also maintain benefit plans for a much smaller base of our non-U.S. employees. The cost to fund the pension and healthcare benefit plans for our active and retired employees has a significant impact on our profitability. Our costs of maintaining our pension and healthcare plans, and the future funding requirements for these plans, are affected by several factors, including investment returns on funds held by our applicable plan trusts; changes in prevailing interest rates and discount rates or other factors used to calculate the funding status of our plans; increases in healthcare costs generally or claims submitted under our healthcare plans specifically; the longevity and payment elections of our plan participants; changes in plan benefits; and the impact of the continuing implementation, modification or potential repeal of current federal healthcare and pension funding laws and regulations promulgated thereunder. Increased costs under these plans could reduce our profitability and increase our funding commitments to our pension plans.

See Note 11—Employee Benefits for additional information regarding the funded status of our pension plans and our other post-retirement benefit plans.

Lapses in our disclosure controls and procedures or internal control over financial reporting could materially and adversely affect us.

We maintain (i) disclosure controls and procedures designed to provide reasonable assurances regarding the accuracy and completeness of our SEC reports and (ii) internal control over financial reporting designed to provide reasonable assurance regarding the reliability and compliance with U.S. generally accepted accounting principles ("GAAP") of our financial statements. We cannot assure you these measures will be effective. Our management previously identified two material weaknesses that, while successfully remediated during 2019, were costly to remediate and delayed the filing of our annual report on Form 10-K for the year ended December 31, 2018.

If we are required to record additional intangible asset impairments, we will be required to record a significant charge to earnings and reduce our stockholders' equity.

As of December 31, 2023, approximately 22% of our total consolidated assets reflected on the consolidated balance sheet included in this annual report consisted of goodwill, customer relationships and other intangible assets. From time to time, including most recently in the fourth and second quarter of 2023 and in the fourth quarter of 2022, we have recorded large non-cash charges to earnings in connection with required reductions of the value of our intangible assets. If our intangible assets are determined to be impaired in the future, we may be required to record additional significant, non-cash charges to earnings during the period in which the impairment is determined to have occurred. Any such charges could, in turn, have a material adverse effect on our results of operation or financial condition.

High inflation could continue to adversely impact us.

Although inflation has recently been declining, during the past three years our operations were impacted by the highest domestic inflation rates in decades. If inflation rates remain elevated, our operations will likely continue to be impacted. Potential impacts of high inflation include (i) lower revenue if inflationary pressures cause customers to defer, decrease or cancel their expenditures on our products and services, (ii) lower margins if we cannot offset the higher cost of our labor and supplies by raising our prices or reducing our other expenses, (iii) higher interest costs to the extent inflation places upwards pressure on prevailing interest rates and (iv) as noted above, potential difficulties retaining personnel if we do not match the salary increase expectations of our workforce.

We face other financial risks.

We face other financial risks, including among others the risk that:

- downgrades in our credit ratings or unfavorable financial analyst reports regarding us or our industry could adversely impact the liquidity or market prices of our outstanding debt or equity securities;
- a change of control of us or certain of our affiliates could accelerate a substantial portion of our outstanding indebtedness in an amount that we might not be able to repay; and
- ongoing attempts of the United States, various foreign countries and supranational or international organizations to reform taxes or identify new tax sources could materially impact our taxes, or that one or more of our ongoing tax audits or examinations could result in tax liabilities that differ materially from those we have recognized in our consolidated financial statements.

Divestiture Risks

We may be unable to realize the anticipated benefits of our recently completed divestitures.

In connection with divesting our Latin American and EMEA businesses and a portion of our ILEC business in 2022 and 2023, we completed internal restructurings and entered into multi-year agreements with the purchasers to provide certain transitional services and to provide or receive certain commercial services.

We anticipate that it will be challenging and time-consuming to continue providing transition services to the purchasers of our divested operations. We may incur or experience (i) greater tax or other costs or realize fewer benefits than anticipated under our post-closing agreements with the purchasers, (ii) operational or commercial difficulties segregating the divested assets from our retained assets, (iii) disputes with the purchasers regarding the nature and sufficiency of the transition services we provide or the terms and conditions of our commercial agreements with the purchasers, (iv) potential disputes with creditors concerning the transactions or use of the proceeds therefrom, (v) higher vendor costs due to reduced economies of scale or other similar dis-synergies, (vi) weaker performance to the extent segregation and support of the divested businesses distracts or diverts personnel and resources from the operation, digitization, and transformation of our retained business, (vii) losses or increased inefficiencies from stranded or underutilized assets, (viii) the loss of any customers dissatisfied with our services post-closing, (ix) challenges in retaining and attracting personnel or (x) the loss of vendors or customers due to our inability to assign contracts with their consent.

The divestitures will reduce our future cash flows. If our remaining business fails to perform as expected, the divestitures could exacerbate certain of the other financial risks specified in this Item 1A, including our ability to fund all of our current cash requirements.

General Risk Factors

Unfavorable general economic, societal, health or environmental conditions could negatively impact us.

Unfavorable general economic, societal, health or environmental conditions, including unstable economic and credit markets, or depressed economic activity caused by trade wars, epidemics, pandemics, wars, societal unrest, rioting, civic disturbances, natural disasters, terrorist attacks, environmental disasters, political instability or other factors, could negatively affect our business or operations in a variety of ways.

We currently do not pay dividends to our common shareholders and any decision to adopt or continue a stock repurchase plan is entirely discretionary.

We discontinued paying dividends to our holders of common stock in the fourth quarter of 2022, and have no current plans to pay dividends in respect of our common stock for the foreseeable future.

From time to time we adopt share repurchase plans. Holders of our common stock should be aware that repurchases of our common stock under any such plans are completely discretionary and may be suspended or discontinued at any time and for any reason without prior notice.

Shareholder or debtholder activism efforts could cause a material disruption to our business.

While we always welcome constructive input from our shareholders and regularly engage in dialogue with our shareholders to that end, activist shareholders may from time to time engage in proxy solicitations, advance shareholder proposals or otherwise attempt to effect changes or acquire control over us. Responding to these actions can be costly and time-consuming and may disrupt our operations and divert the attention of our board and management. These adverse impacts could be intensified if activist shareholders advocate actions that are not supported by other shareholders, our board or management. The recent increase in the activism of debtholders could increase the risk of claims being made under our debt agreements.

Our agreements and organizational documents and applicable law could similarly limit another party's ability to acquire us.

A number of provisions in our organizational documents and various provisions of applicable law or our Section 382 rights agreement may delay, defer or prevent a future takeover of us unless the takeover is approved by our board. These provisions (which are described further in our Registration Statement on Form 8-A/A filed with the SEC on March 2, 2015) could deprive our shareholders of any related takeover premium.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 1C. CYBERSECURITY

Risk management and strategy

As a technology and communications company that globally transmits large amounts of information over our networks, we recognize the critical importance of maintaining the security and integrity of information and systems under our control. We view cybersecurity risk as one of our principal enterprise-wide risks, subject to control and monitoring at various levels of management throughout the Company. We dedicate significant resources towards programs designed to identify, assess, manage, mitigate and respond to cybersecurity threats.

As described in Item 1A “Risk Factors,” several features of our operations heighten our susceptibility to cyber-attacks, including (i) our material reliance on our owned and leased networks to conduct our operations, (ii) our transmission of large amounts of data over our systems and (iii) our processing and storage of sensitive customer data. Cyber-attacks on our systems may stem from a variety of sources, including fraud, malice or sabotage on the part of foreign nations, third parties, vendors, or employees and attempts by outside parties to gain access to sensitive data that is stored in or transmitted across our network. Cyber-attacks can take many forms, including computer hackings, computer viruses, ransomware, worms or other destructive or disruptive software, denial of service attacks, or other malicious activities.

To identify, assess and mitigate cybersecurity risk, we have implemented a global information security management program that includes administrative, technical, and physical safeguards. We leverage a defense-in-depth model to identify, detect, protect and respond to threats to our information systems. Our security operations center provides advanced threat detection and response capabilities. We maintain an insider threat program to detect, investigate and mitigate insider threat risks to Lumen assets, data, services and personnel globally. Our privacy and cybersecurity policies encompass information security, incident response procedures, and vendor management. Our risk management team works closely with our Information Technology, Privacy, Product, and Operations departments to continuously evaluate emerging cyber risk. We monitor existing or proposed privacy and cybersecurity laws, regulations and guidance that are or may be applicable to us in the regions where we operate, including in the European Union and the United Kingdom where we are subject to GDPR, as well as various other laws governing privacy rights, data protection and cybersecurity in other regions. As a U.S. government contractor we are required to comply with extensive governmental regulations and standards regarding cyber security.

We periodically engage both internal and external auditors and consultants to assess and enhance our program. These independent external auditors and consultants are accredited under various information security standards, including those administered by the International Organization for Standardization and the PCI Security Council. These engagements typically include penetration testing, third-party certifications, compliance assessments, audits, and assessments of vulnerabilities and emerging threats. We also periodically deploy our Internal Audit processes to conduct additional reviews and assessments. We also share and receive threat intelligence with government agencies, cyber analysis centers and cybersecurity associations.

As noted elsewhere in this annual report, we are materially reliant on a variety of third-party service providers to operate our business, which exposes us to the risk of cyber incidents impacting those providers’ systems. We have a vendor risk management program that assesses, manages and oversees risks associated with third-party service providers who have access to our data and systems. We maintain ongoing monitoring to ensure their compliance with our cybersecurity standards.

Despite our efforts to prevent security incidents, (i) some of these attacks have resulted in security incidents (although thus far we do not believe that any of these incidents has resulted in a material adverse effect on our operating results or financial condition) and (ii) future security incidents are likely (some of which could have a material adverse effect on our operating results or financial condition). See Item 1A “Risk Factors” for a further discussion of cybersecurity risks.

We maintain an Incident Response Playbook that provides a set of guidelines for our stakeholders to follow when handling any data incident. This Playbook describes how we assess incidents and how our security team shares information about such incidents with others at Lumen, including senior leadership and, if warranted, with some or all members of the Board of Directors. These escalation provisions, together with our Disclosure Controls and Procedures, are designed to ensure that appropriate representatives throughout the Company are available to assess how to respond to such incidents and make any necessary public notifications.

Our Incident Response Team (“CIRT”) is notified of all cybersecurity incidents, and is responsible for detecting and coordinating responses to security incidents. This team regularly assesses its communication plan to confirm that its members can be alerted quickly in the event of an actual crisis and meet as a team to discuss response options. The CIRT also addresses each incident, unless it determines that an incident is sufficiently serious. In those instances, it will notify our Cyber Security Watch Team, which is responsible for addressing cybersecurity incidents that raise more significant risks.

Our Cyber Security Watch Team ("CSWAT") is comprised of senior IT, operations, risk, legal and compliance leaders across business segments. In addition to addressing our more significant cyber incidents, CSWAT manages risks from matters related to business continuity, including risks posed by cybersecurity threats, and implements controls to mitigate such operational risks. Among other processes, this team reviews our programs and processes related to information security, third party risk, vendor management, facilities, unplanned downtime, business disruption, business continuity and disaster recovery.

Governance

As part of our overall risk management approach, we prioritize the identification and management of cybersecurity risk at several levels, including Board oversight, executive commitment and employee training. Our Risk and Security Committee, comprised of independent directors from our Board, assists the Board in overseeing our cybersecurity and data privacy risk. Specifically, our Risk and Security Committee, which meets quarterly, (i) receives periodic reports from our Chief Security Officer ("CSO") on security programs, including incident reports, (ii) reviews risk assessments from information security, privacy, and internal audit management teams with respect to cybersecurity, including the adequacy and effectiveness of the Company's internal controls regarding cybersecurity; (iii) reviews emerging cybersecurity developments and threats; (iv) reviews compliance with applicable laws and industry standards; and (v) periodically reviews our strategy to mitigate cybersecurity risks, such as our cyber insurance coverage and contingency plans in the event of security incidents or other system disruptions. At least quarterly, our Risk and Security Committee provides reports to the full Board regarding matters recently discussed by the Committee, which enables the full Board to provide additional oversight of our cyber risks and cyber processes. The full Board also reviews our cybersecurity risks in connection with its annual review of our enterprise risk mitigation programs.

Our CSO has worked in the public and private sectors in information security since 1997 and has been a chief security officer since 2017. His technical and process certifications include CISSP, ITIL Foundation, Six Sigma Certified, CISCO CCNP, and CCNA. He oversees the implementation and compliance of our information security standards and mitigation of information security related risks.

We also have management level committees and response teams who support our processes to assess and manage cybersecurity risk as follows:

- The Risk Oversight Committee ("ROC"), whose core members include the CFO, Chief Technology Officer, Chief Product Officer, and General Counsel, is responsible for making risk management decisions to ensure consideration of all relevant factors and alignment with our overall risk mitigation strategy. The ROC also oversees key risk management activity to help ensure accountability, adequacy of resourcing, implementation of Company directives, and alignment of oversight provided by the Board and senior management.
- The Technology Security and Privacy Council, co-chaired by the CSO, Chief Information Officer, and Chief Privacy Officer, brings together IT, legal and internal audit personnel, and other function leads. The Security and Privacy Council provides a forum for these cross-functional members of management to consider emerging technologies, such as artificial intelligence and emerging cybersecurity risks; review cybersecurity and privacy regulations; approve, review and update policies and standards as appropriate; and promote cross-functional collaboration to manage cybersecurity and privacy risks across the enterprise.

At the day-to-day operational level, we maintain an experienced information security team who are tasked with implementing our privacy and cybersecurity program and support the CSO in implementing our detection, reporting, security and mitigation functions. This team and the CSO work to develop and implement tools and processes designed to assist in identifying, containing and remediating cybersecurity incidents, and periodically retain consultants to assist with these activities. We also periodically hold employee trainings on our privacy, cybersecurity and information management policies, conduct phishing tests and generally seek to promote a company-wide awareness of cybersecurity risk through broad-based communications and educational initiatives.

ITEM 2. PROPERTIES

Our property, plant and equipment consists principally of fiber-optic and metallic cables, high-speed transport equipment, electronics, switches, routers, gateway and transmission facilities, central office equipment, land and buildings related to our operations. Our gross property, plant and equipment consisted of the following components:

	As of December 31,	
	2023 ⁽⁵⁾	2022 ⁽⁵⁾
Land	2 %	2 %
Fiber, conduit and other outside plant ⁽¹⁾	37 %	37 %
Central office and other network electronics ⁽²⁾	38 %	39 %
Support assets ⁽³⁾	16 %	17 %
Construction in progress ⁽⁴⁾	7 %	5 %
Gross property, plant and equipment	100 %	100 %

⁽¹⁾ Fiber, conduit and other outside plant consists of fiber and metallic cable, conduit, poles and other supporting structures.

⁽²⁾ Central office and other network electronics consists of circuit and packet switches, routers, transmission electronics and electronics providing service to customers.

⁽³⁾ Support assets consist of buildings, data centers, computers and other administrative and support equipment.

⁽⁴⁾ Construction in progress includes inventory held for construction and property of the aforementioned categories that is under construction and has not yet been placed in service.

⁽⁵⁾ These values exclude assets classified as held for sale.

We own a substantial portion of our telecommunications equipment required for our business. However, we also lease from third parties certain facilities, plant and equipment under various finance and operating lease arrangements. We also own or lease administrative offices in major metropolitan locations both in the United States and internationally. Substantially all of our network electronics equipment is located in buildings or on land that we own or lease, typically within our local service area. Outside of our local service area, our assets are generally located on real property pursuant to an agreement with the property owner or another person with rights to the property. It is possible that we may lose our rights under one or more of these agreements, due to their termination or expiration or in connection with legal challenges to our rights under such agreements.

Our net property, plant and equipment was approximately \$19.8 billion and \$19.2 billion at December 31, 2023 and 2022, respectively, excluding assets held for sale. Substantial portions of our property, plant and equipment are pledged to secure the long-term debt of our subsidiaries or the guarantee obligations of our subsidiary guarantors. For additional information, see Note 9—Property, Plant and Equipment to our consolidated financial statements in Item 8 of Part II of this report.

We have entered into various agreements regarding our unused office and technical space to reduce our ongoing operating expenses regarding such space.

ITEM 3. LEGAL PROCEEDINGS

The information contained under the subheadings "Principal Proceedings" and "Other Proceedings, Disputes and Contingencies" in Note 18—Commitments, Contingencies and Other Items to our consolidated financial statements included in Item 8 of Part II of this report is incorporated herein by reference.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

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

Our common stock is listed on the New York Stock Exchange ("NYSE") and the Berlin Stock Exchange and is traded under the symbol LUMN and CYTH, respectively.

At February 20, 2024, there were approximately 78,000 stockholders of record, although there were significantly more beneficial holders of our common stock.

Issuer Purchases of Equity Securities

During the fourth quarter of 2022, our Board of Directors authorized a two-year program to repurchase up to an aggregate of \$1.5 billion of our outstanding common stock. During the three months ended December 31, 2022, we repurchased and retired 33 million shares of our outstanding common stock in the open market for an aggregate market price of \$200 million, or an average purchase price of \$6.07 per share. Since then, we have not repurchased any shares of our outstanding common stock under this program. For additional information, see Note 20—Repurchases of Lumen Common Stock to our consolidated financial statements included in Item 8 of Part II of this report.

The following table contains information about shares of our previously-issued common stock that we withheld from employees upon vesting of their stock-based awards during the fourth quarter of 2023 to satisfy the related tax withholding obligations:

Period	Total Number of Shares Withheld for Taxes	Average Price Paid Per Share
October 2023	28,853	\$ 1.29
November 2023	95,290	1.37
December 2023	117,524	1.55
Total	241,667	

Equity Compensation Plan Information

See Item 12 of this report.

ITEM 6. [Reserved]

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

All references to "Notes" in this Item 7 of Part II refer to the Notes to Consolidated Financial Statements included in Item 8 of Part II of this report. Certain statements in this report constitute forward-looking statements. See "Special Note Regarding Forward-Looking Statements" immediately prior to Item 1 of Part I of this report for factors relating to these statements and "Risk Factors" in Item 1A of Part I of this report for a discussion of certain risk factors applicable to our business, financial condition, results of operations, liquidity or prospects.

Overview

We are a facilities-based technology and communications company that provides a broad array of integrated products and services to our domestic and global business customers and our domestic mass markets customers. We operate one of the world's most interconnected networks. Our platform empowers our customers to swiftly adjust digital programs to meet immediate demands, create efficiencies, accelerate market access and reduce costs, which allows our customers to rapidly evolve their IT programs to address dynamic changes. With approximately 170,000 on-net buildings and 350,000 route miles of fiber optic cable globally, we are among the largest providers of communications services to domestic and global enterprise customers. Our long-haul network throughout North America and Asia Pacific connects to metropolitan fiber networks that we operate.

Divestitures of the Latin American, ILEC and EMEA Businesses

On August 1, 2022, affiliates of Level 3 Parent, LLC, an indirect wholly-owned subsidiary of Lumen Technologies, Inc., sold Lumen's Latin American business for pre-tax cash proceeds of approximately \$2.7 billion.

On October 3, 2022, we and certain of our affiliates sold the portion of our ILEC business conducted primarily within 20 Midwestern and Southeastern states. In exchange, we received \$7.5 billion of consideration, which was reduced by approximately \$0.4 billion of closing adjustments and partially paid through purchaser's assumption of approximately \$1.5 billion of our long-term consolidated indebtedness, resulting in pre-tax cash proceeds of approximately \$5.6 billion.

On November 1, 2023, we and certain of our affiliates sold Lumen's operations in Europe, the Middle East and Africa (the "EMEA business") to Colt Technology Services Group Limited, a portfolio company of Fidelity Investments, for pre-tax cash proceeds of \$1.7 billion after certain closing adjustments and transaction costs. This consideration is further subject to certain other post-closing adjustments and indemnities set forth in the Purchase Agreement, as amended and supplemented to date.

For more information, see (i) Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses to our consolidated financial statements in Item 8 of Part II of this report and (ii) the risk factors included in Item 1A of Part I of this report.

Changes in the Macroeconomic, Industry and Work Environments

Societal, governmental and macroeconomic changes have impacted us, our customers and our business in several ways since the onset of the COVID-19 pandemic in the U.S. in March 2020. Beginning in the second half of 2020 and continuing into 2023, we rationalized our lease footprint and ceased using 42 underutilized leased property locations. These lease cancellations resulted in accelerated lease costs, including \$35 million and \$8 million of such costs recognized during the years ended December 31, 2021 and 2023, respectively, but will lower our future operating costs. We did not incur material accelerated lease costs during the year ended December 31, 2022. During the second quarter of 2023, we also donated our Monroe, Louisiana campus and leased back a portion thereof. This donation resulted in a loss recognized during the second and fourth quarters, as discussed further below. In conjunction with our plans to continue to reduce costs, we expect to continue our real estate rationalization efforts and expect to incur additional accelerated real estate costs in future periods.

Additionally, as discussed further elsewhere herein, the pandemic and macroeconomic changes arising therefrom have resulted in (i) increases in certain revenue streams and decreases in others, (ii) operational challenges resulting from inflation and, to a lesser extent, shortages of certain components and other supplies that we use in our business, (iii) delays in our cost transformation initiatives and (iv) delayed decision-making by certain of our customers. None of these effects, individually or in the aggregate, have to date materially impacted our financial performance or financial position.

Industry developments over the past couple years have increased fiber construction demand. The resulting increase in construction labor rates increased the cost of enabling units to be capable of receiving our fiber broadband services. In 2022 and 2021, we believe these factors contributed to a delay in attaining our Quantum Fiber buildout targets.

Continued inflationary pressures, supply constraints or business uncertainty could materially impact our financial results in a variety of ways, including by increasing our expenses, decreasing our revenues, further delaying our network expansion plans or otherwise interfering with our ability to deliver products and services. For additional information on the impacts of the pandemic and the macroeconomic changes arising therefrom, see (i) the remainder of this item, including "—Liquidity and Capital Resources—Overview of Sources and Uses of Cash" and (ii) Item 1A of this report.

Reporting Segments

Our reporting segments are currently organized as follows, by customer focus:

- *Business Segment:* Under our Business segment, we provide our products and services under four sales channels:
 - *Large Enterprise:* Under our large enterprise sales channel, we provide our products and services to large enterprises, including multinational and global enterprise customers and carriers.
 - *Mid-Market Enterprise:* Under our mid-market enterprise sales channel, we provide our products and services to medium-sized enterprises directly and through our indirect channel partners.
 - *Public Sector:* Under our public sector sales channel, we provide our products and services to the public sector, including the U.S. Federal government, state and local governments and research and education institutions.
 - *Wholesale:* Under our wholesale sales channel, we provide our products and services to a wide range of other communication companies providing wireline, wireless, cable, voice and data center services.
- *Mass Markets Segment.* Under our Mass Markets segment, we provide products and services to residential and small business customers. At December 31, 2023, we served 2.8 million broadband subscribers under our Mass Markets segment.

See Note 17—Segment Information to our consolidated financial statements in Item 8 of Part II of this report for additional information.

We categorize our Business segment revenue among the following products and services categories:

- *Grow*, which includes products and services that we anticipate will grow, including our dark fiber, Edge Cloud services, IP, managed security, software-defined wide area networks ("SD WAN"), secure access service edge ("SASE"), Unified Communications and Collaboration ("UC&C") and wavelengths services;
- *Nurture*, which includes our more mature offerings, including ethernet and VPN data networks services;
- *Harvest*, which includes our legacy services managed for cash flow, including Time Division Multiplexing ("TDM") voice, private line and other legacy services; and
- *Other*, which includes equipment sales, IT solutions and other services.

We categorize our Mass Markets products and services revenue among the following categories:

- *Fiber Broadband*, under which we provide high speed broadband services to residential and small business customers utilizing our fiber-based network infrastructure;
- *Other Broadband*, under which we provide primarily lower speed broadband services to residential and small business customers utilizing our copper-based network infrastructure; and
- *Voice and Other*, under which we derive revenues from (i) providing local and long-distance voice services, professional services, and other ancillary services, and (ii) federal broadband and state support programs.

Trends Impacting Our Operations

In addition to the above-described impact of the pandemic and its aftermath, our consolidated operations have been, and will continue to be, impacted by the following company-wide trends:

- Customers' demand for automated products and services and competitive pressures will require that we continue to invest in new technologies and automated processes to improve the customer experience and reduce our operating expenses.
- The increased use of digital applications, online video, gaming and artificial intelligence has substantially increased demand for robust, scalable network services. We are continuing to enhance our product capabilities and simplify our product portfolio based on demand and profitability to enable customers to have access to greater bandwidth.
- Businesses continue to adopt distributed, global operating models. We are expanding and enhancing our fiber network, connecting more buildings to our network to generate revenue opportunities and reducing our reliance upon other carriers.
- Changes in customer preferences and in the regulatory, technological and competitive environment are (i) significantly reducing demand for our more mature service offerings, commoditizing certain of our other offerings, or resulting in volume or rate reductions for other of our offerings and (ii) also creating certain opportunities for us arising out of increased demand for lower latency provided by Edge computing and for faster and more secure data transmissions.
- The operating margins of several of our newer, more technologically advanced services, some of which may connect to customers through other carriers, are lower than the operating margins on our traditional, on-net wireline services.
- Uncertainties regarding our financial performance, leverage and debt covenant compliance have caused, and may continue to cause, certain of our customers and other third parties to reduce or cease transacting business with us.
- Our expenses will be impacted by higher vendor costs, reduced economies of scale and other dis-synergies due to our completed 2022 and 2023 divestitures and any future divestitures.
- Declines in our traditional wireline services and other more mature offerings have necessitated right-sizing our cost structures to remain competitive.

Inflation has placed downward pressure on our margins and macroeconomic uncertainties have likely contributed to delayed decision-making by certain of our customers, which are trends that will likely continue to impact us as long as inflation rates remain elevated. These and other developments and trends impacting our operations are discussed elsewhere in this Item 7.

Results of Operations

In this section, we discuss our overall results of operations and highlight special items that are not included in our segment results. In "Segment Results" we review the performance of our two reporting segments in more detail. Results in this section include the results of our Latin American, ILEC and EMEA businesses prior to their sale on August 1, 2022, October 3, 2022 and November 1, 2023 respectively.

Revenue

The following table summarizes our consolidated operating revenue recorded under each of our two segments and in our four revenue sales channels within the Business segment described above:

	Years Ended December 31,			2023 vs 2022 %	2022 vs 2021 %
	2023	2022	2021	Change	Change
(Dollars in millions)					
Business Segment:					
Large Enterprise	\$ 4,616	5,377	5,918	(14) %	(9) %
Mid-Market Enterprise	2,011	2,212	2,398	(9) %	(8) %
Public Sector	1,783	1,861	2,111	(4) %	(12) %
Wholesale	3,125	3,591	3,692	(13) %	(3) %
Business Segment Revenue	11,535	13,041	14,119	(12) %	(8) %
Mass Markets Segment Revenue	3,022	4,437	5,568	(32) %	(20) %
Total operating revenue	\$ 14,557	17,478	19,687	(17) %	(11) %

Our consolidated operating revenue decreased by \$2.9 billion for the year ended December 31, 2023 as compared to the year ended December 31, 2022, \$2.1 billion of which is attributable to the sale of our Latin American and ILEC businesses in the second half of 2022, and the sale of our EMEA business on November 1, 2023. Our consolidated revenue decreased by \$2.2 billion for the year ended December 31, 2022 compared to the year ended December 31, 2021 due to revenue declines in all of our revenue categories listed above, in addition to an approximately \$1.0 billion decrease attributable to the sale of our Latin American and ILEC businesses in the second half of 2022. See our segment results below for additional information.

Operating Expenses

The following table summarizes our operating expenses for the years ended December 31, 2023 and 2022. For information regarding expenses for the year ended December 31, 2021, see "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Item 7 of Part II of our Annual Report Form 10-K for the year ended December 31, 2022.

	Years Ended December 31,		% Change
	2023	2022	
(Dollars in millions)			
Cost of services and products (exclusive of depreciation and amortization)	\$ 7,144	7,868	(9) %
Selling, general and administrative	3,198	3,078	4 %
Net loss (gain) on sale of businesses	121	(113)	nm
Loss on disposal group held for sale	—	40	nm
Depreciation and amortization	2,985	3,239	(8) %
Goodwill impairment	10,693	3,271	nm
Total operating expenses	\$ 24,141	17,383	39 %

nm Percentages greater than 200% and comparisons between positive and negative values or to/from zero values are considered not meaningful.

Cost of Services and Products (exclusive of depreciation and amortization)

Cost of services and products (exclusive of depreciation and amortization) decreased by \$724 million for the year ended December 31, 2023 as compared to the year ended December 31, 2022. This decrease was primarily due to a decrease of \$718 million due to the sale of the Latin American and ILEC businesses in the second half of 2022 and the sale of the EMEA business on November 1, 2023, as well as reduction of \$108 million in employee-related expense from lower headcount. These decreases were partially offset by higher network and maintenance expense of \$130 million.

Selling, General and Administrative

Selling, general and administrative expenses increased by \$120 million for the year ended December 31, 2023 as compared to the year ended December 31, 2022. This increase in selling, general and administrative expenses was primarily driven by a \$101 million loss incurred as a result of our donation of our Monroe, Louisiana campus and a \$73 million net loss as a result of the sale of select CDN contracts. Additionally, employee-related expense increased \$97 million and marketing and advertising expense increased \$50 million. A portion of these and other expense increases were driven by our ongoing growth and optimization initiatives. These increases were partially offset by a \$185 million decrease due to the sale of the Latin American and ILEC businesses in the second half of 2022 as well as the sale of the EMEA business on November 1, 2023 and \$21 million from gains on the sale of property and assets.

Loss (Gain) on Sale of Businesses

For a discussion of the loss on the sale of the EMEA business and gain on the sales of the Latin American and ILEC businesses that we recognized for the years ended December 31, 2023 and December 31, 2022, see Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses.

Depreciation and Amortization

The following table provides detail of our depreciation and amortization expense:

	Years Ended December 31,		% Change
	2023	2022	
	(Dollars in millions)		
Depreciation	\$ 1,932	2,133	(9) %
Amortization	1,053	1,106	(5) %
Total depreciation and amortization	<u>\$ 2,985</u>	<u>3,239</u>	<u>(8) %</u>

Depreciation expense decreased by \$201 million for the year ended December 31, 2023 as compared to the year ended December 31, 2022 primarily due to the discontinuation during the fourth quarter of 2022 of the depreciation of the tangible EMEA assets we divested, resulting in a decrease of \$152 million of depreciation expense during the year ended December 31, 2023 compared to the year ended December 31, 2022. In addition, for the year ended December 31, 2023 as compared to the year ended December 31, 2022, depreciation expense decreased \$137 million due to the impact of annual rate depreciable life changes. The decreases were partially offset by higher depreciation expense of \$92 million associated with net growth in depreciable assets.

Amortization expense decreased by \$53 million for the year ended December 31, 2023 as compared to the year ended December 31, 2022. The decrease was primarily due to the discontinuation during the fourth quarter of 2022 of the amortization of the intangible EMEA assets we divested, resulting in a decrease of \$30 million of amortization expense during the year ended December 31, 2023 compared to the year ended December 31, 2022. In addition, for the year ended December 31, 2023, as compared to the year ended December 31, 2022, amortization expense decreased \$18 million resulting from certain customer relationship intangible assets becoming fully amortized in the second quarter of 2023.

Further analysis of our segment operating expenses by segment is provided below in "Segment Results."

Goodwill Impairments

We are required to perform impairment tests related to our goodwill annually, which we perform as of October 31, or sooner if an indicator of impairment occurs. We considered the sustained decline in our share price during the second quarter of 2023 an event or change in circumstance requiring evaluation of goodwill impairment.

We report under two segments: Business and Mass Markets. As of December 31, 2023, we had three reporting units for goodwill impairment testing, which are (i) Mass Markets, (ii) North America Business ("NA Business") and (iii) Asia Pacific ("APAC") region. Prior to the divestiture of the EMEA business, the EMEA region was also a reporting unit and was tested for impairment in the pre-classification test as of October 31, 2022 discussed elsewhere herein. Prior to its August 1, 2022 divestiture, the Latin American ("LATAM") region was also a reporting unit.

During the second and fourth quarters of 2023, we determined circumstances existed indicating it was more likely than not that the carrying value of one or more of our reporting units exceeded its fair value. When we performed an impairment test, we concluded that the estimated fair value of certain of our reporting units was less than their carrying value of equity as of our testing date. As a result, we recorded non-cash, non-tax-deductible goodwill impairment charges aggregating to \$10.7 billion for the year ended December 31, 2023. When we performed our impairment tests during the fourth quarter of 2022, we concluded that the estimated fair value of certain of our reporting units was less than our carrying value of equity as of our testing date. As a result, we recorded non-cash, non-tax-deductible goodwill impairment charges aggregating to \$3.3 billion in the fourth quarter of 2022. When we performed our annual impairment test in the fourth quarter of 2021, we concluded it was more likely than not that the fair value of each of our reporting units exceeded the carrying value of equity of our reporting units. Therefore, we concluded no impairment existed as of our annual assessment date in the fourth quarter of 2021.

We are currently experiencing competitive, macroeconomic and financial pressures, including dis-synergies resulting from our 2022 and 2023 divestitures and concerns about our ability to refinance debt in the future. In 2023, we also experienced a sustained decline in our share price. These and other factors contributed to us recognizing the above-described goodwill impairments. If these pressures continue, we may experience additional deterioration in our projected cash flows or market capitalization, or make significant changes to our assumptions of discount rates and market multiples. Any of these could result in additional goodwill impairments in future quarters.

See Note 3—Goodwill, Customer Relationships and Other Intangible Assets to our consolidated financial statements in Item 8 of Part II of this report for further details on these tests and impairment charges.

Other Consolidated Results

The following tables summarize our total other expense, net and income tax expense:

	Years Ended December 31,		% Change
	2023	2022	
(Dollars in millions)			
Interest expense	\$ (1,158)	(1,332)	(13) %
Net gain on early retirement of debt	618	214	189 %
Other (expense) income, net	(113)	32	nm
Total other expense, net	\$ (653)	(1,086)	(40) %
Income tax expense	\$ 61	557	(89) %

nm Percentages greater than 200% and comparisons between positive and negative values or to/from zero values are considered not meaningful.

Interest Expense

Interest expense decreased by \$174 million for the year ended December 31, 2023 as compared to the year ended December 31, 2022. The decline was primarily due to a \$4.5 billion decrease in average outstanding long-term debt (inclusive of debt classified as held for sale), which was partially offset by an increase in the average interest rate from 5.14% to 5.9%.

Net Gain on Early Retirement of Debt

For a discussion of the exchange offers that resulted in the net gain on debt that we recognized for the years ended December 31, 2023 and 2022, see Note 7—Long-Term Debt and Credit Facilities.

Other (Expense) Income, Net

Other (expense) income, net reflects certain items not directly related to our core operations, including (i) components of net periodic pension and post-retirement benefit costs, (ii) foreign currency gains and losses, (iii) our share of income from partnerships we do not control, (iv) interest income, (v) gains and losses from non-operating asset dispositions, (vi) income from transition and separation services provided by us to the purchasers of our divested businesses and (vii) other non-core items.

	Years Ended December 31,	
	2023	2022
	(Dollars in millions)	
Pension and post-retirement net periodic (expense) income	\$ (158)	1
Foreign currency (loss) gain	(10)	12
Loss on investment in limited partnership	(75)	(83)
Loss on investment in equity securities	(22)	(109)
Transition and separation services	186	152
Interest income	41	24
Other	(75)	35
Other (expense) income, net	<u>\$ (113)</u>	<u>32</u>

See Note 14—Fair Value of Financial Instruments for more information regarding the losses recognized on our investments in equity securities and a limited partnership.

Income Tax Expense

For the years ended December 31, 2023 and 2022, our effective income tax rate was (0.6)% and (56.2)%, respectively. The effective tax rate for the year ended December 31, 2023 includes a \$2.2 billion unfavorable aggregate impact of non-deductible goodwill impairments and a \$137 million favorable impact as a result of utilizing available capital losses generated by the sale of our Latin American business in 2022. The effective tax rate for the year ended December 31, 2022 includes a \$682 million unfavorable impact of non-deductible goodwill impairments and \$128 million unfavorable impact as a result of the sale of our Latin American business. For additional information, see Note 16—Income Taxes to our consolidated financial statements in Item 8 of Part II of this report and "Critical Accounting Policies and Estimates—Income Taxes".

Segment Results

General

Reconciliation of segment revenue to total operating revenue is below. The results presented in this section include results of our Latin American, ILEC and EMEA businesses prior to their sale on August 1, 2022, October 3, 2022 and November 1, 2023 respectively:

	Years Ended December 31,		
	2023	2022	2021
(Dollars in millions)			
Operating revenue			
Business	\$ 11,535	13,041	14,119
Mass Markets	3,022	4,437	5,568
Total operating revenue	<u>\$ 14,557</u>	<u>17,478</u>	<u>19,687</u>

Reconciliation of segment EBITDA to total adjusted EBITDA is below:

	Years Ended December 31,		
	2023	2022	2021
(Dollars in millions)			
Net (loss) income	\$ (10,298)	(1,548)	2,033
Income tax expense	61	557	668
Total other expense, net	653	1,086	1,584
Depreciation and amortization expense	2,985	3,239	4,019
Goodwill impairment	10,693	3,271	—
Stock-based compensation expense	52	98	120
Total adjusted EBITDA	<u>\$ 4,146</u>	<u>6,703</u>	<u>8,424</u>
Business segment adjusted EBITDA	\$ 7,165	8,569	9,358
Mass Markets segment adjusted EBITDA	1,589	2,690	3,730
Other unallocated expense	(4,608)	(4,556)	(4,664)

For additional information on our reportable segments and product and services categories, see Note 4—Revenue Recognition and Note 17—Segment Information to our consolidated financial statements in Item 8 of Part II of this report.

Business Segment

	Years Ended December 31,			Percent Change	
	2023	2022	2021	2023 vs 2022	2022 vs 2021
(Dollars in millions)					
Business Segment Product Categories:					
Grow	\$ 4,469	4,595	4,687	(3)%	(2)%
Nurture	3,465	4,094	4,540	(15)%	(10)%
Harvest	2,785	3,557	4,069	(22)%	(13)%
Other	816	795	823	3 %	(3)%
Total Business Segment Revenue	11,535	13,041	14,119	(12)%	(8)%
Expenses:					
Total expense	4,370	4,472	4,761	(2)%	(6)%
Total adjusted EBITDA	\$ 7,165	8,569	9,358	(16)%	(8)%

Year ended December 31, 2023 compared to the years ended December 31, 2022 and December 31, 2021

Business segment revenue decreased \$1.5 billion for the year ended December 31, 2023 compared to December 31, 2022 and decreased \$1.1 billion for the year ended December 31, 2022 compared to December 31, 2021. Approximately \$1.0 billion of the decrease for the year ended December 31, 2023 compared to December 31, 2022 was due to the sale of the Latin American, ILEC and EMEA businesses in late 2022 and 2023. For the year ended December 31, 2022 compared to December 31, 2021, the sale of the Latin American and ILEC businesses in the second half of 2022 caused a decrease of \$511 million. More specifically, within each product category for the year ended December 31, 2023 compared to December 31, 2022 and for the year ended December 31, 2022 compared to December 31, 2021:

- Grow decreased \$126 million and \$92 million, reflecting decreases of approximately \$370 million and \$176 million associated with the sale of the divested businesses. This was offset by increases of approximately \$244 million primarily in our IP, wavelengths, dark fiber, enterprise broadband and colocation products for the year ended December 31, 2023 compared to December 31, 2022 and approximately \$84 million primarily in our IP, enterprise broadband, and wavelengths products for the year ended December 31, 2022 compared to December 31, 2021;
- Nurture decreased \$629 million and \$446 million, approximately \$262 million and \$119 million of which was attributable to the sale of the divested businesses. The remainder of these declines are principally attributable to declines in traditional VPN networks services of \$261 million and \$245 million and declines in Ethernet services of \$112 million and \$87 million;
- Harvest decreased by \$772 million and \$512 million, approximately \$370 million and \$209 million of which was attributable to the sale of the divested businesses. The remainder of the decline is principally attributable to a \$265 million and \$211 million decline in legacy voice services;
- Other increased by \$21 million for the year ended December 31, 2023 compared to December 31, 2022 and decreased \$28 million for the year ended December 31, 2022 compared to December 31, 2021. Equipment revenue drove both the increase for the year ended December 31, 2023 and the decrease for the year ended December 31, 2022 with an increase of \$35 million and a decrease of \$20 million, respectively.

The decrease in Business segment revenue for the year ended December 31, 2023 was also driven by \$31 million of unfavorable foreign currency adjustments as compared to December 31, 2022. The decrease in Business segment revenue for the year ended December 31, 2022 was also driven by \$54 million of unfavorable foreign currency adjustments for the year ended December 31, 2022 as compared to December 31, 2021.

Business segment expense decreased by \$102 million for the year ended December 31, 2023 compared to December 31, 2022 primarily due to the sale of the divested businesses of \$230 million. This decrease was partially offset by an increase of \$80 million in cost of sales and \$48 million in selling, general and administrative expenses, primarily \$31 million of increased professional fees and \$17 million of increased employee-related costs. A portion of these and other expense increases were driven by our ongoing growth and optimization initiatives. Business segment expenses decreased by \$289 million for the year ended December 31, 2022 compared to December 31, 2021, primarily due to a \$138 million decrease in expenses from the divested businesses, as well as decreases in cost of sales of \$105 million and \$46 million in selling, general and administrative expenses, primarily in reduced employee-related costs of \$38 million.

Business segment adjusted EBITDA as a percentage of revenue was 62%, 66% and 66% for the years ended December 31, 2023, 2022 and 2021.

Mass Markets Segment

	Years Ended December 31,			Percent Change	
	2023	2022	2021	2023 vs 2022	2022 vs 2021
	(Dollars in millions)				
Mass Markets Product Categories:					
Fiber Broadband	\$ 636	604	524	5 %	15 %
Other Broadband	1,394	2,164	2,507	(36)%	(14)%
Voice and Other	992	1,669	2,537	(41)%	(34)%
Total Mass Markets Segment Revenue	3,022	4,437	5,568	(32)%	(20)%
Expenses:					
Total expense	1,433	1,747	1,838	(18)%	(5)%
Total adjusted EBITDA	\$ 1,589	2,690	3,730	(41)%	(28)%

Year ended December 31, 2023 compared to the years ended December 31, 2022 and December 31, 2021

Mass Markets segment revenue decreased by \$1.4 billion for the year ended December 31, 2023 compared to December 31, 2022 and decreased \$1.1 billion for the year ended December 31, 2022 compared to December 31, 2021. Approximately \$1.1 billion and \$448 million of these decreases are due to the sale of our ILEC business in the fourth quarter of 2022. More specifically, within each product category for the year ended December 31, 2023 compared to December 31, 2022 and for the year ended December 31, 2022 compared to December 31, 2021:

- Fiber Broadband revenue increased \$32 million and \$80 million, primarily driven by \$73 million and \$83 million of increases driven by growth in the number of fiber customers associated with our continued increase in enabled locations from our Quantum Fiber buildout, which was partially offset by respective decreases of \$41 million and \$3 million due to the sale of the ILEC business relating to such periods;
- Other Broadband revenue decreased \$770 million and \$343 million. Approximately \$563 million and \$230 million of this decrease was due to the ILEC divestiture and \$207 million and \$113 million was due to fewer customers for our lower speed copper-based broadband services;
- Voice and Other decreased \$677 million and \$868 million. These declines were principally due to (i) a \$472 million and \$215 million decrease due to the sale of the ILEC business, (ii) a \$146 million and \$222 million decrease due to the continued loss of copper-based voice customers and (iii) for the year ended December 31, 2023 compared to December 31, 2022, the recognition in the first quarter of 2022 of \$59 million of previously deferred revenue related to the CAF II program, which lapsed on December 31, 2021. The decrease for the year ended December 31, 2022 compared to December 31, 2021 was additionally driven by the net reduction in CAF II revenue of \$431 million.

Mass Markets segment expense decreased by \$314 million for the year ended December 31, 2023 compared to December 31, 2022 primarily due to a \$295 million decrease due to the ILEC divestiture and a \$37 million decrease in professional fees, partially offset by an increase of \$42 million in employee-related costs and \$27 million in marketing and advertising costs. Mass Markets segment expense decreased \$91 million for the year ended December 31, 2022 compared to December 31, 2021 primarily due to a \$176 million decrease due to the divestiture of the ILEC business, partially offset by \$107 million of increased bad debt expense, network expense and professional fees.

Mass Markets segment adjusted EBITDA as a percentage of revenue was 53%, 61% and 67% for the years ended December 31, 2023, 2022 and 2021, respectively.

Critical Accounting Policies and Estimates

Our consolidated financial statements are prepared in accordance with accounting principles that are generally accepted in the United States. The preparation of these consolidated financial statements requires management to make estimates and assumptions that affect the reported amounts of our assets, liabilities, revenue and expenses. We have identified certain policies and estimates as critical to our business operations and the understanding of our past or present results of operations related to (i) goodwill, customer relationships and other intangible assets; (ii) pension and post-retirement benefits; (iii) loss contingencies and litigation reserves and (iv) income taxes. These policies and estimates are considered critical because they had a material impact, or they have the potential to have a material impact, on our consolidated financial statements and because they require us to make significant judgments, assumptions or estimates. We believe that our estimates, judgments and assumptions made when accounting for the items described below were reasonable, based on information available at the time they were made. However, actual results may differ from those estimates, and these differences may be material.

Goodwill, Customer Relationships and Other Intangible Assets

We have a significant amount of goodwill and indefinite-lived intangible assets that are assessed at least annually for impairment. At December 31, 2023, goodwill and intangible assets totaled \$7.4 billion, or 22%, of our total assets. The impairment analyses of these assets are considered critical because of their significance to us and our segments and the subjective nature of certain assumptions used to estimate fair value.

We have assigned our goodwill balance to our segments at December 31, 2023 as follows:

	Business	Mass Markets	Total
	(Dollars in millions)		
As of December 31, 2023	\$ —	1,964	1,964

Intangible assets arising from business combinations, such as goodwill, customer relationships, capitalized software, trademarks and tradenames, are initially recorded at estimated fair value. We amortize customer relationships primarily over an estimated life of 7 to 14 years, using the straight-line method, depending on the customer. Certain customer relationship intangible assets became fully amortized at the end of the first quarter 2021 using the sum-of-years-digits method, which we no longer use for any of our remaining intangible assets. We amortize capitalized software using the straight-line method primarily over estimated lives ranging up to 7 years. We amortize our other intangible assets using the straight-line method over an estimated life of 9 to 20 years. Other intangible assets not arising from business combinations are initially recorded at cost. Where there are no legal, regulatory, contractual or other factors that would reasonably limit the useful life of an intangible asset, we classify them as indefinite-lived intangible assets and such intangible assets are not amortized.

We assess our long-lived intangible assets, other than goodwill, with indefinite lives for impairment annually, or, under certain circumstances, more frequently, such as when events or changes in circumstances indicate there may be an impairment. These assets are carried at the estimated fair value at the time of acquisition and assets not acquired in acquisitions are recorded at historical cost. However, if their estimated fair value is less than their carrying amount, we recognize an impairment charge for the amount by which the carrying amount of these assets exceeds their estimated fair value. For the year ended December 31, 2023 and 2022, we concluded it was more likely than not that our indefinite-lived intangible assets were not impaired; thus we recorded no impairment charge for these assets.

We are required to assess our goodwill for impairment annually, or more frequently if an event occurs or circumstances change that indicates it is more likely than not the fair values of any of our reporting units were less than their carrying values. In assessing goodwill for impairment, we may first assess qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value.

Our annual impairment assessment date for goodwill is October 31, at which date we assess our reporting units. We report two segments: Business and Mass Markets. At October 31, 2023, we had three reporting units for goodwill impairment testing, which are (i) Mass Markets (ii) North America Business ("NA Business") and (iii) Asia Pacific ("APAC") region. Prior to their divestitures in 2023 and 2022, the EMEA and Latin American ("LATAM") regions were also each considered their own reporting unit.

Our reporting units are not discrete legal entities with discrete full financial statements. Our assets and liabilities are employed in and relate to the operations of multiple reporting units and are allocated to individual reporting units based on their relative revenue or earnings before interest, taxes depreciation and amortization ("EBITDA"). For each reporting unit, we compare its estimated fair value of equity to its carrying value of equity that we assign to the reporting unit. If the estimated fair value of the reporting unit is greater than its carrying value, we conclude that no impairment exists. If the estimated fair value of the reporting unit is less than the carrying value, we record a non-cash impairment charge equal to the excess amount. Depending on the facts and circumstances, we typically estimate the fair value of our reporting units by considering either or both of (i) a discounted cash flow method, which is based on the present value of projected cash flows over a discrete projection period and a terminal value, which is based on the expected normalized cash flows of the reporting units following the discrete projection period, and (ii) a market approach, which includes the use of multiples of publicly-traded companies whose services are comparable to ours. With respect to our analysis using the discounted cash flow method, the timing and amount of projected cash flows under these forecasts require estimates developed from our long-range plan, which is informed by wireline industry trends, the competitive landscape, product lifecycles, operational initiatives, capital allocation plans and other company-specific and external factors that influence our business. These projected cash flows consider recent historical results and are consistent with our short-term financial forecasts and long-term business strategies. The development of these projected cash flows, and the discount rate applied to such cash flows, is subject to inherent uncertainties, and actual results could vary significantly from such estimates. Our determination of the discount rate is based on a weighted average cost of capital approach, which uses a market participant's cost of equity and after-tax cost of debt and reflects certain risks inherent in the projected cash flows. With respect to our analysis using the market approach, we estimate the fair value of a reporting unit based upon a market multiple applied to the reporting unit's revenue and EBITDA, adjusted for an appropriate control premium based on recent market transactions. We weigh these revenue and EBITDA market multiples depending on the characteristics of the individual reporting unit. We also reconcile the estimated fair values of the reporting units to our market capitalization to conclude whether the indicated control premium is reasonable in comparison to recent transactions in the marketplace.

Declines in our stock price have in the past caused an impairment of our goodwill, and future declines in our stock price could potentially cause additional impairments of our goodwill. Changes in the underlying assumptions that we use in allocating the assets and liabilities to reporting units under either the discounted cash flow or market approach method can result in materially different determinations of fair value. We perform sensitivity analyses that consider a range of discount rates and a range of EBITDA market multiples and we believe the estimates, judgments, assumptions and allocation methods used by us are reasonable. Nonetheless, changes in any of them can significantly affect whether we must incur impairment charges, as well as the size of such charges.

For additional information on our goodwill balances by segment and results of our impairment analyses, see Note 3—Goodwill, Customer Relationships and Other Intangible Assets to our consolidated financial statements in Item 8 of Part II of this report.

Pension and Post-retirement Benefits

We sponsor a noncontributory qualified defined benefit pension plan (referred to herein as our qualified pension plan, the "Lumen Combined Pension Plan" or the "Combined Pension Plan") for a substantial portion of our current and former employees in the United States. As of January 1, 2022, we spun off a new pension plan (the "Lumen Pension Plan") from the Combined Pension Plan in anticipation of the sale of a portion of our ILEC business on October 3, 2022. We recognized pension costs related to both plans through the sale of the ILEC business, at which time balances related to the Lumen Pension Plan were reflected in the calculation of our gain on the sale of the ILEC business and the pension obligation and assets of the Lumen Pension Plan were transferred to the purchaser.

In addition to the Lumen Combined Pension Plan, we also maintain several non-qualified pension plans for certain eligible highly compensated employees. Due to the insignificant impact of these non-qualified plans on our consolidated financial statements, we have excluded them from the following pension and post-retirement benefits disclosures for 2023, 2022 and 2021. See Note 11—Employee Benefits for additional information.

We also maintain post-retirement benefit plans that provide health care and life insurance benefits primarily for certain eligible retirees.

In 2023, approximately 62% of the Combined Pension Plan's January 1, 2023 net actuarial loss balance of \$1.4 billion was subject to amortization as a component of net periodic expense over the average remaining service period of 14 years for participating employees expected to receive benefits under the plan. We treated the other 38% of the Combined Pension Plan's beginning net actuarial loss balance as indefinitely deferred during 2023. In 2023, approximately 56% of the beginning net actuarial gain of \$371 million at January 1, 2023 for the post-retirement benefit plans was subject to amortization as a component of net periodic expense, with the other 44% of the beginning net actuarial gain balance for the post-retirement benefit plans treated as indefinitely deferred.

In 2022, approximately 62% of the Combined Pension Plan's January 1, 2022 net actuarial loss balance of \$2.2 billion was subject to amortization as a component of net periodic expense over the average remaining service period of 14 years for participating employees expected to receive benefits under the plan. We treated the other 38% of the Combined Pension Plan's beginning net actuarial loss balance as indefinitely deferred during 2022. Additionally, upon the sale of the ILEC business on October 3, 2022, we recognized \$564 million of net actuarial loss, pre-tax, related to the Lumen Pension Plan, which partially offset our gain on the sale of the business. We treated the entire beginning net actuarial loss of \$217 million at January 1, 2022 for the post-retirement benefit plans as indefinitely deferred during 2022.

As of January 1, 2021, our qualified pension plan had a net actuarial loss balance of approximately \$3.0 billion. A portion of this balance was subject to amortization as a component of net periodic expense over the average remaining service period for participating employees expected to receive benefits under the plan. During 2021, our lump sum pension settlement payments exceeded the settlement threshold and as a result we recognized a non-cash settlement charge of \$383 million, accelerating previously unrecognized actuarial losses from our net actuarial loss balance. For our post-retirement benefit plans, the majority of the beginning net actuarial loss balance of \$346 million at January 1, 2021 continued to be deferred during 2021.

In computing our pension and post-retirement health care and life insurance benefit obligations, our most significant assumptions are the discount rate and mortality rates. In computing our periodic pension expense, our most significant assumptions are the discount rate and the expected rate of return on plan assets. In computing our post-retirement benefit expense, our most significant assumption is the discount rate.

The discount rate for each plan is the rate at which we believe we could effectively settle the plan's benefit obligations as of the end of the year. We selected each plan's discount rate based on a cash flow matching analysis using hypothetical yield curves from high-quality U.S. corporate bonds and projections of the future benefit payments that constitute the projected benefit obligation for the plans. This process establishes the uniform discount rate that produces the same present value of the estimated future benefit payments as is generated by discounting each year's benefit payments by a spot rate applicable to that year. The spot rates used in this process were derived from a yield curve created from yields on the 60th to 90th percentile of U.S. high quality bonds.

The table below illustrates hypothetical changes in our benefit obligation for the qualified pension plan and the post-retirement benefit plans obligation if we had selected a higher or lower discount rate.

	Percentage point change		Increase/(decrease) at December 31, 2023
			(Dollars in millions)
Combined Pension Plan discount rate	1	% \$	(451)
	(1)	%	373
Post-retirement benefit plans discount rate	1	%	(158)
	(1)	%	158

Published mortality rates help predict the expected life of plan participants and are based on historical demographic studies by the Society of Actuaries ("SOA"). The SOA publishes new mortality tables and projection scales on a regular basis which reflect updates to projected life expectancies in North America. Historically, we have adopted the new projection tables immediately after publication. The SOA did not release any revised mortality tables or projection scales in 2022 or 2023.

The expected rate of return on plan assets is the long-term rate of return we expect to earn on the plans' assets in the future, net of administrative expenses paid from plan assets. The rate of return is determined by the strategic allocation of plan assets and the long-term risk and return forecast for each asset class. The forecasts for each asset class are generated primarily from an analysis of the long-term expectations of various third-party investment management organizations, to which we then add a factor of 50 basis points to reflect the benefit we expect to result from our active management of the assets. The expected rate of return on plan assets is reviewed annually by management and our Board of Directors and is revised, as necessary, to reflect changes in the financial markets and our investment strategy.

Changes in any of the above factors could significantly impact operating expenses in our consolidated statements of operations and other comprehensive loss in our consolidated statements of comprehensive income (loss), as well as the amount of the liability and accumulated other comprehensive loss of stockholders' equity on our consolidated balance sheets.

Loss Contingencies and Litigation Reserves

We are involved in several potentially material legal proceedings, as described in more detail in Note 18—Commitments, Contingencies and Other Items. On a quarterly basis, we assess potential losses in relation to these and other pending or threatened tax and legal matters. For matters not related to income taxes, if a loss is considered probable and the amount can be reasonably estimated, we recognize an expense for the estimated loss. To the extent these estimates are more or less than the actual liability incurred upon resolving these matters, our earnings will be increased or decreased accordingly. If the differences are material, our consolidated financial statements could be materially impacted.

For matters related to income taxes, if we determine in our judgment that the impact of an uncertain tax position is more likely than not to be sustained upon audit by the relevant taxing authority, then we recognize in our financial statements a benefit for the largest amount that is more likely than not to be sustained. We do not recognize any portion of an uncertain tax position if we determine in our judgment that the position has less than a 50% likelihood of being sustained. Though the validity of any tax position is a matter of tax law, the body of statutory, regulatory and interpretive guidance on the application of the law is complex and often ambiguous, particularly in certain of the non-U.S. jurisdictions in which we operate. As such, our tax positions may not be sustained, which could materially impact our consolidated financial statements.

Income Taxes

Our provision for income taxes includes amounts for tax consequences deferred to future periods. We record deferred income tax assets and liabilities reflecting future tax consequences attributable to (i) tax credit carryforwards, (ii) differences between the financial statement carrying value of assets and liabilities and the tax basis of those assets and liabilities and (iii) tax NOLs. Deferred taxes are computed using enacted tax rates expected to apply in the year in which the differences are expected to affect taxable income. The effect of a change in tax rate on deferred income tax assets and liabilities is recognized in earnings in the period that includes the enactment date.

The measurement of deferred taxes often involves the exercise of considerable judgment related to the realization of tax basis. Our deferred tax assets and liabilities reflect our assessment that tax positions taken in filed tax returns and the resulting tax basis are more likely than not to be sustained if they are audited by taxing authorities. Assessing tax rates that we expect to apply and determining the years when the temporary differences are expected to affect taxable income requires judgment about the future apportionment of our income among the states in which we operate. Any changes in our practices or judgments involved in the measurement of deferred tax assets and liabilities could materially impact our financial condition or results of operations.

In connection with recording deferred income tax assets and liabilities, we establish valuation allowances when necessary to reduce deferred income tax assets to amounts that we believe are more likely than not to be realized. We evaluate our deferred tax assets quarterly to determine whether adjustments to our valuation allowances are appropriate in light of changes in facts or circumstances, such as changes in tax law, interactions with taxing authorities and developments in case law. In making this evaluation, we rely on our recent history of pre-tax earnings. We also rely on our forecasts of future earnings and the nature and timing of future deductions and benefits represented by the deferred tax assets, all of which involve the exercise of significant judgment. At December 31, 2023, we established a valuation allowance of \$399 million primarily related to state NOLs, based on our determination that it was more likely than not that this amount of these NOLs would expire unused. If forecasts of future earnings and the nature and estimated timing of future deductions and benefits change in the future, we may determine that existing valuation allowances must be revised or eliminated or new valuation allowances created, any of which could materially impact our financial condition or results of operations. See Note 16—Income Taxes to our consolidated financial statements in Item 8 of Part II of this report.

Liquidity and Capital Resources

Overview of Sources and Uses of Cash

We are a holding company that is dependent on the capital resources of our subsidiaries to satisfy our parent company liquidity requirements. Several of our significant operating subsidiaries have borrowed funds either on a standalone basis or as part of a separate restricted group with certain of its subsidiaries or affiliates. The terms of the instruments governing the indebtedness of these borrowers or borrowing groups may restrict our ability to access their accumulated cash. In addition, our ability to access the liquidity of these and other subsidiaries may be constrained by tax, legal and other limitations.

At December 31, 2023, we held cash and cash equivalents of \$2.2 billion. As of December 31, 2023, we had approximately \$1.8 billion of borrowing capacity available under our \$2.2 billion revolving credit facility, net of undrawn letters of credit and borrowings issued to us thereunder. We typically use our revolving credit facility as a source of liquidity for operating activities and our other cash requirements. We had approximately \$61 million of cash and cash equivalents outside the United States at December 31, 2023. We currently believe that there are no material restrictions on our ability to repatriate cash and cash equivalents into the United States, and that we may do so without paying or accruing U.S. taxes. We do not currently intend to repatriate to the United States any of our foreign cash and cash equivalents from operating entities.

Our executive officers and our Board of Directors review our sources and potential uses of cash in connection with our annual budgeting process and throughout the year as circumstances warrant. Generally speaking, our principal funding source is cash from operating activities, and our principal cash requirements include operating expenses, capital expenditures, income taxes, debt repayments, periodic securities repurchases, periodic pension contributions and other benefits payments. The impact of the sales of our Latin American, ILEC and EMEA businesses is further described below.

Based on our current capital allocation objectives, during 2024 we project expending approximately \$2.7 billion to \$2.9 billion of capital expenditures.

For the 12-month period ending December 31, 2024, we project our fixed commitments will include (i) \$125 million of scheduled term loan amortization payments and (ii) \$32 million of finance lease and other fixed payments.

In January 2024, we received a cash federal income tax refund of \$729 million, including interest. For additional information, see Note 24—Subsequent Events, to our consolidated financial statements included under Item 8 of Part II of this annual report.

As discussed elsewhere herein, we recorded an aggregate of \$14.0 billion of non-cash, non tax-deductible goodwill impairment charges in 2023 and 2022, which has substantially reduced our total stockholders' equity. See "Results of Operations—Goodwill Impairments" discussing the potential for additional goodwill impairments in future quarters.

We will continue to monitor our future sources and uses of cash, and anticipate that we will make adjustments to our capital allocation strategies when, as and if determined by our Board of Directors. We may also draw on our revolving credit facility as a source of liquidity for operating activities and to give us additional flexibility to finance our capital investments, repayments of debt, pension contributions and other cash requirements.

For additional information, see "Risk Factors—Financial Risks" in Item 1A of Part I of this report.

Impact of the Divestitures of the Latin American, ILEC and EMEA Businesses

As discussed in Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses to our consolidated financial statements in Item 8 of Part II of this report, we sold our Latin American, ILEC and EMEA businesses on August 1, 2022, October 3, 2022 and November 1, 2023, respectively. As further described elsewhere herein, these transactions have provided us with a substantial amount of cash proceeds but have also reduced our base of income-generating assets that generate our recurring cash from operating activities. For a discussion of the impact of our divestitures upon our federal income taxes, see "Liquidity and Capital Resources—Federal Income Tax Obligations."

Capital Expenditures

We incur capital expenditures on an ongoing basis to expand and improve our service offerings, enhance and modernize our networks and compete effectively in our markets. We evaluate capital expenditure projects based on a variety of factors, including expected strategic impacts (such as forecasted impact on revenue growth, productivity, expenses, service levels and customer retention) and our expected return on investment. The amount of capital investment is influenced by, among other things, current and projected demand for our services and products, our network requirements, cash flow generated by operating activities, cash required for debt services and other purposes, regulatory considerations (such as governmentally-mandated infrastructure buildout requirements) and the availability of requisite supplies, labor and permits.

Our capital expenditures continue to be focused on enhancing network operating efficiencies, supporting new service developments, and expanding our fiber network, including our Quantum Fiber buildout plan. A portion of our 2023 capital expenditures will also be focused on restoring network assets destroyed or damaged by Hurricane Ian in Florida during 2022 or replacing aged network assets. For more information on our capital spending, see (i) "—Overview of Sources and Uses of Cash" above, (ii) "Cash Flow Activities—Investing Activities" below and (iii) Item 1 of Part 1 of this report.

Debt Instruments and Financing Arrangements

Debt Instruments

On January 22, 2024, Lumen entered into an amended and restated transaction support agreement with a group of creditors representing over \$12.5 billion of the outstanding indebtedness of the Company and its subsidiaries to, among other things, extend maturities of the debt instruments of the Company and Level 3 Financing, Inc. and provide access to a new revolving credit facility in an amount expected to be approximately \$1.0 billion. In addition, the creditors have committed to provide \$1.325 billion of financing to the Company through new long-term debt. The consummation of the transactions contemplated by the amended and restated transaction support agreement is subject to the satisfaction of various closing conditions. For more information, see Note 24—Subsequent Events, to our consolidated financial statements included under Item 8 of Part II of this annual report.

Pursuant to exchange offers commenced on March 16, 2023 (the "Exchange Offers"), (i) on March 31, 2023, Level 3 Financing, Inc. issued \$915 million of its 10.500% Senior Secured Notes due 2030 in exchange for \$1.535 billion of Lumen's outstanding senior unsecured notes and (ii) on April 17, 2023, Level 3 Financing, Inc. issued an additional \$9 million of its 10.500% Notes in exchange for \$19 million of Lumen's outstanding senior unsecured notes. All exchanged notes were concurrently cancelled. These transactions resulted in a net reduction in the aggregate principal amount of Lumen's consolidated indebtedness of approximately \$630 million and, along with a repurchase of notes in the first quarter of 2023, a gain of \$618 million during the year ended December 31, 2023.

At December 31, 2023, we had \$11.4 billion of outstanding consolidated secured indebtedness, \$8.5 billion of outstanding consolidated unsecured indebtedness (excluding (i) finance lease obligations, (ii) unamortized premiums, net and (iii) unamortized debt issuance costs) and approximately \$1.8 billion of unused borrowing capacity under our revolving credit facility, as discussed further below.

Under our amended and restated credit agreement dated as of January 31, 2020 (the "Amended Credit Agreement"), we maintained at December 31, 2023 (i) a \$2.2 billion senior secured revolving credit facility, under which we owed \$200 million and had \$218 million of letters of credit issued and undrawn as of such date, and (ii) \$5.1 billion of senior secured term loan facilities. For additional information, see (i) "—Overview of Sources and Uses of Cash," and (ii) Note 7—Long-Term Debt and Credit Facilities to our consolidated financial statements in Item 8 of Part II of this report.

At December 31, 2023, we had \$260 million undrawn letters of credit outstanding, \$218 million of which were issued under our revolving line of credit, \$40 million of letters of credit outstanding under our \$225 million uncommitted letter of credit facility and \$2 million of which were issued under a separate facility maintained by one of our subsidiaries (the full amount of which is collateralized by cash that is reflected on our consolidated balance sheets as restricted cash within other assets).

In addition to its indebtedness under our Amended Credit Agreement, Lumen Technologies is indebted under its outstanding senior notes, and several of its subsidiaries are indebted under separate credit facilities or senior notes.

For additional information on the terms and conditions of other debt instruments of ours and our subsidiaries, including financial and operating covenants, see (i) Note 7—Long-Term Debt and Credit Facilities to our consolidated financial statements in Item 8 of Part II of this report and (ii) "—Other Matters" below.

Future Financings and Debt Reduction Transactions

Subject to market conditions, we plan to continue to issue debt securities from time to time in the future to refinance a substantial portion of our maturing debt, including issuing debt securities of certain of our subsidiaries to refinance their maturing debt to the extent permitted under our debt covenants and consistent with our capital allocation strategies. The availability, interest rate and other terms of any new borrowings will depend on the ratings assigned by credit rating agencies, among other factors.

As of the filing date of this report, the credit ratings for the senior secured and unsecured debt of Lumen Technologies, Inc., Level 3 Financing, Inc. and Qwest Corporation were as follows:

Borrower	Moody's Investors Service, Inc.	Standard & Poor's	Fitch Ratings
Lumen Technologies, Inc.:			
Unsecured	Ca	CCC-/C	CCC-
Secured	Caa3	B/CC	B-
Level 3 Financing, Inc.:			
Unsecured	Caa2	CC	CCC+
Secured	B3	B	B-
Qwest Corporation:			
Unsecured	Caa3	B	B+

Our credit ratings are reviewed and adjusted from time to time by the rating agencies. Any future changes in the senior unsecured or secured debt ratings of us or our subsidiaries could impact our access to capital or borrowing costs. We cannot provide any assurances that we will be able to borrow additional funds on favorable terms, or at all. See "Risk Factors—Financial Risks" in Item 1A of Part I of this report.

From time to time over the past couple of years, we have engaged in various refinancings, redemptions, tender offers, open market purchases and other transactions designed to reduce our consolidated indebtedness, improve our financial flexibility or otherwise enhance our debt profile. Subject to market conditions, restrictions under our debt covenants, and other limitations, we may pursue similar transactions in the future to the extent feasible. See Note 7—Long-Term Debt and Credit Facilities to our consolidated financial statements in Item 8 of Part II of this report for additional information.

Federal Income Tax Obligations

As of December 31, 2023, Lumen Technologies had approximately \$800 million of federal NOLs which, for U.S. federal income tax purposes, may be used to offset future taxable income. These NOLs are primarily related to federal NOLs we acquired through the Level 3 acquisition on November 1, 2017 and are subject to limitations under Section 382. We maintain a Section 382 rights agreement designed to safeguard through late 2026 our ability to use those NOLs. We utilized a substantial portion of our previously available NOLs to offset taxable gains generated by the completion of our 2022 divestitures. As a result, we anticipate that our cash income tax liability will increase in future periods. The amounts of our near-term future tax payments will depend upon many factors, including our future earnings and tax circumstances and the impact of any corporate tax reform or taxable transactions.

Although we expect to use substantially all of our remaining NOLs in future periods in accordance with Section 382's annual limitations, we cannot assure this. See "Risk Factors—Financial Risks—We may not be able to fully utilize our NOLs" in Item 1A of Part I of this report.

Stock Repurchases

Effective November 2, 2022, our Board of Directors authorized a new two-year program to repurchase up to an aggregate of \$1.5 billion of our outstanding common stock (the "November 2022 stock repurchase program"). During the year ended December 31, 2023, we did not repurchase any shares of our outstanding common stock under this program. As of December 31, 2023, we were authorized to purchase up to an aggregate of \$1.3 billion of our outstanding common stock under this program. We currently do not plan to purchase any shares of our outstanding common stock under this program in the near term.

Pension and Post-retirement Benefit Obligations

We are subject to material obligations under our existing defined benefit pension plans and post-retirement benefit plans. At December 31, 2023, the accounting unfunded status of our qualified and non-qualified defined benefit pension plans and our qualified post-retirement benefit plans was \$769 million and \$1.9 billion, respectively. For additional information about our pension and post-retirement benefit arrangements, see "Critical Accounting Policies and Estimates—Pension and Post-retirement Benefits" in Item 7 of Part II of this report and Note 11—Employee Benefits to our consolidated financial statements in Item 8 of Part II of this report.

On October 19, 2021, we, as sponsor of the Lumen Combined Pension Plan ("Combined Pension Plan"), along with the Plan's independent fiduciary, entered into an agreement committing the Plan to use a portion of its plan assets to purchase an annuity from an insurance company (the "Insurer") to transfer \$1.4 billion of the Plan's pension liabilities. This agreement irrevocably transferred to the Insurer future Plan benefit obligations for approximately 22,600 U.S. Lumen participants ("Transferred Participants") effective on December 31, 2021. This annuity transaction was funded entirely by existing Plan assets and was intended to provide equivalent benefits to the Transferred Participants. The Insurer is committed to assume responsibility for administrative and customer service support, including distribution of payments to the Transferred Participants.

As of January 1, 2022, we spun off the Lumen Pension Plan from the Combined Pension Plan in anticipation of the sale of the ILEC business, as described further in Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses to our consolidated financial statements in Item 1 of Part I of this report. At the time of the spin-off we transferred \$2.5 billion of pension benefit obligation and \$2.2 billion of plan assets to the Lumen Pension Plan. Following a revaluation of the pension obligation and pension assets for the Lumen Pension Plan in preparation for the closing of the ILEC business divestiture, we contributed approximately \$319 million of cash in September 2022 to satisfy our contractual obligations to the purchaser of the divested business. This plan was subsequently assumed by the purchaser as part of our ILEC business divestiture on October 3, 2022. Upon sale of the ILEC business, we recognized \$403 million of net actuarial loss and prior service cost, net of tax impact, related to the Lumen Pension Plan, which partially offset our gain on sale of the business.

Benefits paid by our Combined Pension Plan are paid through the trust that holds the Combined Pension Plan's assets. Based on current laws and circumstances, we do not expect any contributions to be required for our Combined Pension Plan during 2024. The amount of required contributions to our Combined Pension Plan in 2025 and beyond will depend on a variety of factors, most of which are beyond our control, including earnings on plan investments, prevailing interest rates, demographic experience, changes in plan benefits and changes in funding laws and regulations. We occasionally make voluntary contributions to our plans in addition to required contributions and reserve the right to do so in the future. We last made a voluntary contribution to the trust for our Combined Pension Plan during 2018. We currently do not expect to make a voluntary contribution in 2024.

Substantially all of our post-retirement health care and life insurance benefits plans are unfunded and are paid by us with available cash. As described further in Note 11—Employee Benefits, aggregate benefits paid by us under these plans (net of participant contributions and direct subsidy receipts) were \$194 million, \$210 million and \$203 million for the years ended December 31, 2023, 2022 and 2021, respectively. For additional information on our expected future benefits payments for our post-retirement benefit plans, see Note 11—Employee Benefits to our consolidated financial statements in Item 8 of Part II of this report.

For 2023, our expected annual long-term rate of return on the pension plan assets, net of administrative expenses, was 6.5%. For 2024, our expected annual long-term rate of return on these assets is 6.5%. However, actual returns could be substantially different.

Our pension plan contains provisions that allow us, from time to time, to offer lump sum payment options to certain former employees in settlement of their future retirement benefits. We record an accounting settlement charge, consisting of the recognition of certain deferred costs of the pension plan, associated with these lump sum payments only if, in the aggregate, they exceed the sum of the annual service and interest costs for the plan's net periodic pension benefit cost, which represents the settlement accounting threshold. As of December 31, 2021, lump sum pension settlement payments exceeded the settlement threshold. As a result, for the year ended December 31, 2021 we recognized a non-cash settlement charge of \$383 million to accelerate the recognition of a portion of the previously unrecognized actuarial losses in the qualified pension plan, which was allocated and reflected in other (expense) income, net in our consolidated statement of operations for the year ended December 31, 2021. The settlement threshold was not exceeded for the years ended December 31, 2023 or December 31, 2022. The amount of any future non-cash settlement charges will be dependent on several factors, including the total amount of our future lump sum benefit payments.

Future Contractual Obligations

Our estimated future obligations as of December 31, 2023 include both current and long term obligations. At December 31, 2023, we had a current obligation of \$157 million and a long-term obligation of \$20 billion of long-term debt (excluding unamortized premiums, net and unamortized debt issuance costs). Under our operating leases, at December 31, 2023 we had a current obligation of \$350 million and a long-term obligation of \$1.5 billion. As of such date, we had current obligations related to right-of-way agreements and purchase commitments of \$587 million and a long-term obligation of \$1.5 billion. Additionally, as of such date we had a current obligation for asset retirement obligation of \$26 million and a long-term obligation of \$131 million. Finally, at December 31, 2023 our pension and post-retirement benefit plans had an unfunded benefit obligation, of which \$197 million is classified as current and \$2.5 billion is classified as long-term. For additional information, see Note 7—Long-Term Debt and Credit Facilities, Note 5—Leases, Note 18—Commitments, Contingencies and Other Items, Note 9—Property, Plant and Equipment and Note 11—Employee Benefits, respectively.

Federal Broadband Support Programs

In January 2020, the FCC created the Rural Digital Opportunity Fund ("RDOF") program, a federal support program designed to fund broadband deployment in rural America. For the first phase of this program, RDOF Phase I, the FCC ultimately awarded \$6.4 billion in support payments to be paid in equal monthly installments over 10 years. We were awarded RDOF funding in several of the states in which we operate and began receiving monthly support payments during the second quarter of 2022. We received approximately \$17 million in annual RDOF Phase I support payments during 2023 and 2022 and expect to receive this same amount each year thereafter during the program period.

For additional information on these programs, see (i) Note 4—Revenue Recognition to our consolidated financial statements in Item 8 of Part II of this report, (ii) "Business—Regulation of Our Business" in Item 1 of Part I of this report and (iii) "Risk Factors—Legal and Regulatory Risks" in Item 1A of Part I of this report.

Federal officials have proposed changes to current programs and laws that could impact us, including proposals designed to increase broadband access, increase competition among broadband providers, lower broadband costs and re-adopt "net neutrality" rules similar to those adopted under a prior administration. In late 2021, the U.S. Congress enacted legislation that appropriated \$65 billion to improve broadband affordability and access, primarily through federally funded state grants. As of the date of this report, various state and federal agencies are continuing to take steps to make this funding available to eligible applicants, including us. Although it remains premature to speculate on the ultimate impact of this legislation on us, we anticipate that the release of this funding would increase competition for broadband customers in newly-served areas.

Cash Flow Activities

The following table summarizes our consolidated cash flow activities for the years ended December 31, 2023 and 2022. For information regarding cash flow activities for the year ended December 31, 2021, see "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Item 7 of Part II of our Annual Report Form 10-K for the year ended December 31, 2022.

	Years Ended December 31,		(Decrease) / Increase
	2023	2022	
(Dollars in millions)			
Net cash provided by operating activities	\$ 2,160	4,735	(2,575)
Net cash (used in) provided by investing activities	(1,201)	5,476	(6,677)
Net cash used in financing activities	(18)	(9,313)	(9,295)

Operating Activities

Net cash provided by operating activities decreased by \$2.6 billion for the year ended December 31, 2023 as compared to the year ended December 31, 2022 primarily due to lower net income adjusted for non-cash expenses and gains, largely due to the impacts of the 2022 and 2023 divestitures discussed elsewhere herein. Cash provided by operating activities is subject to variability period over period as a result of timing differences, including with respect to the collection of receivables and payments of interest expense, accounts payable, income taxes and bonuses.

For additional information about our operating results, see "Results of Operations" above.

Investing Activities

Net cash (used in) provided by investing activities changed by \$6.7 billion for the year ended December 31, 2023 as compared to the year ended December 31, 2022 primarily due to substantial pre-tax cash proceeds from the sales of our Latin American and ILEC businesses in 2022, partially offset by pre-tax cash proceeds from the sale of the EMEA business in 2023.

Financing Activities

Net cash used in financing activities decreased by \$9.3 billion for the year ended December 31, 2023 as compared to the year ended December 31, 2022 primarily due to substantially higher debt repayments and dividends paid in 2022.

See Note 7—Long-Term Debt and Credit Facilities to our consolidated financial statements in Item 8 of Part II of this report for additional information on our outstanding debt securities.

Other Matters

We have cash management and loan arrangements with a majority of our income-generating subsidiaries, in which a substantial portion of the aggregate cash of those subsidiaries' is periodically advanced or loaned to us or our service company affiliate. Although we periodically repay these advances to fund the subsidiaries' cash requirements throughout the year, at any given point in time we may owe a substantial sum to our subsidiaries under these arrangements. In accordance with generally accepted accounting principles, these arrangements are reflected in the balance sheets of our subsidiaries, but are eliminated in consolidation and therefore not recognized on our consolidated balance sheets.

Our network includes some residual lead-sheathed copper cables installed years ago. These lead-sheathed cables constitute a small portion of our network. Due to recent media coverage of potential health and environmental risks associated with these cables, we anticipate incurring certain investigative costs. We also may incur other costs from related proceedings, including litigation, regulatory initiatives, and remediation. As of December 31, 2023, we had not accrued for any such potential costs and will only accrue when such costs are probable and reasonably estimable. For additional information about related litigation and potential risks, see Note 18—Commitments, Contingencies and Other Items to our consolidated financial statements in Item 1 of Part I of this report, and the risk factor disclosures incorporated by reference herein under "Risk Factors" in Item 1A of Part II of this report.

We are also involved in various legal proceedings that could substantially impact our financial position. See Note 18—Commitments, Contingencies and Other Items to our consolidated financial statements in Item 8 of Part II of this report for additional information.

Market Risk

As of December 31, 2023, we were exposed to market risk from changes in interest rates on our variable rate long-term debt obligations and fluctuations in certain foreign currencies.

Management periodically reviews our exposure to interest rate fluctuations and periodically implements strategies to manage the exposure. From time to time, we have used derivative instruments to swap our exposure to variable interest rates for fixed interest rates. We have established policies and procedures for risk assessment and the approval, reporting and monitoring of derivative instrument activities. As of December 31, 2023, we did not hold or issue derivative financial instruments for trading or speculative purposes.

As of December 31, 2023, we had approximately \$7.9 billion of unhedged floating rate debt based on the secured overnight financing rate ("SOFR"). A hypothetical increase of 100 basis points in SOFR relating to our \$7.9 billion of unhedged floating rate debt would, among other things, decrease our annual pre-tax earnings by approximately \$79 million.

We conduct a portion of our business in currencies other than the U.S. dollar, the currency in which our consolidated financial statements are reported. Prior to the November 1, 2023 divestiture of our EMEA business, certain of our former European subsidiaries used the local currency as their functional currency, as the majority of their sales and purchases were transacted in their local currencies. Although we continue to evaluate strategies to mitigate risks related to the effect of fluctuations in currency exchange rates, we will likely recognize gains or losses from international transactions. Accordingly, changes in foreign currency rates relative to the U.S. dollar could positively or negatively impact our operating results.

Certain shortcomings are inherent in the method of analysis presented in the computation of exposures to market risks. Actual values may differ materially from those disclosed by us from time to time if market conditions vary from the assumptions used in the analyses performed. These analyses only incorporate the risk exposures that existed at December 31, 2023.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The information in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Market Risk" in Item 7 of Part II of this report is incorporated herein by reference.

ITEM 8. CONSOLIDATED FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors
Lumen Technologies, Inc.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Lumen Technologies, Inc. and subsidiaries (the Company) as of December 31, 2023 and 2022, the related consolidated statements of operations, comprehensive (loss) income, cash flows, and stockholders' equity for each of the years in the three-year period ended December 31, 2023, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2023, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 22, 2024 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Testing of revenue

As discussed in Note 4 to the consolidated financial statements, the Company recorded \$14.6 billion of operating revenues for the year ended December 31, 2023. The processing and recording of revenue are reliant upon multiple information technology (IT) systems.

We identified the evaluation of the sufficiency of audit evidence over revenue as a critical audit matter. Complex auditor judgment was required in evaluating the sufficiency of audit evidence over revenue due to the large volume of data and the number and complexity of the revenue accounting systems. Specialized skills and knowledge were needed to test the IT systems used for the processing and recording of revenue.

The following are the primary procedures we performed to address this critical audit matter. We applied auditor judgment to determine the nature and extent of procedures to be performed over the processing and recording of revenue, including the IT systems tested. We evaluated the design and tested the operating effectiveness of certain internal controls related to the processing and recording of revenue. This included manual and automated controls over the IT systems used for the processing and recording of revenue. For a selection of transactions, we compared the amount of revenue recorded to a combination of Company internal data, executed contracts, and other relevant third-party data. In addition, we involved IT professionals with specialized skills and knowledge who assisted in the design and performance of audit procedures related to certain IT systems used by the Company for the processing and recording of revenue. We evaluated the sufficiency of audit evidence obtained by assessing the results of procedures performed, including the relevance and reliability of evidence obtained.

Goodwill impairments for the North America Business and Mass Markets reporting units

As discussed in Note 3 to the consolidated financial statements, the goodwill balance at December 31, 2023 was \$2.0 billion. The Company assesses goodwill for impairment at least annually, or more frequently, if events or circumstances indicate the carrying value of a reporting unit likely exceeds its fair value. During the second quarter of 2023, the Company determined circumstances related to the sustained decline in the Company's share price indicated it was more likely than not that the carrying value of their reporting units exceeded their fair value. Also, as of October 31, 2023, the Company performed their annual goodwill impairment test. For both the second quarter and annual impairment tests, the Company estimated the fair value of its reporting units using a market approach. The second quarter and annual impairment tests each determined the carrying value of the North America Business and Mass Markets reporting units exceeded their estimated fair value. As a result, the Company recorded non-cash impairment charges of \$7.9 billion and \$2.8 billion, respectively, reducing the carrying value of goodwill for the North America Business and Mass Markets reporting units.

We identified the assessment of the Company's impairment testing of the goodwill of the North America Business and Mass Markets reporting units as a critical audit matter. Subjective auditor judgment was required in evaluating the earnings before interest, taxes, depreciation, and amortization ("EBITDA") market multiple assumptions used to estimate the fair value of the reporting units. The evaluation of these assumptions was challenging as differences in judgment used to determine these assumptions could have had a significant effect on each reporting unit's estimated fair value. Specialized skills and knowledge were required in the assessment of the EBITDA market multiple assumptions.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the goodwill impairment tests. This included controls related to the Company's determination of the EBITDA market multiple assumptions. We involved valuation professionals with specialized skills and knowledge, who assisted in evaluating the EBITDA market multiple assumptions by:

- comparing to EBITDA market multiple ranges developed using publicly available market data for comparable entities
- performing sensitivity analyses that considered a range of EBITDA market multiples.

/s/ KPMG LLP

We have served as the Company's auditor since 1977.

Denver, Colorado

February 22, 2024

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors Lumen Technologies, Inc.:

Opinion on Internal Control Over Financial Reporting

We have audited Lumen Technologies, Inc. and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2023 and 2022, the related consolidated statements of operations, comprehensive (loss) income, cash flows, and stockholders' equity for each of the years in the three-year period ended December 31, 2023, and the related notes (collectively, the consolidated financial statements), and our report dated February 22, 2024 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

/s/ KPMG LLP

Denver, Colorado
February 22, 2024

LUMEN TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS

	Years Ended December 31,		
	2023	2022	2021
	(Dollars in millions, except per share amounts, and shares in thousands)		
OPERATING REVENUE	\$ 14,557	17,478	19,687
OPERATING EXPENSES			
Cost of services and products (exclusive of depreciation and amortization)	7,144	7,868	8,488
Selling, general and administrative	3,198	3,078	2,895
Net loss (gain) on sale of businesses	121	(113)	—
Loss on disposal groups held for sale	—	40	—
Depreciation and amortization	2,985	3,239	4,019
Goodwill impairment	10,693	3,271	—
Total operating expenses	24,141	17,383	15,402
OPERATING (LOSS) INCOME	(9,584)	95	4,285
OTHER EXPENSE			
Interest expense	(1,158)	(1,332)	(1,522)
Net gain on early retirement of debt (Note 7)	618	214	8
Other (expense) income, net	(113)	32	(70)
Total other expense, net	(653)	(1,086)	(1,584)
(LOSS) INCOME BEFORE INCOME TAXES	(10,237)	(991)	2,701
Income tax expense	61	557	668
NET (LOSS) INCOME	\$ (10,298)	(1,548)	2,033
BASIC AND DILUTED (LOSS) EARNINGS PER COMMON SHARE			
BASIC	\$ (10.48)	(1.54)	1.92
DILUTED	\$ (10.48)	(1.54)	1.91
WEIGHTED AVERAGE COMMON SHARES OUTSTANDING			
BASIC	983,081	1,007,517	1,059,541
DILUTED	983,081	1,007,517	1,066,778

See accompanying notes to consolidated financial statements.

LUMEN TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE (LOSS) INCOME

	Years Ended December 31,		
	2023	2022	2021
	(Dollars in millions)		
NET (LOSS) INCOME	\$ (10,298)	(1,548)	2,033
OTHER COMPREHENSIVE INCOME:			
Items related to employee benefit plans:			
Change in net actuarial loss, net of \$ 20 , \$(205) and \$(134) tax	(59)	631	424
Reclassification of net actuarial loss to (loss) gain on the sale of businesses, net of \$ — , \$(142) and \$ — tax	(22)	422	—
Settlement charges recognized in net (loss) income, net of \$ — , \$ — and \$(93) tax	—	—	290
Change in net prior service cost, net of \$ 4 , \$(9) and \$(5) tax	(11)	30	14
Reclassification of prior service credit to (loss) gain on the sale of businesses, net of \$ — , \$ 6 and \$ — tax	—	(19)	—
Reclassification of realized loss on interest rate swaps to net (loss) income, net of \$ — , \$(5) and \$(20) tax	—	17	63
Unrealized holding loss on interest rate swaps, net of \$ — , \$ — and \$ — tax	—	—	(1)
Reclassification of realized loss on foreign currency translation to (loss) gain on the sale of businesses, net of \$ — , \$ — and \$ — tax	382	112	—
Foreign currency translation adjustment, net of \$(3) , \$ 58 and \$ 30 tax	(1)	(134)	(135)
Other comprehensive income	289	1,059	655
COMPREHENSIVE (LOSS) INCOME	\$ (10,009)	(489)	2,688

See accompanying notes to consolidated financial statements.

LUMEN TECHNOLOGIES, INC.
CONSOLIDATED BALANCE SHEETS

	As of December 31,	
	2023	2022
	(Dollars in millions and shares in thousands)	
<u>ASSETS</u>		
CURRENT ASSETS		
Cash and cash equivalents	\$ 2,234	1,251
Accounts receivable, less allowance of \$ 67 and \$ 85	1,318	1,508
Assets held for sale	104	1,889
Other	1,119	803
Total current assets	4,775	5,451
Property, plant and equipment, net of accumulated depreciation of \$ 21,318 and \$ 19,886	19,758	19,166
GOODWILL AND OTHER ASSETS		
Goodwill	1,964	12,657
Other intangible assets, net	5,470	6,166
Other, net	2,051	2,172
Total goodwill and other assets	9,485	20,995
TOTAL ASSETS	\$ 34,018	45,612
<u>LIABILITIES AND STOCKHOLDERS' EQUITY</u>		
CURRENT LIABILITIES		
Current maturities of long-term debt	\$ 157	154
Accounts payable	1,134	1,044
Accrued expenses and other liabilities		
Salaries and benefits	696	692
Income and other taxes	251	1,158
Current operating lease liabilities	268	344
Interest	168	181
Other	209	277
Liabilities held for sale	4	451
Current portion of deferred revenue	647	596
Total current liabilities	3,534	4,897
LONG-TERM DEBT	19,831	20,418
DEFERRED CREDITS AND OTHER LIABILITIES		
Deferred income taxes, net	3,127	3,163
Benefit plan obligations, net	2,490	2,391
Deferred revenue	1,969	1,758
Other	2,650	2,611
Total deferred credits and other liabilities	10,236	9,923
COMMITMENTS AND CONTINGENCIES (Note 18)		
STOCKHOLDERS' EQUITY		
Preferred stock — non-redeemable, \$ 25.00 par value, authorized 2,000 and 2,000 shares, issued and outstanding 7 and 7 shares	—	—
Common stock, \$ 1.00 par value, authorized 2,200,000 and 2,200,000 shares, issued and outstanding 1,008,486 and 1,001,688 shares	1,008	1,002
Additional paid-in capital	18,126	18,080
Accumulated other comprehensive loss	(810)	(1,099)
Accumulated deficit	(17,907)	(7,609)
Total stockholders' equity	417	10,374
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	\$ 34,018	45,612

See accompanying notes to consolidated financial statements.

LUMEN TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Years Ended December 31,		
	2023	2022	2021
	(Dollars in millions)		
OPERATING ACTIVITIES			
Net (loss) income	\$ (10,298)	(1,548)	2,033
Adjustments to reconcile net (loss) income to net cash provided by operating activities:			
Depreciation and amortization	2,985	3,239	4,019
Net loss (gain) on sale of businesses	121	(113)	—
Loss on disposal groups held for sale	—	40	—
Goodwill impairment	10,693	3,271	—
Deferred income taxes	8	(1,230)	598
Provision for uncollectible accounts	100	133	105
Net gain on early retirement and modification of debt	(618)	(214)	(8)
Unrealized loss (gain) on investments	97	191	(138)
Stock-based compensation	52	98	120
Changes in current assets and liabilities:			
Accounts receivable	102	(158)	(8)
Accounts payable	(97)	98	(261)
Accrued income and other taxes	(1,185)	972	(69)
Other current assets and liabilities, net	(549)	(372)	(353)
Retirement benefits	(1)	46	163
Changes in other noncurrent assets and liabilities, net	730	258	283
Other, net	20	24	17
Net cash provided by operating activities	2,160	4,735	6,501
INVESTING ACTIVITIES			
Capital expenditures	(3,100)	(3,016)	(2,900)
Proceeds from sale of businesses	1,746	8,369	—
Proceeds from sale of property, plant and equipment, and other assets	165	120	135
Other, net	(12)	3	53
Net cash (used in) provided by investing activities	(1,201)	5,476	(2,712)
FINANCING ACTIVITIES			
Net proceeds from issuance of long-term debt	—	—	1,881
Payments of long-term debt	(185)	(8,093)	(3,598)
Net proceeds from (payments on) revolving line of credit	200	(200)	50
Dividends paid	(11)	(780)	(1,087)
Repurchases of common stock	—	(200)	(1,000)
Other, net	(22)	(40)	(53)
Net cash used in financing activities	(18)	(9,313)	(3,807)

Net increase (decrease) in cash, cash equivalents and restricted cash	941	898	(18)
Cash, cash equivalents and restricted cash at beginning of period	1,307	409	427
Cash, cash equivalents and restricted cash at end of period	\$ 2,248	1,307	409
Supplemental cash flow information:			
Income taxes paid, net	\$ (1,303)	(76)	(112)
Interest paid (net of capitalized interest of \$ 111 , \$ 66 and \$ 53)	\$ (1,138)	(1,365)	(1,487)
Supplemental non-cash information regarding investing activities:			
Sale of property, plant and equipment in exchange for note receivable	\$ —	—	56
Supplemental non-cash information regarding financing activities:			
Purchase of software subscription in exchange for installment debt	\$ —	—	77
Cancellation of senior unsecured notes as part of exchange offers (Note 7)	\$ (1,554)	—	—
Issuance of senior secured notes as part of exchange offers (Note 7)	\$ 924	—	—
Cash, cash equivalents and restricted cash:			
Cash and cash equivalents	\$ 2,234	1,251	354
Cash and cash equivalents and restricted cash included in Assets held for sale	—	44	40
Restricted cash included in Other current assets	4	—	2
Restricted cash included in Other, net noncurrent assets	10	12	13
Total	\$ 2,248	1,307	409

See accompanying notes to consolidated financial statements.

LUMEN TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

	Years Ended December 31,		
	2023	2022	2021
	(Dollars in millions except per share amounts)		
COMMON STOCK			
Balance at beginning of period	\$ 1,002	1,024	1,097
Issuance of common stock through dividend reinvestment, incentive and benefit plans	6	11	8
Repurchases of common stock	—	(33)	(81)
Balance at end of period	1,008	1,002	1,024
ADDITIONAL PAID-IN CAPITAL			
Balance at beginning of period	18,080	18,972	20,909
Repurchases of common stock	—	(167)	(919)
Shares withheld to satisfy tax withholdings	(5)	(30)	(45)
Stock-based compensation and other, net	50	96	122
Dividends declared	1	(791)	(1,095)
Balance at end of period	18,126	18,080	18,972
ACCUMULATED OTHER COMPREHENSIVE LOSS			
Balance at beginning of period	(1,099)	(2,158)	(2,813)
Other comprehensive income	289	1,059	655
Balance at end of period	(810)	(1,099)	(2,158)
ACCUMULATED DEFICIT			
Balance at beginning of period	(7,609)	(6,061)	(8,094)
Net (loss) income	(10,298)	(1,548)	2,033
Balance at end of period	(17,907)	(7,609)	(6,061)
TOTAL STOCKHOLDERS' EQUITY	\$ 417	10,374	11,777
DIVIDENDS DECLARED PER COMMON SHARE	\$ —	0.75	1.00

See accompanying notes to consolidated financial statements.

LUMEN TECHNOLOGIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

References in the Notes to "Lumen Technologies" or "Lumen," "we," "us," the "Company," and "our" refer to Lumen Technologies, Inc. and its consolidated subsidiaries, unless the context otherwise requires. References in the Notes to "Level 3" refer to Level 3 Parent, LLC and its predecessor, Level 3 Communications, Inc., which we acquired on November 1, 2017.

(1) Background and Summary of Significant Accounting Policies

General

We are a facilities-based technology and communications company that provides a broad array of integrated products and services to our domestic and global business customers and our domestic mass markets customers. We operate one of the world's most interconnected networks. Our platform empowers our customers to swiftly adjust digital programs to meet immediate demands, create efficiencies, accelerate market access and reduce costs, which allows our customers to rapidly evolve their IT programs to address dynamic changes. Our specific products and services are detailed in Note 4—Revenue Recognition.

Basis of Presentation

The accompanying consolidated financial statements include our accounts and the accounts of our subsidiaries in which we have a controlling interest. Intercompany amounts and transactions with our consolidated subsidiaries have been eliminated.

To simplify the overall presentation of our consolidated financial statements, we report immaterial amounts attributable to noncontrolling interests in certain of our subsidiaries as follows: (i) income attributable to noncontrolling interests in other (expense) income, net, (ii) equity attributable to noncontrolling interests in additional paid-in capital and (iii) cash flows attributable to noncontrolling interests in other, net financing activities.

We reclassified certain prior period amounts to conform to the current period presentation, including the recategorization of our Business revenue by product category and sales channel in our segment reporting for 2022 and 2021. See Note 17—Segment Information for additional information. These changes had no impact on total operating revenue, total operating expenses or net (loss) income for any period.

Operating Expenses

Our current definitions of operating expenses are as follows:

- *Cost of services and products (exclusive of depreciation and amortization)* are expenses incurred in providing products and services to our customers. These expenses include: employee-related expenses directly attributable to operating and maintaining our network (such as salaries, wages, benefits and professional fees); facilities expenses (which include third-party telecommunications expenses we incur for using other carriers' networks to provide services to our customers); rents and utilities expenses; equipment sales expenses (such as data integration and modem expenses); and other expenses directly related to our operations; and
- *Selling, general and administrative expenses* are corporate overhead and other operating expenses. These expenses include: employee-related expenses (such as salaries, wages, internal commissions, benefits and professional fees) directly attributable to selling products or services and employee-related expenses for administrative functions; marketing and advertising; property and other operating taxes and fees; external commissions; litigation expenses associated with general matters; bad debt expense; and other selling, general and administrative expenses.

These expense classifications may not be comparable to those of other companies.

Summary of Significant Accounting Policies

Use of Estimates

Our consolidated financial statements are prepared in accordance with U.S. generally accepted accounting principles. These accounting principles require us to make certain estimates, judgments and assumptions. We believe that the estimates, judgments and assumptions we make when accounting for specific items and matters are reasonable, based on information available at the time they are made. These estimates, judgments and assumptions can materially affect the reported amounts of assets, liabilities and components of stockholders' equity as of the dates of the consolidated balance sheets, as well as the reported amounts of revenue, expenses and components of cash flows during the periods presented in our other consolidated financial statements. We also make estimates in our assessments of potential losses in relation to threatened or pending tax and legal matters. See Note 16—Income Taxes and Note 18—Commitments, Contingencies and Other Items for additional information.

For matters not related to income taxes, if a loss is considered probable and the amount can be reasonably estimated, we recognize an expense for the estimated loss. If we have the potential to recover a portion of the estimated loss from a third party, we make a separate assessment of recoverability and reduce the estimated loss if recovery is also deemed probable.

For matters related to income taxes, if we determine the impact of an uncertain tax position is more likely than not to be sustained upon audit by the relevant taxing authority, then we recognize a benefit for the largest amount that is more likely than not to be sustained. We do not recognize any portion of an uncertain tax position if the position has less than a 50% likelihood of being sustained. We recognize interest on the amount of unrecognized benefit from uncertain tax positions.

For all of these and other matters, actual results could differ materially from our estimates.

Assets Held for Sale

We classify assets and related liabilities as held for sale when: (i) management has committed to a plan to sell the assets, (ii) the net assets are available for immediate sale, (iii) there is an active program to locate a buyer and (iv) the sale and transfer of the net assets is probable within one year. Assets and liabilities held for sale are presented separately on our consolidated balance sheets with a valuation allowance, if necessary, to recognize the net carrying amount at the lower of cost or fair value, less costs to sell. Depreciation of property, plant and equipment and amortization of finite-lived intangible assets and right-of-use assets are not recorded while these assets are classified as held for sale. For each period that assets are classified as being held for sale, they are tested for recoverability. Unless otherwise specified, the amounts and information presented in the notes do not include assets and liabilities that were classified as held for sale as of December 31, 2023 and December 31, 2022. See Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses for additional information.

Revenue Recognition

We earn most of our consolidated revenue from contracts with customers, primarily through the provision of communications and other services. Revenue from contracts with customers is accounted for under Accounting Standards Codification ("ASC") 606. We also earn revenue from leasing arrangements (primarily fiber capacity and colocation agreements) and governmental subsidy payments, which are not accounted for under ASC 606.

Revenue is recognized when control of the promised goods or services is transferred to our customers, in an amount that reflects the consideration we expect to be entitled to receive in exchange for those goods or services. Revenue is recognized based on the following five-step model:

- Identification of the contract with a customer;
- Identification of the performance obligations in the contract;
- Determination of the transaction price;
- Allocation of the transaction price to the performance obligations in the contract; and
- Recognition of revenue when, or as, we satisfy a performance obligation.

We provide an array of communications services to business and residential customers, including local voice, VPN, Ethernet, data, broadband, private line (including special access), network access, transport, voice, information technology, video and other ancillary services. We provide these services to a wide range of businesses, including global, enterprise, wholesale, government, and small and medium business customers. Certain contracts also include the sale of equipment, which is not significant to our business.

We recognize revenue for services when we provide the applicable service or when control of a product is transferred. Recognition of certain payments received in advance of services being provided is deferred. These advance payments may include certain activation and certain installation charges. If the activation and installation charges are not separate performance obligations, we recognize them as revenue over the actual or expected contract term using historical experience, which typically ranges from one to five years depending on the service. In most cases, termination fees or other fees on existing contracts that are negotiated in conjunction with new contracts are deferred and recognized over the new contract term.

For access services, we generally bill fixed monthly charges one month in advance to customers and recognize revenue as service is provided over the contract term in alignment with the customer's receipt of service. For usage and other ancillary services, we generally bill in arrears and recognize revenue as usage or delivery occurs. In most cases, the amount invoiced for our service offerings constitutes the price that would be billed on a standalone basis.

In certain cases, customers may be permitted to modify their contracts. We evaluate the change in scope or price to identify whether the modification should be treated as a separate contract, as a termination of the existing contract and creation of a new contract, or as a change to the existing contract.

Customer contracts are evaluated to determine whether the performance obligations are separable. If the performance obligations are deemed separable and separate earnings processes exist, the total transaction price that we expect to receive with the customer is allocated to each performance obligation based on its relative standalone selling price. The revenue associated with each performance obligation is then recognized as earned.

We periodically sell transmission capacity on our network. These transactions are generally structured as indefeasible rights of use, commonly referred to as IRUs, which are the exclusive right to use a specified amount of capacity or fiber for a specified term, typically 20 years. In most cases, we account for the cash consideration received on transfers of transmission capacity as ASC 606 revenue which is adjusted for the time value of money and is recognized ratably over the term of the agreement. Cash consideration received on transfers of dark fiber is accounted for as non-ASC 606 lease revenue, which we also recognize ratably over the term of the agreement. We do not recognize revenue on any contemporaneous exchanges of our transmission capacity assets for other non-owned transmission capacity assets.

In connection with offering products and services provided to the end user by third-party vendors, we review the relationship between us, the vendor and the end user to assess whether revenue should be reported on a gross or net basis. In assessing whether revenue should be reported on a gross or net basis, we consider whether we act as a principal in the transaction and control the goods and services used to fulfill the performance obligations associated with the transaction.

We have service level commitments pursuant to contracts with certain of our customers. To the extent that we determine that such service levels were not achieved or may not have been achieved, we estimate the amount of credits to be issued and record a corresponding reduction to revenue in the period that the service level commitment was not met or may not be met.

Customer payments are made based on billing schedules included in our customer contracts, which is typically on a monthly basis.

We defer (or capitalize) incremental contract acquisition and fulfillment costs and recognize (or amortize) such costs over the average contract life. Our deferred contract costs for our customers have average amortization periods of approximately 36 months for mass markets customers and 33 months for business customers. These deferred costs are periodically monitored to reflect any significant change in assumptions.

See Note 4—Revenue Recognition for additional information.

Advertising Costs

Costs related to advertising are expensed as incurred and recorded as selling, general and administrative expenses in our consolidated statements of operations. Our advertising expense was \$ 87 million, \$ 62 million and \$ 56 million for the years ended December 31, 2023, 2022 and 2021, respectively.

Legal Costs

In the normal course of our business, we incur costs to hire and retain external legal counsel to advise us on finance, regulatory, litigation and other matters. Subject to certain exceptions, we expense these costs as the related services are received.

Income Taxes

We file a consolidated federal income tax return with our eligible subsidiaries. The provision for income taxes reflects taxes currently payable, tax consequences deferred to future periods and adjustments to our liabilities for uncertain tax positions. We record deferred income tax assets and liabilities reflecting future tax consequences attributable to tax NOLs, tax credit carryforwards and differences between the financial statement carrying value of assets and liabilities and the tax basis of those assets and liabilities. Deferred taxes are computed using enacted tax rates expected to apply in the year in which the differences are expected to affect taxable income. The effect on deferred income tax assets and liabilities of a change in tax rate is recognized in earnings in the period that includes the enactment date.

We establish valuation allowances when necessary to reduce deferred income tax assets to the amounts that we believe are more likely than not to be recovered. Each quarter we evaluate the need to retain or adjust each valuation allowance on our deferred tax assets. See Note 16—Income Taxes for additional information.

Cash and Cash Equivalents

Cash and cash equivalents include highly liquid investments that are readily convertible into cash and are not subject to significant risk from fluctuations in interest rates. As a result, the value at which cash and cash equivalents are reported in our consolidated financial statements approximates their fair value. In evaluating investments for classification as cash equivalents, we require that individual securities have original maturities of ninety days or less and that individual investment funds have dollar-weighted average maturities of ninety days or less. To preserve capital and maintain liquidity, we invest with financial institutions we deem to be of sound financial condition and in high quality and relatively risk-free investment products. Our cash investment policy limits the concentration of investments with specific financial institutions or among certain products and includes criteria related to credit worthiness of any particular financial institution.

Book overdrafts occur when we have issued checks but they have not yet been presented to our controlled disbursement bank accounts for payment. Disbursement bank accounts allow us to delay funding of issued checks until the checks are presented for payment. Until the issued checks are presented for payment, the book overdrafts are included in accounts payable on our consolidated balance sheets. This activity is included in the operating activities section in our consolidated statements of cash flows. There were no book overdrafts included in accounts payable at December 31, 2023 or 2022.

Restricted Cash

Restricted cash consists primarily of cash and investments that collateralize our outstanding letters of credit and certain performance and operating obligations. Restricted cash and securities are recorded as current or non-current assets in the consolidated balance sheets depending on the duration of the restriction and the purpose for which the restriction exists. Restricted securities are stated at cost which approximated their fair value as of December 31, 2023 and 2022.

Accounts Receivable and Allowance for Credit Losses

Accounts receivable are recognized based upon the amount due from customers for the services provided or at cost for purchased and other receivables, less an allowance for credit losses. We use a loss rate method to estimate our allowance for credit losses. For more information on our methodology for estimating our allowance for credit losses, see Note 6—Credit Losses on Financial Instruments.

We generally consider our accounts past due if they are outstanding over 30 days. Our past due accounts are written off against our allowance for credit losses when collection is considered to be not probable. Any recoveries of accounts previously written off are generally recognized as a reduction in bad debt expense in the period received. The carrying value of accounts receivable net of the allowance for credit losses approximates fair value. Accounts receivable balances acquired in a business combination are recorded at fair value for all balances receivable at the acquisition date and at the invoiced amount for those amounts invoiced after the acquisition date.

Property, Plant and Equipment

We record property, plant and equipment acquired in connection with our acquisitions based on its estimated fair value as of its acquisition date plus the estimated value of any associated legally or contractually required retirement obligations. We record purchased and constructed property, plant and equipment at cost, plus the estimated value of any associated legally or contractually required retirement obligations. We depreciate the majority of our property, plant and equipment using the straight-line group method over the estimated useful lives of groups of assets, but depreciate certain of our assets using the straight-line method over the estimated useful lives of the specific asset. Under the straight-line group method, assets dedicated to providing telecommunications services (which comprise the majority of our property, plant and equipment) that have similar physical characteristics, use and expected useful lives are pooled for purposes of depreciation and tracking. We use the equal life group procedure to establish each pool's average remaining useful life. Generally, under the straight-line group method, when an asset is sold or retired in the course of normal business activities, the cost is deducted from property, plant and equipment and charged to accumulated depreciation without recognition of a gain or loss. A gain or loss is recognized in our consolidated statements of operations only if a disposal is unusual. Leasehold improvements are amortized over the shorter of the useful lives of the assets or the expected lease term. Expenditures for maintenance and repairs are expensed as incurred. During the construction phase of network and other internal-use capital projects, we capitalize related employee and interest costs. Property, plant and equipment supplies used internally are carried at average cost, except for significant individual items which are carried at actual cost.

We perform annual internal reviews to evaluate the reasonableness of the depreciable lives for our property, plant and equipment. Our reviews utilize models that take into account actual usage, physical wear and tear, replacement history, assumptions about technology evolution and, in certain instances, actuarially determined probabilities to estimate the remaining useful life of our asset base. Our remaining useful life assessments evaluate the possible loss in service value of assets that may precede the physical retirement. Assets shared among many customers may lose service value as those customers reduce their use of the asset. However, the asset is not retired until all customers no longer utilize the asset and we determine there is no alternative use for the asset.

We have asset retirement obligations associated with the legally or contractually required removal of a limited group of property, plant and equipment assets from leased properties and the disposal of certain hazardous materials present in our owned properties. When an asset retirement obligation is identified, usually in association with the acquisition of the asset, we record the fair value of the obligation as a liability. The fair value of the obligation is also capitalized as property, plant and equipment and then amortized over the estimated remaining useful life of the associated asset. Where the removal obligation is not legally binding, we expense the net cost to remove assets in the period in which the costs are actually incurred.

We review long-lived tangible assets for impairment whenever facts and circumstances indicate that the carrying amounts of the assets may not be recoverable. For assessment purposes, long-lived assets are grouped with other assets and liabilities at the lowest identifiable level for which we generate cash flows independently of other groups of assets and liabilities, absent a material change in operations. An impairment loss is recognized only if the carrying amount of the asset group is not recoverable and exceeds its estimated fair value. Recoverability of the asset group to be held and used is assessed by comparing the carrying amount of the asset group to the estimated undiscounted future net cash flows expected to be generated by the asset group. If the asset group's carrying value is not recoverable, we recognize an impairment charge for the amount by which the carrying amount of the asset group exceeds its estimated fair value.

Goodwill, Customer Relationships and Other Intangible Assets

We initially record intangible assets arising from business combinations, such as goodwill, customer relationships, capitalized software, trademarks and trade names, at estimated fair value. We amortize customer relationships primarily over an estimated life of 7 to 14 years, using the straight-line method, depending on the type of customer. Certain customer relationship intangible assets became fully amortized at the end of the first quarter 2021 using the sum-of-years-digits method, which we no longer use for any of our remaining intangible assets. We amortize capitalized software using the straight-line method primarily over estimated lives ranging up to 7 years. We amortize our other intangible assets using the straight-line method over an estimated life of 9 to 20 years. Other intangible assets not arising from business combinations are initially recorded at cost. Where there are no legal, regulatory, contractual or other factors that would reasonably limit the useful life of an intangible asset, we classify them as indefinite-lived intangible assets and such intangible assets are not amortized.

Internally used software, whether purchased or developed by us, is capitalized and amortized using the straight-line method over its estimated useful life. We have capitalized certain costs associated with software such as costs of employees devoted to software development and external direct costs for materials and services. Costs associated with software to be used for internal purposes are expensed until the point at which the project has reached the development stage. Subsequent additions, modifications or upgrades to internal-use software are capitalized only to the extent that they allow the software to perform a task it previously did not perform. Software maintenance, data conversion and training costs are expensed in the period in which they are incurred. We review the remaining economic lives of our capitalized software annually. Capitalized software is included in other intangible assets, net, in our consolidated balance sheets.

Our long-lived intangible assets, other than goodwill, with indefinite lives are assessed for impairment annually, or, under certain circumstances, more frequently, such as when events or changes in circumstances indicate there may be an impairment. These assets are carried at the estimated fair value at the time of acquisition and assets not acquired in acquisitions are recorded at historical cost. However, if their estimated fair value is less than the carrying amount, we recognize an impairment charge for the amount by which the carrying amount of these assets exceeds their estimated fair value.

We are required to assess our goodwill for impairment annually, or more frequently if an event occurs or circumstances change that indicates it is more likely than not the fair values of any of our reporting units were less than their carrying values. We are required to write-down the value of goodwill of our reporting units in periods in which the recorded carrying value of any such unit exceeds its fair value of equity. Our reporting units are not discrete legal entities with discrete full financial statements. Therefore, we assess the equity carrying value and future cash flows each time we perform a goodwill impairment assessment on a reporting unit. To do so, we assign our assets, liabilities and cash flows to reporting units using allocation methodologies which we believe are reasonable and consistent. This process entails various estimates, judgments and assumptions.

We are required to reassign goodwill to reporting units whenever reorganizations of our internal reporting structure changes the composition of our reporting units. Goodwill is reassigned to the reporting units using a relative fair value approach. When the fair value of a reporting unit is available, we allocate goodwill based on the relative fair value of the reporting units. When fair value is not available, we utilize an alternative allocation methodology that we believe represents a reasonable approximation of the fair value of the operations being reorganized.

For more information, see Note 3—Goodwill, Customer Relationships and Other Intangible Assets.

Derivatives and Hedging

From time to time we have used derivative instruments to hedge exposure to interest rate risks arising from fluctuation in interest rates. We account for derivative instruments in accordance with ASC 815, *Derivatives and Hedging*, which establishes accounting and reporting standards for derivative instruments. We do not use derivative financial instruments for speculative purposes.

Derivatives are recognized in the consolidated balance sheets at their fair values. When we become a party to a derivative instrument and intend to apply hedge accounting, we formally document the hedge relationship and the risk management objective for undertaking the hedge, which includes designating the instrument for financial reporting purposes as a fair value hedge, a cash flow hedge, or a net investment hedge.

As of December 31, 2023, we were not party to any swap agreements. All of our variable-to-fixed interest rate swap agreements in place at the beginning of 2022 expired during the first half of 2022. While we held these agreements, we evaluated the effectiveness as described in Note 15—Derivative Financial Instruments (designated as cash-flow hedges) qualitatively on a quarterly basis. We reflected the change in the fair value of the interest rate swaps in accumulated other comprehensive loss and subsequently reclassified into earnings in the period the hedged transaction affects earnings, by virtue of qualifying as effective cash flow hedges. For more information see Note 15—Derivative Financial Instruments.

Pension and Post-Retirement Benefits

We recognize the funded status of our defined benefit and post-retirement plans as an asset or a liability on our consolidated balance sheets. Each year's actuarial gains or losses are a component of our other comprehensive income (loss), which is then included in our accumulated other comprehensive loss on our consolidated balance sheets. Pension and post-retirement benefit expenses are recognized over the period in which the employee renders service and becomes eligible to receive benefits. We make significant assumptions (including the discount rate, expected rate of return on plan assets, mortality and health care trend rates) in computing the pension and post-retirement benefits expense and obligations. See Note 11—Employee Benefits for additional information.

Foreign Currency

Local currencies of our foreign subsidiaries are the functional currencies for financial reporting purposes except for certain foreign subsidiaries, primarily in Latin America prior to the August 1, 2022 sale of our Latin American business. For operations outside the United States that have functional currencies other than the U.S. dollar, assets and liabilities are translated to U.S. dollars at period-end exchange rates, and revenue, expenses and cash flows are translated using average monthly exchange rates. Prior to the November 1, 2023 sale of our EMEA business and the August 1, 2022 sale of our Latin American business, a significant portion of our non-United States subsidiaries used the British pound, the Euro, or the Brazilian Real, as their functional currency, each of which experienced significant fluctuations against the U.S. dollar during the years ended December 31, 2023, 2022 and 2021. We recognize foreign currency translation gains and losses as a component of accumulated other comprehensive loss in stockholders' equity in our consolidated balance sheet and in our consolidated statements of comprehensive (loss) income in accordance with accounting guidance for foreign currency translation. Prior to the announcement of our divestitures as discussed in Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses, we considered the majority of our investments in our foreign subsidiaries to be long-term in nature. Our foreign currency transaction gains (losses), including where transactions with our non-United States subsidiaries are not considered to be long-term in nature, are included within other (expense) income, net on our consolidated statements of operations.

Common Stock

As of December 31, 2023, we had 11 million shares authorized for future issuance under our equity incentive plans.

Preferred Stock

Holders of outstanding Lumen Technologies preferred stock are entitled to receive cumulative dividends, receive preferential distributions equal to \$ 25 per share plus unpaid dividends upon Lumen's liquidation and vote as a single class with the holders of common stock.

Section 382 Rights Plan

We maintain a Section 382 Rights Plan to protect our U.S. federal net operating loss carryforwards from certain Internal Revenue Code Section 382 limitations. Under the plan, one preferred stock purchase right was distributed for each share of our outstanding common stock as of the close of business on February 25, 2019, and those rights currently trade in tandem with the common stock until they expire or detach under the plan. This plan was designed to deter trading that would result in a change of control (as defined in Code Section 382), and therefore protect our ability to use our historical federal NOLs in the future. The plan is scheduled to lapse in late 2026.

Dividends

The declaration and payment of dividends is at the discretion of our Board of Directors. On November 2, 2022, we announced that our Board had terminated our quarterly cash dividend program.

Correction of Immaterial Errors

During 2023, we identified errors in our previously reported consolidated financial statements related to accounts receivable and accounts payable. The errors are the result of understated revenues from one of our legacy mainframe billing systems and understated network expenses for periods prior to 2021. We have completed a quantitative and qualitative evaluation of the errors individually and in aggregate, and concluded the errors are immaterial to our previously issued consolidated financial statements. Notwithstanding this evaluation, we have revised certain line items on our December 31, 2022 consolidated balance sheet for these errors. The net effect of these adjustments was an increase in accounts receivable and total assets of \$ 31 million and an increase of accounts payable and total liabilities of \$ 94 million on our December 31, 2022 consolidated balance sheet. In addition, we recorded an adjustment to increase our January 1, 2021 accumulated deficit by \$ 63 million, which represents the cumulative correction of the immaterial errors prior to January 1, 2021. The errors did not have an impact on our previously issued consolidated statements of operations, comprehensive (loss) income, or cash flows for the years ended December 31, 2022 or 2021, and did not, and are not expected to, have an impact on the economics of the Company's existing or future commercial arrangements.

Recently Adopted Accounting Pronouncements

Supplier Finance Programs

On January 1, 2023, we adopted Accounting Standards Update ("ASU") 2022-04, "Liabilities-Supplier Finance Program (Subtopic 405-50): Disclosure of Supplier Finance Program Obligations" ("ASU 2022-04"). These amendments require that a company that uses a supplier finance program in connection with the purchase of goods or services disclose sufficient information about the program to allow a user of financial statements to understand the program's nature, program activity during the period, changes from period to period and the potential magnitude of program transactions. The adoption of ASU 2022-04 did not have a material impact to our consolidated financial statements.

Credit Losses

On January 1, 2023, we adopted ASU 2022-02, "Financial Instruments-Credit Losses (Topic 326): Troubled Debt Restructurings ("TDR") and Vintage Disclosures" ("ASU 2022-02"). The ASU eliminates the TDR recognition and measurement guidance, enhances existing disclosure requirements and introduces new requirements related to certain modifications of receivables made to borrowers experiencing financial difficulty. The adoption of ASU 2022-02 did not have a material impact to our consolidated financial statements.

Government Assistance

On January 1, 2022, we adopted ASU 2021-10 "Government Assistance (Topic 832): Disclosures by Business Entities about Government Assistance" ("ASU 2021-10") ASU 2021-10. This ASU requires business entities to disclose information about certain types of government assistance they receive. Please refer to Note 4—Revenue Recognition for more information.

Leases

On January 1, 2022, we adopted ASU 2021-05, "Leases (Topic 842): Lessors—Certain Leases with Variable Lease Payments" ("ASU 2021-05"). This ASU (i) amends the lease classification requirements for lessors to align them with practice under ASC Topic 840, (ii) provides criteria for lessors to classify and account for a lease with variable lease payments that do not depend on a reference index or a rate as an operating lease; and (iii) provides guidance with respect to net investments by lessors under operating leases and other related topics. The adoption of ASU 2021-05 did not have a material impact to our consolidated financial statements.

Debt

On January 1, 2021, we adopted ASU 2020-09, "Debt (Topic 470) Amendments to SEC Paragraphs Pursuant to SEC Release No. 33-10762" ("ASU 2020-09"). This ASU amends and supersedes various SEC guidance to reflect SEC Release No. 33-10762, which includes amendments to the financial disclosure requirements applicable to registered debt offerings that include credit enhancements, such as subsidiary guarantees. The adoption of ASU 2020-09 did not have a material impact to our consolidated financial statements.

Investments

On January 1, 2021, we adopted ASU 2020-01, "Investments - Equity Securities (Topic 321), Investments - Equity Method and Joint Ventures (Topic 323), and Derivatives and Hedging (Topic 815) - Clarifying the Interactions between Topic 321, Topic 323, and Topic 815" ("ASU 2020-01"). This ASU, among other things, clarifies that a company should consider observable transactions that require a company to either apply or discontinue the equity method of accounting under Topic 323, Investments - Equity Method and Joint Ventures, for the purposes of applying the measurement alternative in accordance with Topic 321 immediately before applying or upon discontinuing the equity method. As of December 31, 2023, we determined there was no application or discontinuation of the equity method during the reporting periods covered in this report. The adoption of ASU 2020-01 did not have an impact to our consolidated financial statements.

Income Taxes

On January 1, 2021, we adopted ASU 2019-12, "Simplifying the Accounting for Income Taxes (Topic 740)" ("ASU 2019-12"). This ASU removes certain exceptions for investments, intra-period allocations and interim calculations, and adds guidance to reduce complexity in accounting for income taxes. The adoption of ASU 2019-12 did not have a material impact to our consolidated financial statements.

Recently Issued Accounting Pronouncements

In December 2023, the Financial Accounting Standards Board ("FASB") issued ASU 2023-09, "Income Taxes (Topic 740): Improvements to Income Tax Disclosures" ("ASU 2023-09"). This ASU requires that public business entities must annually "(1) disclose specific categories in the rate reconciliation and (2) provide additional information for reconciling items that meet a quantitative threshold (if the effect of those reconciling items is equal to or greater than 5 percent of the amount computed by multiplying pretax income or loss by the applicable statutory income tax rate)." ASU 2023-09 will become effective for us in the annual period of fiscal 2025 and early adoption is permitted. We have chosen not to early adopt this ASU.

In December 2023, the FASB issued ASU 2023-08, "Intangibles—Goodwill and Other—Crypto Assets (Subtopic 350-60): Accounting for and Disclosure of Crypto Assets" ("ASU 2023-08"). This ASU is intended to improve the accounting for certain crypto assets by requiring an entity to measure those crypto assets at fair value each reporting period with changes in fair value recognized in net income. The amendments also improve the information provided to investors about an entity's crypto asset holdings by requiring disclosure about significant holdings, contractual sale restrictions, and changes during the reporting period. This ASU will become effective for us in the first quarter of fiscal 2025 and early adoption is permitted. As of December 31, 2023, we do not hold crypto assets and do not expect ASU 2023-08 will have any impact to our consolidated financial statements.

In November 2023, the FASB issued ASU 2023-07, "Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures" ("ASU 2023-07"). This ASU is intended to improve reportable segment disclosure requirements primarily through enhanced disclosures about significant segment expenses. This ASU will become effective for us in annual period fiscal 2024 and early adoption is permitted. As of December 31, 2023, we are evaluating its impact on our consolidated financial statements.

In October 2023, the FASB issued ASU 2023-06, "Disclosure Improvements: Codification Amendments in Response to the SEC's Disclosure Update and Simplification Initiative" ("ASU 2023-06"). This ASU incorporates certain SEC disclosure requirements into the FASB Accounting Standards Codification ("Codification"). The amendments in the ASU are expected to clarify or improve disclosure and presentation requirements of a variety of Codification Topics, allow users to more easily compare entities subject to the SEC's existing disclosures with those entities that were not previously subject to the requirements, and align the requirements in the Codification with the SEC's regulations. ASU 2023-06 will become effective for each amendment on the effective date of the SEC's corresponding disclosure rule changes. As of December 31, 2023, we do not expect ASU 2023-06 will have any impact to our consolidated financial statements.

In August 2023, the FASB issued ASU 2023-05, "Business Combinations – Joint Venture Formations (Subtopic 805-60): Recognition and initial Measurement" ("ASU 2023-05"). This ASU applies to the formation of entities that meet the definition of a joint venture (or a corporate joint venture). The amendments in the ASU require that a joint venture apply a new basis of accounting upon formation. ASU 2023-05 will become effective for us in the first quarter of fiscal 2025 and early adoption is permitted. As of December 31, 2023, we do not expect ASU 2023-05 will have any impact to our consolidated financial statements.

In August 2023, the FASB issued ASU 2023-04, "Liabilities (Topic 405): Amendments to SEC Paragraphs Pursuant to SEC Staff Accounting Bulletin No. 121" ("ASU 2023-04"). This ASU amends and adds various SEC paragraphs to the FASB Codification to reflect guidance regarding the accounting for obligations to safeguard crypto assets an entity holds for platform users. This ASU does not provide any new guidance. ASU 2023-04 became effective for us once the addition to the FASB Codification was made available. As of December 31, 2023, we do not expect ASU 2023-04 will have any impact to our consolidated financial statements.

In July 2023, the FASB issued ASU 2023-03, "Presentation of Financial Statements (Topic 205), Income Statement—Reporting Comprehensive Income (Topic 220), Distinguishing Liabilities from Equity (Topic 480), Equity (Topic 505), and Compensation—Stock Compensation (Topic 718): Amendments to SEC Paragraphs Pursuant to SEC Staff Accounting Bulletin No. 120, SEC Staff Announcement at the March 24, 2022 EITF Meeting, and Staff Accounting Bulletin Topic 6.B, Accounting Series Release 280—General Revision of Regulation S-X: Income or Loss Applicable to Common Stock" ("ASU 2023-03"). This ASU amends or supersedes various SEC paragraphs within the applicable codification to conform to past SEC staff announcements. This ASU does not provide any new guidance. ASU 2023-03 became effective for us once the addition to the FASB Codification was made available. As of December 31, 2023, we do not expect ASU 2023-03 will have any impact to our consolidated financial statements.

In March 2023, the FASB issued ASU 2023-02, "Investments-Equity Method and Joint Ventures (Topic 323): Accounting for Investments in Tax Credit Structures Using the Proportional Amortization Method" ("ASU 2023-02"). These amendments allow reporting entities to elect to account for qualifying tax equity investments using the proportional amortization method, regardless of the program giving rise to the related income tax credits. ASU 2023-02 will become effective for us in the first quarter of fiscal 2024 and early adoption is permitted. As of December 31, 2023, we do not expect ASU 2023-02 will have any impact to our consolidated financial statements.

In March 2023, the FASB issued ASU 2023-01, "Leases (Topic 842): Common Control Arrangements" ("ASU 2023-01"). These amendments require all entities to amortize leasehold improvements associated with common control leases over the useful life to the common control group. ASU 2023-01 will become effective for us in the first quarter of fiscal 2024 and early adoption is permitted. As of December 31, 2023, we do not expect ASU 2023-01 will have any impact to our consolidated financial statements.

In December 2022, the Financial Accounting Standards Board ("FASB") issued ASU 2022-06, "Reference Rate Reform (Topic 848) – Deferral of the Sunset Date of Topic 848" ("ASU 2022-06"). These amendments extend the period of time preparers can utilize the reference rate reform relief guidance in Topic 848, which defers the sunset date from December 31, 2022, to December 31, 2024, after which entities will no longer be permitted to apply the relief in Topic 848. ASU 2022-06 is effective upon issuance. Based on our review of our key material contracts through December 31, 2023, ASU 2022-06 does not have a material impact to our consolidated financial statements.

In June 2022, the FASB issued ASU 2022-03, "Fair Value Measurement (Topic 820): Fair Value Measurement of Equity Securities Subject to Contractual Sale Restrictions" ("ASU 2022-03"). These amendments clarify that a contractual restriction on the sales of an investment in an equity security is not considered part of the unit of account of the equity security and, therefore, is not considered in measuring its fair value. ASU 2022-03 will become effective for us in the first quarter of fiscal 2024 and early adoption is permitted. As of December 31, 2023, we do not expect ASU 2022-03 will have any impact to our consolidated financial statements.

In January 2021, the FASB issued ASU 2021-01, "Reference Rate Reform (Topic 848): Scope" ("ASU 2021-01"), which clarifies that certain optional expedients and exceptions in Topic 848 for contract modifications and hedge accounting apply to derivatives that are affected by the discounting transition. ASU 2021-01 also amends the expedients and exceptions in Topic 848 to capture the incremental consequences of the scope clarification and to tailor the existing guidance to derivative instruments affected by the discounting transition. These amendments may be applied prospectively to contract modifications made and hedging relationships entered into or evaluated on or before December 31, 2022. ASU 2021-01 provides optional expedients for a limited time to ease the potential burden in accounting for reference rate reform. Based on our review of our key material contracts through December 31, 2023, ASU 2021-01 will not have a material impact to our consolidated financial statements.

(2) Divestitures of the Latin American, ILEC and EMEA Businesses

Latin American Business

On August 1, 2022, affiliates of Level 3 Parent, LLC, an indirect wholly-owned subsidiary of Lumen Technologies, Inc., sold Lumen's Latin American business pursuant to a definitive agreement dated July 25, 2021, for pre-tax cash proceeds of approximately \$ 2.7 billion.

For the year ended December 31, 2022, we recorded a \$ 597 million net pre-tax gain on disposal associated with the sale of our Latin American business. This gain is reflected as operating income within the consolidated statements of operations.

In connection with the sale, we entered into a transition services agreement under which we provide the purchaser various support services. In addition, Lumen and the purchaser entered into commercial agreements whereby they provide each other various network and other commercial services. In addition, we agreed to indemnify the purchaser for certain matters for which future cash payments by Lumen could be required. Lumen has estimated the fair value of these indemnifications to be \$ 86 million, which is included in other long-term liabilities in our consolidated balance sheet and has reduced our gain on the sale accordingly.

The Latin American business was included in our continuing operations and classified as assets and liabilities held for sale on our consolidated balance sheets through the closing of the transaction on August 1, 2022. As a result of closing the transaction, we derecognized net assets of \$ 1.9 billion, primarily made up of (i) property, plant and equipment, net of accumulated depreciation, of \$ 1.7 billion, (ii) goodwill of \$ 245 million, (iii) other intangible assets, net of accumulated amortization, of \$ 140 million, and (iv) deferred income tax liabilities, net, of \$ 154 million. In addition, we reclassified \$ 112 million of realized loss on foreign currency translation, net of tax, to partially offset the gain on sale of our Latin American business.

ILEC Business

On October 3, 2022, we and certain of our affiliates sold the portion of our incumbent local exchange ("ILEC") business primarily conducted within 20 Midwestern and Southeastern states to affiliates of funds advised by Apollo Global Management, Inc. In exchange, we received \$ 7.5 billion of consideration, which was reduced by approximately \$ 0.4 billion of closing adjustments and partially paid through purchaser's assumption of approximately \$ 1.5 billion of our long-term consolidated indebtedness, resulting in pre-tax cash proceeds of approximately \$ 5.6 billion.

For the year ended December 31, 2022, we recorded a \$ 176 million net pre-tax gain on disposal associated with the sale of our ILEC business. This gain is reflected as operating income within the consolidated statements of operations.

In connection with the sale, we entered into a transition services agreement under which we provide the purchaser various support services. In addition, Lumen and the purchaser entered into commercial agreements whereby they provide each other various network and other commercial services. Under these agreements, we committed to ordering services of approximately \$ 373 million from the purchaser over a period of three years and the purchaser has committed to ordering services of approximately \$ 67 million from us over a period of three years. We indemnified the purchaser for certain matters for which, at the time of closing, future cash payments by Lumen were expected. Lumen had estimated the fair value of these indemnifications to be \$ 89 million, which was included in other current liabilities in our consolidated balance sheet as of December 31, 2022 and increased our income tax expense accordingly as of December 31, 2022. As of the first quarter of 2023, the full \$ 89 million payments had been made.

The ILEC business was included in our continuing operations and classified as assets and liabilities held for sale on our consolidated balance sheets through the closing of the transaction on October 3, 2022. As a result of closing the transaction, we derecognized net assets of \$ 4.8 billion, primarily made up of (i) property, plant and equipment, net of accumulated depreciation, of \$ 3.6 billion, (ii) goodwill of \$ 2.6 billion and (iii) long-term debt, net of discounts, of \$ 1.4 billion. In addition, we reclassified \$ 403 million of net actuarial loss and prior service credit related to the Lumen Pension Plan, net of tax, conveyed to the purchaser to partially offset the gain on the sale of our ILEC business.

EMEA Business

On November 1, 2023, affiliates of Level 3 Parent, LLC, sold Lumen's operations in Europe, the Middle East and Africa (the "EMEA business") to Colt Technology Services Group Limited, a portfolio company of Fidelity Investments, for pre-tax cash proceeds of \$ 1.7 billion after certain closing adjustments and transaction costs. This consideration is further subject to other post-closing adjustments and indemnities set forth in the purchase agreement, as amended and supplemented to date. In connection with the sale, we entered into a transition services agreement under which we provide the purchaser various support services. In addition, Lumen and the purchaser entered into commercial agreements whereby they provide each other various network and other commercial services.

The classification of the EMEA business as held for sale was considered an event or change in circumstance which requires an assessment of the goodwill of the disposal group for impairment each reporting period until disposal. We performed a pre-classification and post-classification goodwill impairment test of the disposal group as described further in Note 3—Goodwill, Customer Relationships and Other Intangible Assets. As a result of our impairment tests, we determined the EMEA business disposal group was impaired, resulting in a non-cash, non-tax-deductible goodwill impairment charge of \$ 43 million in the fourth quarter of 2022. We evaluated the recoverability of the carrying value of the assets and liabilities held for sale relative to the agreed upon sales price, adjusted for costs to sell, and recorded an estimated loss on disposal of \$ 660 million during the year ended December 31, 2022 in the consolidated statement of operations and a valuation allowance included in assets held for sale on the consolidated balance sheet as of December 31, 2022. For the year ended December 31, 2023, we recorded a \$ 102 million net loss on disposal associated with the sale of our EMEA business. This loss is reflected as operating expense within the consolidated statements of operations.

The EMEA business was included in our continuing operations and classified as assets and liabilities held for sale on our consolidated balance sheets through the closing of the transaction on November 1, 2023. As a result of closing the transaction, we derecognized net assets of \$ 2.1 billion, primarily made up of (i) property, plant and equipment, net of accumulated depreciation, of \$ 2.0 billion and (ii) customer relationships and other intangible assets, net of accumulated amortization of \$ 107 million. In addition, we reclassified \$ 382 million of realized loss on foreign currency translation, net of tax, with an offset to the valuation allowance and loss on sale of the EMEA business.

Other Information

We do not believe these divestiture transactions represented a strategic shift for Lumen. Therefore, the divested businesses discussed above did not meet the criteria to be classified as discontinued operations. As a result, we continued to report our operating results for the Latin American, ILEC and EMEA businesses in our consolidated operating results through their respective disposal dates of August 1, 2022, October 3, 2022, and November 1, 2023, respectively.

(3) Goodwill, Customer Relationships and Other Intangible Assets

Goodwill, customer relationships and other intangible assets consisted of the following:

	As of December 31,	
	2023	2022 ⁽¹⁾
	(Dollars in millions)	
Goodwill ⁽²⁾	\$ 1,964	12,657
Indefinite-lived intangible assets	\$ 9	9
Other intangible assets subject to amortization:		
Customer relationships ⁽³⁾ , less accumulated amortization of \$ 4,248 and \$ 3,606	3,811	4,574
Capitalized software, less accumulated amortization of \$ 4,045 ⁽⁴⁾ and \$ 3,895	1,564	1,482
Trade names, patents and other, less accumulated amortization of \$ 72 ⁽⁴⁾ and \$ 188	86	101
Total other intangible assets, net	\$ 5,470	6,166

(1) These values exclude assets classified as held for sale.

(2) We recorded cumulative non-cash, non-tax-deductible goodwill impairment charges of \$ 10.7 billion during the year ended December 31, 2023.

(3) For the year ended December 31, 2023, customer relationships decreased \$ 121 million in conjunction with the sale of select CDN customer contracts in the fourth quarter of 2023 that resulted in a net loss of \$ 73 million included in selling, general and administrative expenses in our consolidated statements of operations.

(4) Certain capitalized software with a gross carrying value of \$ 183 million and trade names with a gross carrying value of \$ 130 million became fully amortized during 2022 and were retired during the first quarter of 2023.

As of December 31, 2023, the gross carrying amount of goodwill, customer relationships, indefinite-lived and other intangible assets was \$ 15.8 billion.

Our goodwill was derived from numerous acquisitions where the purchase price exceeded the fair value of the net assets acquired.

We are required to assess our goodwill and other indefinite-lived intangible assets for impairment annually, or, under certain circumstances, more frequently, such as when events or changes in circumstances indicate there may be impairment. Our annual impairment assessment date for indefinite-lived intangible assets other than goodwill is December 31. We completed our qualitative assessment of our indefinite-lived intangible assets other than goodwill as of December 31, 2023, 2022 and 2021 and concluded it is more likely than not that our indefinite-lived intangible assets are not impaired; thus, no impairment charge for these assets was recorded in 2023, 2022 or 2021. We are required to write down the value of goodwill only when our assessment determines the carrying value of equity of any of our reporting units exceeds its fair value. Our annual impairment assessment date for goodwill is October 31, at which date we assess our reporting units.

We report our results within two segments: Business and Mass Markets. See Note 17—Segment Information for more information on these segments and the underlying sales channels. As of December 31, 2023, we had three reporting units for goodwill impairment testing, which are (i) Mass Markets, (ii) North America Business ("NA Business") and (iii) Asia Pacific ("APAC") region. Prior to the divestiture of the EMEA business, the EMEA region was also a reporting unit and was tested for impairment in the pre-classification test as of October 31, 2022 discussed below. Prior to its August 1, 2022 divestiture, the Latin American ("LATAM") region was also a reporting unit.

Our reporting units are not discrete legal entities with discrete full financial statements. Our assets and liabilities are employed in and relate to the operations of multiple reporting units. For each reporting unit, we compare its estimated fair value of equity to its carrying value of equity that we assign to it. If the estimated fair value of the reporting unit is greater than the carrying value, we conclude that no impairment exists. If the estimated fair value of the reporting unit is less than its carrying value, we record a non-cash impairment charge equal to the excess amount. Depending on the facts and circumstances, we typically estimate the fair value of our reporting units by considering either or both of (i) a discounted cash flow method, which is based on the present value of projected cash flows over a discrete projection period and a terminal value, which is based on the expected normalized cash flows of the reporting units following the discrete projection period, and (ii) a market approach, which includes the use of market multiples of publicly-traded companies whose services and markets are comparable to ours.

2023 Goodwill Impairment Analyses

At October 31, 2023, we performed our annual impairment analysis of the goodwill of our three above-mentioned reporting units. Given the continued erosion in our market capitalization, we determined our quantitative impairment analysis would estimate the fair value of our reporting units using only the market approach. Applying this approach, we utilized company comparisons and analyst reports within the telecommunications industry which supported a range of fair values derived from annualized revenue and Earnings Before Interest, Tax, Depreciation and Amortization ("EBITDA") multiples between 1.5 x and 3.5 x and 4.8 x and 8.4 x, respectively. In determining the fair value of each reporting unit, we used revenue and EBITDA multiples below these comparable market multiples. We reconciled the estimated fair values of the reporting units to our market capitalization as of October 31, 2023 and concluded that the indicated control premium of approximately 2 % was reasonable based on recent market transactions. Based on our assessments performed with respect to the reporting units as described above, we concluded the estimated fair value of certain of our reporting units was less than their carrying value of equity. As a result, we recorded a non-cash, non-tax-deductible goodwill impairment charge of \$ 1.9 billion on October 31, 2023.

During the second quarter of 2023, we determined circumstances existed indicating it was more likely than not that the carrying value of our reporting units exceed their fair value. Given the continued erosion in our market capitalization, we determined our quantitative impairment analysis would estimate the fair value of our reporting units using only the market approach. Applying this approach, we utilized company comparisons and analyst reports within the telecommunications industry which supported a range of fair values derived from annualized revenue and EBITDA multiples between 1.5 x and 4.3 x and 4.6 x and 10.5 x, respectively. In determining the fair value of each reporting unit, we used revenue and EBITDA multiples below these comparable market multiples. The estimated fair values of the reporting units determined in connection with our impairment analysis in the second quarter of 2023 resulted in no control premium, which we determined to be reasonable based on our market capitalization relative to recent transactions. For the three months ended June 30, 2023, based on our assessments performed with respect to the reporting units as described above, we concluded the estimated fair value of certain of our reporting units was less than their carrying value of equity. As a result, we recorded a non-cash, non-tax-deductible goodwill impairment charge of \$ 8.8 billion for the three months ended June 30, 2023.

The market approach that we used in the quarter ended June 30, 2023 and October 31, 2023 tests incorporated estimates and assumptions related to the forecasted results for the remainder of the year, including revenues, expenses, and the achievement of certain strategic initiatives. In developing the market multiples applicable to each reporting unit, we considered observed trends of our industry participants. Our assessment included many factors that required significant judgment. Alternative interpretations of these factors could have resulted in different conclusions regarding the size of our impairments.

2022 Goodwill Impairment Analyses

As of October 31, 2022, we estimated the fair value of our four above-mentioned reporting units by considering both a market approach and a discounted cash flow method. We discounted the projected cash flows for our Mass Markets, NA Business, EMEA and APAC reporting units using a rate that represented their weighted average cost of capital as of the assessment date, which comprised an after-tax cost of debt and a cost of equity, as disclosed in the table below. We utilized company comparisons and analyst reports within the telecommunications industry which at the time of assessment supported a range of fair values derived from annualized revenue and EBITDA multiples between 1.8 x and 4.6 x and 4.7 x and 10.8 x, respectively. We selected a revenue and EBITDA multiple for each of our reporting units, resulting in an overall company revenue and EBITDA multiple of 2.5 x and 5.5 x, respectively. We also reconciled the estimated fair values of the reporting units to our market capitalization as of October 31, 2022 and concluded that the indicated control premium of approximately 59 % was reasonable based on recent market transactions, including our divestitures, and our depressed stock price. Due to the depressed trading price of our stock at October 31, 2022, and our assessment performed with respect to the reporting units described above, we concluded that the estimated fair value of our NA Business reporting unit was less than our carrying value of equity for that reporting unit, resulting in a non-cash, non-tax-deductible goodwill impairment charge of approximately \$ 3.2 billion. See the goodwill rollforward by segment table below for the impairment charges by segment. As of October 31, 2022, the estimated fair value of equity exceeded the carrying value of equity for our Mass Markets, EMEA and APAC reporting units by 97 %, 171 % and 101 %, respectively. Based on our assessments performed, we concluded that the goodwill assigned to our Mass Markets, EMEA and APAC reporting units was not impaired at October 31, 2022.

	As of October 31, 2022			
	Reporting Units			
	Mass Markets	NA Business	EMEA	APAC
Weighted average cost of capital	9.4 %	9.4 %	9.8 %	11.3 %
After-tax cost of debt	4.7 %	4.7 %	5.1 %	6.3 %
Cost of equity	14.0 %	14.0 %	14.4 %	16.2 %

Our classification of the EMEA Business as being held for sale as described in Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses was considered an event or change in circumstance which required an assessment of our goodwill for impairment as of October 31, 2022. We performed a pre-announcement goodwill impairment test described above to determine whether there was an impairment prior to the classification of these assets as held for sale and to determine the November 2, 2022, fair values to be utilized for goodwill allocation regarding the disposal group to be classified as assets held for sale. We also performed a post-announcement goodwill impairment test using our estimated post-divestiture cash flows and carrying value of equity to evaluate whether the fair value of our NA Business, Mass Markets and APAC reporting units that will remain following the divestiture exceeds the carrying value of the equity of such reporting units after classification of assets held for sale. We concluded no impairment existed regarding our post-divestiture reporting units.

Separate from the annual, pre-announcement and post-announcement goodwill assessments discussed above, we performed an assessment of our EMEA business disposal group for impairment using the purchase price compared to the carrying value of the EMEA business net assets. As a result, the EMEA business disposal group was impaired, resulting in a non-cash, non-tax-deductible goodwill impairment charge of \$ 43 million. See Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses for additional information regarding the purchase price, carrying value, and impairment for goodwill of the EMEA business. See the goodwill rollforward by segment table below for the impairment charges by segment.

2021 Goodwill Impairment Analyses

At October 31, 2021, we estimated the fair value of our five above-mentioned reporting units by considering both a market approach and a discounted cash flow method. As of October 31, 2021, we determined that the estimated fair value of equity exceeded the carrying value of equity for our Mass Markets, NA Business, EMEA, LATAM and APAC reporting units by 277 %, 8 %, 57 %, 100 % and 125 %, respectively. Based on our assessments performed, we concluded it was more likely than not that the fair value of each of our reporting units exceeded the carrying value of equity of those reporting units at October 31, 2021. Therefore, we concluded no impairment existed as of our assessment date.

Our third quarter 2021 classification of held for sale assets related to the divestitures of the Latin American and ILEC businesses as described in Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses, was considered an event or change in circumstance which required an assessment of our goodwill for impairment as of July 31, 2021. We performed a pre-classification goodwill impairment test to determine whether there was an impairment prior to the classification of these assets and to determine the July 31, 2021 fair values to be utilized for goodwill allocation regarding the Latin American and ILEC businesses classified as assets held for sale. We concluded it was more likely than not that the fair value of each of our reporting units exceeded the carrying value of equity of those reporting units at July 31, 2021. We also performed a post-classification goodwill impairment test using our estimated post-divestiture cash flows and carrying value of equity to evaluate whether the fair value of our reporting units that would remain following the divestitures exceeded the carrying value of the equity of such reporting units after classification of assets held for sale. At July 31, 2021, we estimated the fair value of our five above-mentioned reporting units as of such date by considering both a market approach and a discounted cash flow method. As of July 31, 2021, we determined that the estimated fair value of equity exceeded the carrying value of equity for our Mass Markets, NA Business, EMEA, LATAM and APAC reporting units by 150 %, 24 %, 58 %, 100 % and 134 %, respectively. Based on our assessments performed, we concluded it was more likely than not that the fair value of each of our reporting units exceeded the carrying value of equity of our reporting units at July 31, 2021. Therefore, we concluded no impairment existed as of our assessment date.

The January 2021 internal reorganization of our reporting structure was considered an event or change in circumstance which required an assessment of our goodwill for impairment. We performed a qualitative impairment assessment in the first quarter of 2021 and concluded it was more likely than not that the fair value of each of our reporting units exceeded the carrying value of equity of those reporting units at January 31, 2021. Therefore, we concluded no impairment existed as of our assessment date.

The following table shows the rollforward of goodwill assigned to our reportable segments from December 31, 2021 through December 31, 2023.

	Business	Mass Markets	Total
	(Dollars in millions)		
As of December 31, 2021	\$ 11,235	4,751	15,986
Effect of foreign currency exchange rate change and other	\$ (58)	—	(58)
Impairment	\$ (3,271)	—	(3,271)
As of December 31, 2022 ⁽¹⁾	\$ 7,906	4,751	12,657
Impairment	(7,906)	(2,787)	(10,693)
As of December 31, 2023 ⁽¹⁾	\$ —	1,964	1,964

⁽¹⁾ Goodwill at December 31, 2023, December 31, 2022 and December 31, 2021 is net of accumulated impairment losses of \$ 21.7 billion, \$ 11.0 billion and \$ 7.7 billion, respectively.

For additional information on our segments, see Note 17—Segment Information.

As of December 31, 2023, the weighted average remaining useful lives of our finite-lived intangible assets were approximately 6 years in total, approximately 7 years for customer relationships and 4 years for capitalized software.

Total amortization expense for finite-lived intangible assets for the years ended December 31, 2023, 2022 and 2021 was \$ 1.1 billion, \$ 1.1 billion and \$ 1.3 billion, respectively.

We estimate that total amortization expense for finite-lived intangible assets for the years ending December 31, 2024 through 2028 will be as provided in the table below.

	(Dollars in millions)
2024	\$ 922
2025	847
2026	803
2027	722
2028	657

(4) Revenue Recognition

Product and Service Categories

We categorize our products and services revenue among the following categories for the Business segment:

- *Grow*, which includes products and services that we anticipate will grow, including our dark fiber, Edge Cloud services, IP, managed security, software-defined wide area networks ("SD WAN"), secure access service edge ("SASE"), Unified Communications and Collaboration ("UC&C") and wavelengths services;
- *Nurture*, which includes our more mature offerings, including ethernet and VPN data networks services;
- *Harvest*, which includes our legacy services managed for cash flow, including Time Division Multiplexing ("TDM") voice, private line and other legacy services; and
- *Other*, which includes equipment sales, IT solutions and other services.

We categorize our products and services revenue among the following categories for the Mass Markets segment:

- *Fiber Broadband*, under which we provide high speed broadband services to residential and small business customers utilizing our fiber-based network infrastructure;
- *Other Broadband*, under which we provide primarily lower speed broadband services to residential and small business customers utilizing our copper-based network infrastructure; and
- *Voice and Other*, under which we derive revenues from (i) providing local and long-distance voice services, professional services, and other ancillary services, and (ii) federal broadband and state support programs.

Reconciliation of Total Revenue to Revenue from Contracts with Customers

The following tables provide total revenue by segment, sales channel and product category. They also provide the amount of revenue that is not subject to ASC 606, "Revenue from Contracts with Customers" ("ASC 606"), but is instead governed by other accounting standards. The amounts in the tables below include revenue for the Latin American, ILEC and EMEA businesses prior to their sales on August 1, 2022, October 3, 2022 and November 1, 2023, respectively:

Year Ended December 31, 2023		
Total Revenue	Adjustments for Non-ASC 606 Revenue ⁽¹⁾	Total Revenue from Contracts with Customers
(Dollars in millions)		

Business Segment by Sales Channel and Product Category

Large Enterprise			
Grow	\$ 2,167	(294)	1,873
Nurture	1,450	—	1,450
Harvest	760	—	760
Other	239	(5)	234
Total Large Enterprise Revenue	4,616	(299)	4,317
Mid-Market Enterprise			
Grow	803	(28)	775
Nurture	797	—	797
Harvest	378	(4)	374
Other	33	(4)	29
Total Mid-Market Enterprise Revenue	2,011	(36)	1,975
Public Sector			
Grow	469	(81)	388
Nurture	398	—	398
Harvest	383	(1)	382
Other	533	—	533
Total Public Sector Revenue	1,783	(82)	1,701
Wholesale			
Grow	1,030	(251)	779
Nurture	820	(25)	795
Harvest	1,264	(165)	1,099
Other	11	—	11
Total Wholesale Revenue	3,125	(441)	2,684
Business Segment by Product Category			
Grow	4,469	(654)	3,815
Nurture	3,465	(25)	3,440
Harvest	2,785	(170)	2,615
Other	816	(9)	807
Total Business Segment Revenue	11,535	(858)	10,677
Mass Markets Segment by Product Category			
Fiber Broadband	636	(16)	620
Other Broadband	1,394	(126)	1,268
Voice and Other	992	(36)	956
Total Mass Markets Revenue	3,022	(178)	2,844
Total Revenue	\$ 14,557	(1,036)	13,521
Timing of revenue			
Goods and services transferred at a point in time		\$	178
Services performed over time			13,343
Total revenue from contracts with customers		\$	13,521

Year Ended December 31, 2022		
Total Revenue	Adjustments for Non-ASC 606 Revenue ⁽¹⁾	Total Revenue from Contracts with Customers
(Dollars in millions)		

Business Segment by Sales Channel and Product Category
Large Enterprise

Grow	\$ 2,415	(352)	2,063
Nurture	1,685	—	1,685
Harvest	1,022	—	1,022
Other	255	(8)	247
Total Large Enterprise Revenue	5,377	(360)	5,017

Mid-Market Enterprise

Grow	757	(32)	725
Nurture	915	—	915
Harvest	510	(7)	503
Other	30	(1)	29
Total Mid-Market Enterprise Revenue	2,212	(40)	2,172

Public Sector

Grow	444	(103)	341
Nurture	490	—	490
Harvest	468	(4)	464
Other	459	(2)	457
Total Public Sector Revenue	1,861	(109)	1,752

Wholesale

Grow	979	(271)	708
Nurture	1,004	(23)	981
Harvest	1,557	(215)	1,342
Other	51	—	51
Total Wholesale Revenue	3,591	(509)	3,082

Business Segment by Product Category

Grow	4,595	(758)	3,837
Nurture	4,094	(23)	4,071
Harvest	3,557	(226)	3,331
Other	795	(11)	784
Total Business Segment Revenue	13,041	(1,018)	12,023

Mass Markets Segment by Product Category

Fiber Broadband	604	(18)	586
Other Broadband	2,164	(200)	1,964
Voice and Other	1,669	(134)	1,535
Total Mass Markets Revenue	4,437	(352)	4,085

Total Revenue	\$ 17,478	(1,370)	16,108
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Timing of revenue

Goods and services transferred at a point in time	\$ 154
Services performed over time	15,954
Total revenue from contracts with customers	\$ 16,108

Year Ended December 31, 2021		
Total Revenue	Adjustments for Non-ASC 606 Revenue ⁽¹⁾	Total Revenue from Contracts with Customers
(Dollars in millions)		

Business Segment by Sales Channel and Product Category

Large Enterprise

Grow	\$ 2,552	(427)	2,125
Nurture	1,906	—	1,906
Harvest	1,205	(2)	1,203
Other	255	(5)	250
Total Large Enterprise Revenue	5,918	(434)	5,484

Mid-Market Enterprise

Grow	724	(29)	695
Nurture	1,026	—	1,026
Harvest	613	(7)	606
Other	35	(4)	31
Total Mid-Market Enterprise Revenue	2,398	(40)	2,358

Public Sector

Grow	481	(84)	397
Nurture	528	—	528
Harvest	569	(3)	566
Other	533	(2)	531
Total Public Sector Revenue	2,111	(89)	2,022

Wholesale

Grow	930	(279)	651
Nurture	1,080	(25)	1,055
Harvest	1,682	(228)	1,454
Other	—	—	—
Total Wholesale Revenue	3,692	(532)	3,160

Business Segment by Product Category

Grow	4,687	(819)	3,868
Nurture	4,540	(25)	4,515
Harvest	4,069	(240)	3,829
Other	823	(11)	812
Total Business Segment Revenue	14,119	(1,095)	13,024

Mass Markets Segment by Product Category

Fiber Broadband	524	—	524
Other Broadband	2,507	(227)	2,280
Voice and Other	2,537	(570)	1,967
Total Mass Markets Revenue	5,568	(797)	4,771
Total Revenue	\$ 19,687	(1,892)	17,795

Timing of revenue

Goods and services transferred at a point in time	\$ 138
Services performed over time	17,657
Total revenue from contracts with customers	\$ 17,795

⁽¹⁾ Includes regulatory revenue and lease revenue not within the scope of ASC 606.

Customer Receivables and Contract Balances

The following table provides balances of customer receivables, contract assets and contract liabilities, net of amounts classified as held for sale, as of December 31, 2023 and 2022:

	December 31, 2023	December 31, 2022
	(Dollars in millions)	
Customer receivables ⁽¹⁾	\$ 1,256	1,424
Contract assets ⁽²⁾	29	34
Contract liabilities ⁽³⁾	698	656

(1) Reflects gross customer receivables of \$ 1.3 billion and \$ 1.5 billion, net of allowance for credit losses of \$ 60 million and \$ 73 million, at December 31, 2023 and December 31, 2022, respectively. At December 31, 2022 amounts exclude customer receivables, net, classified as held for sale of \$ 76 million, related to the EMEA business which was sold November 1, 2023.

(2) At December 31, 2022 these amounts exclude contract assets classified as held for sale of \$ 16 million, related to the EMEA business which was sold November 1, 2023.

(3) At December 31, 2022 these amounts exclude contract liabilities classified as held for sale of \$ 59 million, related to the EMEA business which was sold November 1, 2023.

Contract liabilities are consideration we have received from our customers or billed in advance of providing goods or services promised in the future. We defer recognizing this consideration as revenue until we have satisfied the related performance obligation to the customer. Contract liabilities include recurring services billed one month in advance and installation and maintenance charges that are deferred and recognized over the actual or expected contract term, which typically ranges from 1 to 5 years depending on the service. Contract liabilities are included within deferred revenue in our consolidated balance sheets. During the years ended December 31, 2023 and December 31, 2022, we recognized \$ 434 million and \$ 539 million, respectively, of revenue that was included in contract liabilities of \$ 715 million and \$ 841 million as of January 1, 2023 and 2022, respectively, including contract liabilities that were classified as held for sale.

Performance Obligations

As of December 31, 2023, we expect to recognize approximately \$ 6.8 billion of revenue in the future related to performance obligations associated with existing customer contracts that are partially or wholly unsatisfied. As of December 31, 2023, the transaction price related to unsatisfied performance obligation that are expected to be recognized in 2024, 2025 and thereafter was \$ 2.8 billion, \$ 1.7 billion and \$ 2.3 billion, respectively.

These amounts exclude (i) the value of unsatisfied performance obligations for contracts for which we recognize revenue at the amount to which we have the right to invoice for services performed (for example, uncommitted usage or non-recurring charges associated with professional or technical services to be completed) and (ii) contracts that are classified as leasing arrangements or government assistance that are not subject to ASC 606.

Contract Costs

The following tables provide changes in our contract acquisition costs and fulfillment costs:

	Year Ended December 31, 2023	
	Acquisition Costs	Fulfillment Costs
	(Dollars in millions)	
Beginning of period balance	\$ 202	192
Costs incurred	136	157
Amortization	(152)	(140)
Change in contract costs held for sale	(4)	(25)
End of period balance	<u>\$ 182</u>	<u>184</u>

	Year Ended December 31, 2022	
	Acquisition Costs	Fulfillment Costs
	(Dollars in millions)	
Beginning of period balance	\$ 222	186
Costs incurred	172	158
Amortization	(192)	(149)
Classified as held for sale ⁽¹⁾	—	(3)
End of period balance	<u>\$ 202</u>	<u>192</u>

⁽¹⁾ Represents changes in amounts classified as held for sale related to the divestitures of our Latin American and ILEC businesses on August 1, 2022 and October 3, 2022, respectively, as well as changes of \$ 6 million acquisition costs and no fulfillment costs classified as held for sale as of December 31, 2022 related to the divestiture of the EMEA business, held for sale as of December 31, 2022 and completed November 1, 2023. See Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses.

Acquisition costs include commission fees paid to employees as a result of obtaining contracts. Fulfillment costs include third party and internal costs associated with the provision, installation and activation of services to customers, including labor and materials consumed for these activities.

We amortize deferred acquisition and fulfillment costs based on the transfer of services on a straight-line basis over the average contract life of approximately 36 months for mass markets customers and 33 months for business customers. We include amortized fulfillment costs in cost of services and products and amortized acquisition costs are included in selling, general and administrative expenses in our consolidated statements of operations. We include the amount of these deferred costs that are anticipated to be amortized in the next 12 months in other current assets on our consolidated balance sheets. We include the amount of deferred costs expected to be amortized beyond the next twelve months in other non-current assets on our consolidated balance sheets. We assess deferred acquisition and fulfillment costs for impairment on a quarterly basis.

Governmental Funding

Lumen participates in various U.S. federal and state programs under which government support payments are received to offset costs associated with providing services in targeted locations such as unserved or underserved high-cost or rural areas, or for certain types of customers, including non-profit organizations, educational institutions and local governmental bodies. In certain instances, support payments are conditioned on specified infrastructure buildouts by milestone deadlines or provision of services at specified locations and speed requirements. Commitments may be made annually, on a multi-year basis ranging from one to ten years or be on-going subject to periodic change or termination. Consistent with customary practice and as referenced in ASC 832 *Government Assistance*, Lumen applies a grant model of accounting by which it accounts for these transactions as non-ASC 606 revenue over the periods in which the costs for which the funding is intended to compensate are incurred. This non-ASC 606 revenue is included in operating revenue in our consolidated statements of operations. Corresponding receivables are recorded when services have been provided to the customers and costs incurred, but the cash has not been received. These amounts are included in our accounts receivable, less allowance in our consolidated balance sheets. Certain programs are subject to audits of compliance with program commitments and, subject to the outcomes of those assessments, Lumen may be required to reimburse the government entity for cash previously received, or, in some cases, pay a penalty. Lumen evaluates each program and establishes a liability under the principles of ASC 450 if it is probable support payments will be recaptured or a penalty will be imposed.

For the years ended December 31, 2023 and 2022, Lumen recorded non-customer revenue of \$ 85 million and \$ 190 million, respectively, under government assistance programs, of which 17 % and 31 %, respectively, was associated with state universal service fund support programs.

Between 2015 and 2021, we received approximately \$ 500 million annually through the Federal Communications Commission (the "FCC")'s Connect America Fund II ("CAF II"), a federal multi-year recurring subsidy program for more extensive broadband deployment in price-cap ILEC territories. For this program, which ended on December 31, 2021, we were required to meet certain specified infrastructure buildout requirements in 33 states by the end of 2021, which required substantial capital expenditures. In the first quarter of 2022, we recognized \$ 59 million of previously deferred revenue related to the conclusion of the CAF II program based upon our final buildout and filing submissions. The government has the right to audit our compliance with the CAF II program and the ultimate outcome of any remaining examinations is unknown, but could result in a liability to us in excess of our reserve accruals established for these matters.

In early 2020, the FCC created the Rural Digital Opportunity Fund (the "RDOF") program, a federal support program designed to fund broadband deployment in rural America. For the first phase of this program, RDOF Phase I, the FCC ultimately awarded \$ 6.4 billion support payments to be paid in equal monthly installments over 10 years. We were awarded RDOF funding in several of the states in which we operate and began receiving monthly support payments during the second quarter of 2022. We received approximately \$ 17 million in annual RDOF Phase I support payments for the years ended December 31, 2023 and 2022 and expect to receive this same amount each year thereafter during the program period.

Lumen participates in multiple state sponsored programs for broadband deployment in unserved and underserved areas for which the states have state universal service funds sourced from fees levied on telecommunications providers and passed on to consumers. During the years ending December 31, 2023 and 2022, Lumen participated in these types of programs primarily in the states of Nebraska, North Carolina, New Mexico, Minnesota, Virginia and Wisconsin.

(5) Leases

We primarily lease to or from third parties various office facilities, colocation facilities, equipment and transmission capacity. Leases with an initial term of 12 months or less are not recorded on our consolidated balance sheets; we recognize lease expense for these leases on a straight-line basis over the lease term.

We determine if an arrangement is a lease at inception and whether that lease meets the classification criteria of a finance or operating lease. Lease-related assets, or right-of-use assets, are recognized at the lease commencement date at amounts equal to the respective lease liabilities. Lease-related liabilities are recognized at the present value of the remaining contractual fixed lease payments, discounted using our incremental borrowing rates. As part of the present value calculation for the lease liabilities, we use an incremental borrowing rate as the rates implicit in the leases are not readily determinable. The incremental borrowing rates used for lease accounting are based on our unsecured rates, adjusted to approximate the rates at which we could borrow on a collateralized basis over a term similar to the recognized lease term. We apply the incremental borrowing rates to lease components using a portfolio approach based upon the length of the lease term and the reporting entity in which the lease resides. Operating lease expense is recognized on a straight-line basis over the lease term, while variable lease payments are expensed as incurred. Operating lease assets are included in other, net under goodwill and other assets on our consolidated balance sheets. Noncurrent operating lease liabilities are included in other under deferred credits and other liabilities on our consolidated balance sheets.

Some of our lease arrangements contain lease components, non-lease components (including common-area maintenance costs) and executory costs (including real estate taxes and insurance costs). We generally account for each component separately based on the estimated standalone price of each component. For colocation leases, we account for the lease and non-lease components as a single lease component.

Many of our lease agreements contain renewal options; however, we do not recognize right-of-use assets or lease liabilities for renewal periods unless we determine that we are reasonably certain of renewing the lease. Certain leases also include options to purchase the leased property. The depreciable life of assets and leasehold improvements are limited by the expected lease term, unless there is a transfer of title or purchase option reasonably certain to be exercised. Our lease agreements do not generally contain any material residual value guarantees or material restrictive covenants.

Lease expense consisted of the following:

	Years Ended December 31,		
	2023	2022	2021
	(Dollars in millions)		
Operating and short-term lease cost	\$ 459	451	535
Finance lease cost:			
Amortization of right-of-use assets	32	37	37
Interest on lease liability	12	15	16
Total finance lease cost	44	52	53
Total lease cost	\$ 503	503	588

We primarily lease from third parties various equipment, office facilities, retail outlets, switching facilities and other network sites or components. These leases, with few exceptions, provide for renewal options and rent escalations that are either fixed or based on the consumer price index. Any rent abatements, along with rent escalations, are included in the computation of rent expense calculated on a straight-line basis over the lease term. The lease term for most leases includes the initial non-cancelable term plus any term under renewal options that we believe are reasonably assured.

Beginning in the second half of 2020 and continuing into 2023, we rationalized our lease footprint and ceased using 42 underutilized leased property locations. We determined that we no longer needed the leased space and, due to the limited remaining term on the contracts, concluded that we had neither the intent nor ability to sublease the properties. For the years ended December 31, 2023 and 2021, we incurred accelerated lease costs of approximately \$ 8 million and \$ 35 million, respectively. We did not incur material accelerated lease costs during 2022. Additionally, during the second quarter of 2023, we also donated our Monroe, Louisiana campus and leased back a portion thereof. This donation resulted in a \$ 101 million loss recognized for the year ended December 31, 2023. In conjunction with our plans to continue to reduce costs, we expect to continue our real estate rationalization efforts and expect to incur additional accelerated real estate costs in future periods.

For the years ended December 31, 2023, 2022 and 2021, our gross rental expense, including the accelerated lease costs discussed above, was \$ 503 million, \$ 503 million and \$ 588 million, respectively. We also received sublease rental income of \$ 25 million for each of the years ended December 31, 2023, 2022 and 2021.

Supplemental consolidated balance sheet information and other information related to leases is included below:

Leases (Dollars in millions)	Classification on the Balance Sheet	As of December 31,	
		2023	2022
Assets			
Operating lease assets	Other, net	\$ 1,230	1,340
Finance lease assets	Property, plant and equipment, net of accumulated depreciation	260	317
Total leased assets		\$ 1,490	1,657
Liabilities			
Current			
Operating	Current operating lease liabilities	\$ 268	344
Finance	Current maturities of long-term debt	16	16
Noncurrent			
Operating	Other	1,040	1,088
Finance	Long-term debt	215	234
Total lease liabilities		\$ 1,539	1,682
Weighted-average remaining lease term (years)			
Operating leases		8.2	7.7
Finance leases		11.3	12.0
Weighted-average discount rate			
Operating leases		7.59 %	5.98 %
Finance leases		4.98 %	4.96 %

At December 31, 2022, we classified certain operating and finance lease assets and liabilities related to the EMEA business, which was sold as of November 1, 2023, as held for sale and discontinued recording amortization on the related right-of-use assets upon this classification. These operating and finance lease assets and liabilities held for sale are not reflected in the above or throughout the disclosures within this note. See Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses for more information.

Supplemental consolidated cash flow statement information related to leases is included below:

	Years Ended December 31,	
	2023	2022
	(Dollars in millions)	
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows for operating leases	\$ 461	462
Operating cash flows for finance leases	12	15
Financing cash flows for finance leases	25	89
Supplemental lease cash flow disclosures:		
Operating lease right-of-use assets obtained in exchange for new operating lease liabilities	\$ 143	381
Right-of-use assets obtained in exchange for new finance lease liabilities	10	94

As of December 31, 2023, maturities of lease liabilities were as follows:

	Operating Leases	Finance Leases
	(Dollars in millions)	
2024	\$ 350	26
2025	257	27
2026	204	28
2027	163	28
2028	130	28
Thereafter	698	166
Total lease payments	1,802	303
Less: interest	(494)	(72)
Total	1,308	231
Less: current portion	(268)	(16)
Long-term portion	\$ 1,040	215

As of December 31, 2023, we had no material operating or finance leases that had not yet commenced.

Operating Lease Income

Lumen Technologies leases various dark fiber, office facilities, colocation facilities, switching facilities, other network sites and service equipment to third parties under operating leases. Lease and sublease income are included in operating revenue in the consolidated statements of operations. See "Revenue Recognition" in Note 1—Background and Summary of Significant Accounting Policies.

For the years ended December 31, 2023, 2022 and 2021, our gross rental income was \$ 1.0 billion, \$ 1.2 billion and \$ 1.2 billion, respectively, which represents 7 %, 7 % and 6 % respectively, of our operating revenue for the years ended December 31, 2023, 2022 and 2021.

(6) Credit Losses on Financial Instruments

To assess our expected credit losses on financial instruments, we aggregate financial assets with similar risk characteristics to monitor their credit quality or deterioration over the life of such assets. We periodically monitor certain risk characteristics within our aggregated financial assets and revise their composition accordingly, to the extent internal and external risk factors change. We separately evaluate financial assets that do not share risk characteristics with other financial assets. Our financial assets measured at amortized cost primarily consist of accounts receivable.

We use a loss rate method to estimate our allowance for credit losses. Our determination of the current expected credit loss rate begins with our review of historical loss experience as a percentage of accounts receivable. We measure our historical loss period based on the average days to recognize accounts receivable as credit losses. When asset specific characteristics and current conditions change from those in the historical period, due to changes in our credit and collections strategy, certain classes of aged balances, or credit loss and recovery policies, we perform a qualitative and quantitative assessment to adjust our historical loss rate. We use regression analysis to develop an expected loss rate using historical experience and economic data over a forecast period. We measure our forecast period based on the average days to collect payment on billed accounts receivable. To determine our current allowance for credit losses, we combine the historical and expected credit loss rates and apply them to our period end accounts receivable.

If there is an unexpected deterioration of a customer's financial condition or an unexpected change in economic conditions, including macroeconomic events, we assess the need to adjust the allowance for credit losses. Any such resulting adjustments would affect earnings in the period that adjustments are made.

The assessment of the correlation between historical observed default rates, current conditions and forecasted economic conditions requires judgment. Alternative interpretations of these factors could have resulted in different conclusions regarding our allowance for credit losses. The amount of credit loss is sensitive to changes in circumstances and forecasted economic conditions. Our historical credit loss experience, current conditions and forecast of economic conditions may also not be representative of the customers' actual default experience in the future, and we may use methodologies that differ from those used by other companies.

The following table presents the activity of our allowance for credit losses by accounts receivable portfolio for the years ended December 31, 2023 and December 31, 2022:

	Business	Mass Markets	Total
	(Dollars in millions)		
Beginning balance at January 1, 2021	\$ 109	82	191
Provision for expected losses	50	55	105
Write-offs charged against the allowance	(76)	(101)	(177)
Recoveries collected	13	6	19
Classified as assets held for sale ⁽¹⁾	(8)	(16)	(24)
Balance at December 31, 2021	\$ 88	26	114
Provision for expected losses	25	108	133
Write-offs charged against the allowance	(61)	(114)	(175)
Recoveries collected	10	6	16
Change in allowance in assets held for sale ⁽²⁾	(5)	2	(3)
Balance at December 31, 2022	\$ 57	28	85
Provision for expected losses	35	65	100
Write-offs charged against the allowance	(62)	(65)	(127)
Recoveries collected	6	3	9
Balance at December 31, 2023	\$ 36	31	67

⁽¹⁾ Represents the amounts classified as held for sale related to the divestitures of our Latin American and ILEC businesses on August 1, 2022 and October 3, 2022, respectively. See Note 2—Divestitures of the Latin American and ILEC Businesses and Planned Divestiture of the EMEA Business.

⁽²⁾ Represents changes in amounts classified as held for sale related to the divestitures of our Latin American and ILEC businesses on August 1, 2022 and October 3, 2022, respectively, and the inclusion of a \$ 5 million allowance for credit losses classified as held for sale as of December 31, 2022 related to the divestiture of the EMEA business. See Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses.

(7) Long-Term Debt and Credit Facilities

The following table reflects the consolidated long-term debt of Lumen Technologies, Inc. and its subsidiaries as of the dates indicated below, including unamortized discounts and premiums and unamortized debt issuance costs:

	Interest Rates ⁽¹⁾	Maturities ⁽¹⁾	As of December 31,	
			2023	2022
			(Dollars in millions)	
Senior Secured Debt: ⁽²⁾				
Lumen Technologies, Inc.				
Revolving Credit Facility ⁽³⁾	SOFR + 2.00 %	2025	\$ 200	—
Term Loan A ⁽⁴⁾	SOFR + 2.00 %	2025	933	991
Term Loan A-1 ⁽⁴⁾	SOFR + 2.00 %	2025	266	283
Term Loan B ⁽⁵⁾	SOFR + 2.25 %	2027	3,891	3,941
Senior notes	4.000 %	2027	1,250	1,250
Subsidiaries:				
Level 3 Financing, Inc.				
Tranche B 2027 Term Loan ⁽⁶⁾	SOFR + 1.75 %	2027	2,411	2,411
Senior notes	3.400 % - 10.500 %	2027 - 2030	2,425	1,500
Senior Notes and Other Debt:				
Lumen Technologies, Inc.				
Senior notes	4.500 % - 7.650 %	2025 - 2042	2,143	3,722
Subsidiaries:				
Level 3 Financing, Inc.				
Senior notes	3.625 % - 4.625 %	2027 - 2029	3,940	3,940
Qwest Corporation				
Senior notes	6.500 % - 7.750 %	2025 - 2057	1,986	1,986
Term loan ⁽⁷⁾	SOFR + 2.50 %	2027	215	215
Qwest Capital Funding, Inc.				
Senior notes	6.875 % - 7.750 %	2028 - 2031	192	192
Finance lease and other obligations ⁽⁸⁾	Various	Various	285	317
Unamortized discounts, net			(4)	(7)
Unamortized debt issuance costs			(145)	(169)
Total long-term debt			19,988	20,572
Less current maturities			(157)	(154)
Long-term debt, excluding current maturities			\$ 19,831	20,418

⁽¹⁾ As of December 31, 2023.

⁽²⁾ See the remainder of this Note for a description of certain parent or subsidiary guarantees and liens securing this debt.

⁽³⁾ Revolving Credit Facility had an interest rate of 7.464 % as of December 31, 2023.

⁽⁴⁾ Term Loans A and A-1 had interest rates of 7.470 % and 6.384 % as of December 31, 2023 and December 31, 2022, respectively.

⁽⁵⁾ Term Loan B had interest rates of 7.720 % and 6.634 % as of December 31, 2023 and December 31, 2022, respectively.

⁽⁶⁾ The Level 3 Tranche B 2027 Term Loan had interest rates of 7.220 % and 6.134 % as of December 31, 2023 and December 31, 2022, respectively.

⁽⁷⁾ The Qwest Corporation Term Loan had interest rates of 7.970 % and 6.640 % as of December 31, 2023 and December 31, 2022, respectively.

⁽⁸⁾ December 31, 2022 excludes finance lease obligations of our EMEA business that were classified as held for sale as of December 31, 2022 and sold on November 1, 2023. See Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses.

Long-Term Debt Maturities

Set forth below is the aggregate principal amount of our long-term debt as of December 31, 2023 (excluding unamortized discounts, net, and unamortized debt issuance costs) maturing during the following years.

	(Dollars in millions)
2024	\$ 157
2025	1,864
2026	498
2027	9,386
2028	1,539
2029 and thereafter	6,693
Total long-term debt	<u>\$ 20,137</u>

Debt of Lumen Technologies, Inc. and its Subsidiaries

At December 31, 2023, most of our outstanding consolidated debt had been incurred by Lumen Technologies, Inc. or one of the following three other primary borrowers or “borrowing groups,” each of which has borrowed funds either on a standalone basis or as part of a separate restricted group with certain of its subsidiaries:

- Level 3 Financing, Inc., including its parent guarantor Level 3 Parent, LLC, and one or more subsidiary guarantors;
- Qwest Corporation; and
- Qwest Capital Funding, Inc., including its parent guarantor, Qwest Communications International Inc.

Each of these borrowers or borrowing groups has entered into one or more credit agreements with certain financial institutions or other institutional lenders, or issued senior notes. Certain of these debt instruments are described further below.

Amended and Restated Credit Agreement

On January 31, 2020, we amended and restated our credit agreement dated June 19, 2017 (as so amended and restated, the “Amended Credit Agreement”). At December 31, 2023, the Amended Credit Agreement consisted of the following facilities:

- a \$ 2.2 billion senior secured revolving credit facility (“the Revolving Credit Facility”), against which \$ 200 million of borrowings and \$ 218 million of undrawn letters of credit were issued under this facility as of December 31, 2023, discussed further below;
- a \$ 933 million senior secured Term Loan A credit facility;
- a \$ 266 million senior secured Term Loan A-1 credit facility with CoBank, ACB; and
- a \$ 3.9 billion senior secured Term Loan B credit facility (the term loan facilities and the Revolving Credit Facility being referred to collectively as the “Amended Secured Credit Facilities”).

Loans under the Term Loan A and A-1 facilities and the Revolving Credit Facility bear interest at a rate equal to, at our option, the Secured Overnight Financing Rate ("SOFR") or the alternative base rate (each as defined in the Amended Credit Agreement) plus an applicable margin between 1.50 % to 2.25 % per annum for SOFR loans and 0.50 % to 1.25 % per annum for alternative base rate loans, depending on our then current total leverage ratio. Loans under the Term Loan B facility bear interest at SOFR plus 2.25 % per annum or the alternative base rate plus 1.25 % per annum. Loans under each of the term loan facilities require certain specified quarterly amortization payments and certain specified mandatory prepayments in connection with certain asset sales and debt issuances and out of excess cash flow, among other things, subject in each case to certain significant exceptions.

Borrowings under the Revolving Credit Facility and the Term Loan A and A-1 facilities mature on January 31, 2025. Borrowings under the Term Loan B facility mature on March 15, 2027.

All of Lumen's obligations under the Amended Secured Credit Facilities are guaranteed by certain of its subsidiaries. The guarantees by certain of those guarantors are secured by a first priority security interest in substantially all assets (including certain subsidiaries stock) directly owned by them, subject to certain exceptions and limitations.

A portion of the revolving credit facility in an amount not to exceed \$ 250 million is available for swingline loans, and a portion in an amount not to exceed \$ 800 million is available for the issuance of letters of credit. During the year ended December 31, 2023, we issued approximately \$ 218 million of letters of credit under our revolving credit facility, which reduced our borrowing capacity available thereunder by the same amount. As of December 31, 2023, these issued letters of credit were undrawn.

Lumen Technologies is permitted under the Amended Credit Agreement to request certain incremental borrowings subject to the satisfaction of various conditions and to certain other limitations. Any incremental borrowings would be subject to the same terms and conditions under the Amended Credit Agreement.

Term Loans and Certain Other Debt of Subsidiaries

Qwest Corporation

On October 23, 2020, Qwest Corporation borrowed \$ 215 million under a variable-rate term loan with CoBank ACB. The outstanding unpaid principal amount of this term loan plus any accrued and unpaid interest is due on October 23, 2027. Interest is paid at least quarterly based upon either SOFR or the base rate (as defined in the credit agreement) plus an applicable margin between 1.50 % to 2.50 % per annum for SOFR loans and 0.50 % to 1.50 % per annum for base rate loans depending on Qwest Corporation's then current senior unsecured long-term debt rating.

Level 3 Financing, Inc.

At December 31, 2023, Level 3 Financing, Inc. owed \$ 2.4 billion under a senior secured Tranche B 2027 Term Loan, which matures on March 1, 2027. The Tranche B 2027 Term Loan carries an interest rate, in the case of base rate borrowings, equal to (i) the greater of the Prime Rate, the Federal Funds Effective Rate plus 50 basis points, or SOFR plus 100 basis points (with all such terms and calculations as defined or further specified in the credit agreement) plus (ii) 0.75 % per annum. Any Eurodollar borrowings under the Tranche B 2027 Term Loan bear interest at SOFR plus 1.75 % per annum.

The Tranche B 2027 Term Loan requires certain specified mandatory prepayments in connection with certain asset sales and other transactions, subject to certain significant exceptions. The obligations of Level 3 Financing, Inc. under the Tranche B 2027 Term Loan are, subject to certain exceptions, secured by certain assets of Level 3 Parent, LLC and certain of its material domestic telecommunication subsidiaries. Also, Level 3 Parent, LLC and certain of its subsidiaries have guaranteed the obligations of Level 3 Financing, Inc. under the Tranche B 2027 Term Loan.

Revolving Letters of Credit

We use various financial instruments in the normal course of business. These instruments include letters of credit, which are conditional commitments issued on our behalf in accordance with specified terms and conditions. Lumen Technologies maintains an uncommitted \$ 225 million revolving letter of credit facility separate from the letter of credit facility included in the revolving credit facility noted above. Letters of credit issued under this uncommitted facility are backed by credit enhancements in the form of secured guarantees issued by certain of our subsidiaries. As of December 31, 2023 and 2022, we had (i) \$ 40 million and \$ 94 million, respectively, of letters of credit outstanding under our committed facility and various other facilities and (ii) \$ 218 million and no letters of credit outstanding, respectively, under our revolving credit facility. As of December 31, 2023, these issued letters of credit were undrawn.

Senior Notes

Lumen's consolidated indebtedness at December 31, 2023 included (i) senior secured notes issued by Lumen Technologies, Inc. and Level 3 Financing, Inc. and (ii) senior unsecured notes issued by Lumen Technologies, Inc., Level 3 Financing, Inc., Qwest Corporation, and Qwest Capital Funding, Inc. All of these notes carry fixed interest rates and all principal is due on the notes' respective maturity dates, which rates and maturity dates are summarized in the table above. The Lumen Technologies, Inc. secured senior notes are guaranteed by the same domestic subsidiaries that guarantee the Amended Credit Agreement on substantially the same terms and conditions that govern the guarantees of the Amended Credit Agreement. The Level 3 Financing, Inc. secured senior notes are secured by a pledge of substantially all of its assets and guaranteed on a secured basis by the same domestic subsidiaries that guarantee its Term B 2027 Term Loan. The remaining senior notes issued by Level 3 Financing, Inc. are guaranteed on an unsecured basis by its parent, Level 3 Parent, LLC, and one of its subsidiaries. The senior notes issued by Qwest Capital Funding, Inc. are guaranteed by its parent, Qwest Communications International Inc. Except for a limited number of senior notes issued by Qwest Corporation, the issuer generally can redeem the notes, at its option, in whole or in part, (i) pursuant to a fixed schedule of pre-established redemption prices, (ii) pursuant to a "make whole" redemption price or (iii) under certain other specified limited conditions. Under certain circumstances in connection with a "change of control" of Lumen Technologies, it will be required to make an offer to repurchase each series of these senior notes (other than two of its older series of notes) at a price of 101 % of the principal amount redeemed, plus accrued and unpaid interest. Also, under certain circumstances in connection with a "change of control" of Level 3 Parent, LLC or Level 3 Financing, Inc., Level 3 Financing will be required to make an offer to repurchase each series of its outstanding senior notes at a price of 101 % of the principal amount redeemed, plus accrued and unpaid interest.

2023 Borrowings and Repayments

During 2023, Lumen borrowed \$ 925 million from, and made repayments of \$ 725 million to, its revolving credit facility.

2023 Exchange Offers and Repurchases

Pursuant to exchange offers that commenced on March 16, 2023 (the "Exchange Offers"), on March 31, 2023, Level 3 Financing, Inc. issued \$ 915 million of its 10.500 % Senior Secured Notes due 2030 (the " 10.500 % Notes") in exchange for \$ 1.535 billion of Lumen's outstanding senior unsecured notes. On April 17, 2023, in connection with the Exchange Offers, Level 3 Financing, Inc. issued an additional \$ 9 million of its 10.500 % Notes in exchange for \$ 19 million of Lumen's outstanding senior unsecured notes. All exchanged notes were concurrently cancelled. These transactions resulted in a \$ 630 million net reduction in the aggregate principal amount of Lumen's consolidated indebtedness. In addition to the above described exchange offers, we repurchased \$ 24 million aggregate principal amount of Lumen's outstanding senior unsecured notes during the first quarter of 2023. These above-described transactions resulted in an aggregate net gain of \$ 618 million for the year ended December 31, 2023.

The following table sets forth the aggregate principal amount of each series of Lumen's senior unsecured notes retired during the year ended December 31, 2023, in connection with the above-described exchange transactions:

Debt	Period of Reduction	Aggregate principal (amounts in millions)
5.625 % Senior Notes, Series X, due 2025	Q1 2023	\$ 48
7.200 % Senior Notes, Series D, due 2025	Q1 2023	21
5.125 % Senior Notes due 2026	Q1 2023	291
6.875 % Debentures, Series G, due 2028	Q1 2023	52
5.375 % Senior Notes due 2029	Q1 2023	275
4.500 % Senior Notes due 2029	Q1 2023	556
7.600 % Senior Notes, Series P, due 2039	Q1 2023	161
7.650 % Senior Notes, Series U, due 2042	Q1 2023	131
5.625 % Senior Notes, Series X, due 2025	Q2 2023	1
4.500 % Senior Notes due 2029	Q2 2023	2
7.600 % Senior Notes, Series P, due 2039	Q2 2023	3
7.650 % Senior Notes, Series U, due 2042	Q2 2023	13
Total		\$ 1,554

2022 Borrowings and Repayments

During 2022, Lumen borrowed \$ 2.4 billion from, and made repayments of \$ 2.6 billion to, its revolving credit facility. We used our net revolving credit draws and available cash to repay the following aggregate principal amounts of indebtedness through a combination of tender offers, redemptions, prepayments, amortization payments and payments at maturity. These transactions resulted in a net gain on the extinguishment of debt of \$ 214 million.

Debt	Period of Repayment	(Dollars in millions)
<i>Lumen Technologies, Inc.</i>		
5.800 % Senior Notes due 2022 (at maturity)	Q1 2022	\$ 1,400
6.750 % Senior Notes, Series W, due 2023	Q4 2022	750
7.500 % Senior Notes, Series Y, due 2024	Q4 2022	982
7.500 % Senior Notes, Series Y, due 2024	Q3 2022	18
5.625 % Senior Notes, Series X, due 2025	Q4 2022	286
7.200 % Senior Notes, Series D, due 2025	Q4 2022	34
5.125 % Senior Notes due 2026	Q4 2022	520
5.125 % Senior Notes due 2026	Q3 2022	11
6.875 % Debentures, Series G, due 2028	Q4 2022	130
5.375 % Senior Notes due 2029	Q4 2022	494
Term Loan B prepayment	Q4 2022	909
Scheduled term loan payments	Multiple	125
<i>Level 3 Financing, Inc.</i>		
Tranche B 2027 Term Loan	Q3 2022	700
5.375 % Senior Notes due 2025	Q3 2022	800
5.250 % Senior Notes due 2026	Q3 2022	775
<i>Embarq Corporation Subsidiaries</i>		
First Mortgage Bonds	Q4 2022	137
<i>Qwest Capital Funding, Inc.</i>		
Senior Notes	Q4 2022	63
Other	Q4 2022	68
Total debt repayments		\$ 8,202

Interest Expense

Interest expense includes interest on total long-term debt. The following table presents the amount of gross interest expense, net of capitalized interest:

	Years Ended December 31,		
	2023	2022	2021
	(Dollars in millions)		
Interest expense:			
Gross interest expense	\$ 1,269	1,398	1,575
Capitalized interest	(111)	(66)	(53)
Total interest expense	\$ 1,158	1,332	1,522

Covenants

Lumen Technologies, Inc.

With respect to the Term Loan A and A-1 facilities and the Revolving Credit Facility, the Amended Credit Agreement requires us to maintain (i) a maximum total leverage ratio of not more than 4.75 to 1.00 and (ii) a minimum consolidated interest coverage ratio of at least 2.00 to 1.00, with such ratios being determined and calculated in the manner described in the Amended Credit Agreement.

The Amended Secured Credit Facilities contain various representations and warranties and extensive affirmative and negative covenants. Such covenants include, among other things and subject to certain significant exceptions, restrictions on our ability to declare or pay dividends, repurchase stock, repay certain other indebtedness, create liens, incur additional indebtedness, make investments, engage in transactions with our affiliates, dispose of assets and merge or consolidate with any other person.

The senior unsecured notes of Lumen Technologies, Inc. were issued under four separate indentures. These indentures restrict our ability to (i) incur, issue or create liens upon the property of Lumen Technologies, Inc. and (ii) consolidate with or merge into, or transfer or lease all or substantially all of our assets to any other party. These indentures do not contain any provisions that restrict the incurrence of additional indebtedness. The senior secured notes of Lumen Technologies, Inc. were issued under a separate indenture that contains a more restrictive set of covenants. As indicated above under "Senior Notes", Lumen Technologies, Inc. will be required to offer to purchase certain of its long-term debt securities issued under its indentures under certain circumstances in connection with a "change of control" of Lumen Technologies, Inc.

Level 3 Companies

The term loan, senior secured notes and senior unsecured notes of Level 3 Financing, Inc. contain various representations and extensive affirmative and negative covenants. Such covenants include, among other things and subject to certain significant exceptions, restrictions on their ability to declare or pay dividends, repay certain other indebtedness, create liens, incur additional indebtedness, make investments, dispose of assets and merge or consolidate with any other person. Also, as indicated above under "Senior Notes", Level 3 Financing, Inc. will be required to offer to repurchase or repay certain of its long-term debt under certain circumstances in connection with a "change of control" of Level 3 Financing or Level 3 Parent, LLC.

Qwest Companies

Under its term loan, Qwest Corporation must maintain a debt to EBITDA ratio of not more than 2.85 to 1.00, as determined and calculated in the manner described in the applicable term loan documentation. The term loan also contains a negative pledge covenant, which generally requires Qwest Corporation to secure equally and ratably any advances under the term loan if it pledges assets or permits liens on its property for the benefit of other debtholders.

The senior notes of Qwest Corporation were issued under indentures dated April 15, 1990 and October 15, 1999. These indentures contain restrictions on the incurrence of liens and the consummation of certain transactions substantially similar to the above-described covenants in Lumen's indentures (but contain no mandatory repurchase provisions). The senior notes of Qwest Capital Funding, Inc. were issued under an indenture dated June 29, 1998 containing terms substantially similar to those set forth in Qwest Corporation's indentures.

Impact of Covenants

The debt covenants applicable to Lumen Technologies, Inc. and its subsidiaries could have a material adverse impact on their ability to operate or expand their respective businesses, to pursue strategic transactions, or to otherwise pursue their plans and strategies. The covenants of the Level 3 companies may significantly restrict the ability of Lumen Technologies, Inc. to receive cash from the Level 3 companies, to distribute cash from the Level 3 companies to other of Lumen's affiliated entities, or to enter into other transactions among Lumen's wholly-owned entities.

Certain of the debt instruments of Lumen Technologies, Inc. and its subsidiaries contain cross payment default or cross acceleration provisions. When present, these provisions could have a wider impact on liquidity than might otherwise arise from a default or acceleration of a single debt instrument.

The ability of Lumen Technologies, Inc. and its subsidiaries to comply with the financial covenants in their respective debt instruments could be adversely impacted by a wide variety of events, including unforeseen contingencies, many of which are beyond their control.

Compliance

As of December 31, 2023, Lumen Technologies, Inc. believes it and its subsidiaries were in compliance with the provisions and financial covenants in their respective material debt agreements in all material respects.

Guarantees

Lumen Technologies does not guarantee the debt of any unaffiliated parties, but, as noted above, as of December 31, 2023 certain of its largest subsidiaries guaranteed (i) its debt outstanding under its Amended Secured Credit Facilities, its senior secured notes and its \$ 225 million letter of credit facility and (ii) the outstanding term loans or senior notes issued by certain other subsidiaries. As further noted above, several of the subsidiaries guaranteeing these obligations have pledged substantially all of their assets to secure certain of their respective guarantees.

Subsequent Event

See Note 24—Subsequent Events, for information regarding certain debt restructuring transactions contemplated under our amended and restated transaction support agreement dated as of January 22, 2024.

(8) Accounts Receivable

The following table presents details of our accounts receivable balances:

	As of December 31,	
	2023	2022 ⁽¹⁾
	(Dollars in millions)	
Trade and purchased receivables	\$ 1,181	1,319
Earned and unbilled receivables	165	209
Other	39	65
Total accounts receivable	1,385	1,593
Less: allowance for credit losses	(67)	(85)
Accounts receivable, less allowance	\$ 1,318	1,508

⁽¹⁾ Amounts have been adjusted to reflect the immaterial correction of accounts receivable. See Note 1—Background and Summary of Significant Accounting Policies under the header *Correction of Immaterial Errors*.

We are exposed to concentrations of credit risk from our customers. We generally do not require collateral to secure our receivable balances. We have agreements with other communications service providers whereby we agree to bill and collect on their behalf for services rendered by those providers to our customers within our local service area. We purchase accounts receivable from other communications service providers primarily on a recourse basis and include these amounts in our accounts receivable balance. We have not experienced any significant loss associated with these purchased receivables.

(9) Property, Plant and Equipment

Net property, plant and equipment is composed of the following:

	Depreciable Lives	As of December 31,	
		2023	2022 ⁽⁵⁾
	(Dollars in millions)		
Land	N/A	\$ 646	651
Fiber, conduit and other outside plant ⁽¹⁾	15 - 45 years	15,217	14,451
Central office and other network electronics ⁽²⁾	3 - 10 years	15,741	15,077
Support assets ⁽³⁾	3 - 30 years	6,714	6,863
Construction in progress ⁽⁴⁾	N/A	2,758	2,010
Gross property, plant and equipment		41,076	39,052
Accumulated depreciation		(21,318)	(19,886)
Net property, plant and equipment		\$ 19,758	19,166

⁽¹⁾ Fiber, conduit and other outside plant consists of fiber and metallic cable, conduit, poles and other supporting structures.

⁽²⁾ Central office and other network electronics consists of circuit and packet switches, routers, transmission electronics and electronics providing service to customers.

⁽³⁾ Support assets consist of buildings, data centers, computers and other administrative and support equipment.

⁽⁴⁾ Construction in progress includes inventory held for construction and property of the aforementioned categories that has not been placed in service as it is still under construction.

⁽⁵⁾ At December 31, 2022, we had \$ 1.9 billion of certain property, plant and equipment, net related to our EMEA business which was classified as held for sale at this date and which was sold on November 1, 2023. See Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses for more information.

We recorded depreciation expense of \$ 1.9 billion, \$ 2.1 billion and \$ 2.7 billion for the years ended December 31, 2023, 2022 and 2021, respectively.

Asset Retirement Obligations

As of December 31, 2023 and 2022, our asset retirement obligations balance was primarily related to estimated future costs of removing equipment from leased properties and estimated future costs of properly disposing of asbestos and other hazardous materials upon remodeling or demolishing buildings. Asset retirement obligations are included in other long-term liabilities on our consolidated balance sheets.

Our fair value estimates were determined using the discounted cash flow method.

The following table provides asset retirement obligation activity:

	Years Ended December 31,	
	2023	2022
	(Dollars in millions)	
Balance at beginning of year	\$ 156	182
Accretion expense	6	10
Liabilities settled	(9)	(10)
Change in estimate	4	4
Classified as held for sale ⁽¹⁾	—	(30)
Balance at end of year	<u>\$ 157</u>	<u>156</u>

⁽¹⁾ Represents the amounts classified as held for sale related to our EMEA business. See Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses.

The changes in estimate referred to in the table above were offset against gross property, plant and equipment.

(10) Severance

Periodically, we reduce our workforce and accrue liabilities for the related severance costs. These workforce reductions result primarily from the progression or completion of our post-acquisition integration plans, increased competitive pressures, cost reduction initiatives, process improvements through automation and reduced workloads due to reduced demand for certain services.

During the fourth quarter of 2023 we reduced our global workforce by approximately 4 % as part of our ongoing efforts to reorganize Lumen for growth by right-sizing our operations to improve our profitability. As a result of this plan, we incurred severance and related costs of approximately \$ 53 million. We do not expect to incur any material impairment or exit costs related to this plan.

We report severance liabilities within accrued expenses and other liabilities - salaries and benefits in our consolidated balance sheets and report severance expenses in selling, general and administrative expenses in our consolidated statements of operations. As described in Note 17—Segment Information, we do not allocate these severance expenses to our segments.

Changes in our accrued liabilities for severance expenses were as follows:

	Severance	
	(Dollars in millions)	
Balance at December 31, 2021	\$ 36	
Accrued to expense	12	
Payments, net	(37)	
Balance at December 31, 2022	11	
Accrued to expense	74	
Payments, net	(67)	
Balance at December 31, 2023	<u>\$ 18</u>	

(11) Employee Benefits

Pension, Post-Retirement and Other Post-Employment Benefits

We sponsor various defined benefit pension plans (qualified and non-qualified) which, in the aggregate, cover a substantial portion of our employees. Pension benefits for participants of the Lumen Combined Pension Plan ("Combined Pension Plan") and, through the October 3, 2022 sale of the ILEC business, the Lumen Pension Plan, who are represented by a collective bargaining agreement are based on negotiated schedules. All other participants' pension benefits are based on each individual participant's years of service and compensation. We also maintain non-qualified pension plans for certain current and former highly compensated employees. We maintain post-retirement benefit plans that provide health care and life insurance benefits for certain eligible retirees. We also provide other post-employment benefits for certain eligible former employees. We use a December 31 measurement date for all our plans.

On October 19, 2021, we, as sponsor of the Combined Pension Plan, along with the Plan's independent fiduciary, entered into an agreement committing the Plan to use a portion of its plan assets to purchase an annuity from an insurance company (the "Insurer") to transfer approximately \$ 1.4 billion of the Plan's pension liabilities. This agreement irrevocably transferred to the Insurer future Plan benefit obligations for approximately 22,600 U.S. Lumen participants ("Transferred Participants") effective on December 31, 2021. This annuity transaction was funded entirely by existing Plan assets. The Insurer assumed responsibility for administrative and customer service support, including distribution of payments to the Transferred Participants. Transferred Participants' benefits were not reduced as a result of this transaction.

As of January 1, 2022, we spun off the Lumen Pension Plan from the Lumen Combined Pension Plan in anticipation of the sale of the ILEC business, as described further in Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses. At the time of the spin-off, the Lumen Pension Plan covered approximately 2,500 active plan participants along with 19,000 other participants. At the time of the spin-off, the Lumen Pension Plan had a pension benefit obligation of \$ 2.5 billion and assets of \$ 2.2 billion. In addition, the December 31, 2021 actuarial (loss) gain and prior service cost included in accumulated other comprehensive loss was allocated between the Lumen Pension Plan and the Lumen Combined Pension Plan. Following a revaluation of the pension obligation and pension assets for the Lumen Pension Plan, in preparation for the closing of the sale of the ILEC business, we contributed approximately \$ 319 million of Lumen's cash to the Lumen Pension Plan trust to fully fund the pension plan in September 2022. The amounts allocated to the Lumen Pension Plan were subject to adjustment up to the closing of the sale of the ILEC business on October 3, 2022, at which time the plan was transferred along with the rest of the assets and liabilities of the ILEC business. We recognized pension costs related to both plans through the sale of the ILEC business, at which time balances related to the Lumen Pension Plan were reflected in the calculation of our gain on the sale of the business.

Pension Benefits

United States funding laws require a company with a pension shortfall to fund the annual cost of benefits earned in addition to a seven-year amortization of the shortfall. Our funding policy for our Combined Pension Plan is to make contributions with the objective of accumulating ample assets to pay all qualified pension benefits when due under the terms of the plan. The accounting unfunded status of the Combined Pension Plan was \$ 736 million and \$ 580 million as of December 31, 2023 and 2022, respectively.

We made no voluntary cash contributions to the Combined Pension Plan in 2023 or 2022. As discussed above, we contributed approximately \$ 319 million of cash to the Lumen Pension Plan trust to fully fund the pension plan in September 2022 in preparation for the closing of the sale of the ILEC business. We paid \$ 5 million of benefits directly to participants of our non-qualified pension plans in both 2023 and 2022.

Benefits paid by the Combined Pension Plan are paid through a trust that holds all of the Plan's assets. The amount of required contributions to the Combined Pension Plan in 2024 and beyond will depend on a variety of factors, most of which are beyond our control, including earnings on plan investments, prevailing interest rates, demographic experience, changes in plan benefits and changes in funding laws and regulations. Based on current laws and circumstances, we do not believe we are required to make any contributions to the Combined Pension Plan in 2024 and we do not expect to make voluntary contributions to the trust for the Combined Pension Plan in 2024. We estimate that in 2024 we will pay \$ 4 million of benefits directly to participants of our non-qualified pension plans.

We recognize in our consolidated balance sheets the funded status of the legacy Level 3 defined benefit post-retirement plans. These plans were fully funded as of December 31, 2023 and 2022. Additionally, as previously mentioned, we sponsor unfunded non-qualified pension plans for certain current and former highly-compensated employees. The net unfunded status of our non-qualified pension plans was \$ 33 million and \$ 35 million for the years ended December 31, 2023 and 2022, respectively. Due to the insignificant impact of these pension plans on our consolidated financial statements, we have predominantly excluded them from the remaining employee benefit disclosures in this Note, unless otherwise specifically stated.

Post-Retirement Benefits

Our post-retirement benefit plans provide post-retirement benefits to qualified retirees and allow (i) eligible employees retiring before certain dates to receive benefits at no or reduced cost and (ii) eligible employees retiring after certain dates to receive benefits on a shared cost basis. The post-retirement benefits not paid by the trusts are funded by us and we expect to continue funding these post-retirement obligations as benefits are paid. The accounting unfunded status of our qualified post-retirement benefit plan was \$ 1.9 billion and \$ 2.0 billion as of December 31, 2023 and 2022, respectively.

Assets in the post-retirement trusts were substantially depleted as of December 31, 2016; as of December 31, 2019 the Company ceased to pay certain post-retirement benefits through the trusts. No contributions were made to the post-retirement trusts in 2023, nor 2022. Benefits are paid directly by us with available cash. In 2023, we paid \$ 194 million of post-retirement benefits, net of participant contributions and direct subsidies. In 2024, we currently expect to pay directly \$ 193 million of post-retirement benefits, net of participant contributions and direct subsidies.

We expect our expected health care cost trend to range from 5.4 % to 7.50 % in 2024 and grading to 4.50 % by 2031. Our post-retirement benefit cost, for certain eligible legacy Qwest retirees and certain eligible legacy CenturyLink retirees, is capped at a set dollar amount. Therefore, those health care benefit obligations are not subject to increasing health care trends after the effective date of the caps.

Expected Cash Flows

The Combined Pension Plan payments, post-retirement health care benefit payments and premiums, and life insurance premium payments are either distributed from plan assets or paid by us. The estimated benefit payments provided below are based on actuarial assumptions using the demographics of the employee and retiree populations and have been reduced by estimated participant contributions.

	Combined Pension Plan	Post-Retirement Benefit Plans	Medicare Part D Subsidy Receipts
	(Dollars in millions)		
Estimated future benefit payments:			
2024	\$ 574	195	(2)
2025	493	191	(2)
2026	475	186	(2)
2027	458	181	(2)
2028	440	174	(2)
2029 - 2033	1,974	762	(6)

Net Periodic Benefit Expense

We utilize a full yield curve approach in connection with estimating the service and interest components of net periodic benefit expense by applying the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flow.

The actuarial assumptions used to compute the net periodic benefit expense for our Combined Pension Plan and post-retirement benefit plans are based upon information available as of the beginning of the year, as presented in the following table.

	Combined Pension Plan			Post-Retirement Benefit Plans		
	2023	2022	2021	2023	2022	2021
Actuarial assumptions at beginning of year:						
Discount rate	5.45 % - 5.69 %	2.29 % - 3.12 %	1.70 % - 2.88 %	5.43 % - 5.75 %	2.19 % - 5.78 %	1.58 % - 2.60 %
Rate of compensation increase	3.25 %	3.25 %	3.25 %	N/A	N/A	N/A
Expected long-term rate of return on plan assets ⁽¹⁾	6.50 %	5.50 %	5.50 %	3.00 %	4.00 %	4.00 %
Initial health care cost trend rate	N/A	N/A	N/A	7.20 % / 5.00 %	5.00 % / 5.75 %	6.25 % / 5.00 %
Ultimate health care cost trend rate	N/A	N/A	N/A	4.50 %	4.50 %	4.50 %
Year ultimate trend rate is reached	N/A	N/A	N/A	2030	2025	2025

N/A - Not applicable

⁽¹⁾ Rates are presented net of projected fees and administrative costs.

Prior to the sale of the ILEC business on October 3, 2022, we realized pension costs related to the Lumen Pension Plan. Net periodic benefit expense (income) for our Combined Pension Plan and the Lumen Pension Plan (through October 3, 2022, together the "Pension Plans") includes the following components:

	Pension Plans Years Ended December 31,		
	2023	2022	2021
	(Dollars in millions)		
Service cost	\$ 25	44	56
Interest cost	270	194	201
Expected return on plan assets	(287)	(385)	(535)
Settlement charges	—	—	383
Realized to gain on sale of businesses	—	546	—
Special termination benefits charge	2	—	6
Recognition of prior service credit	(7)	(10)	(9)
Recognition of actuarial loss	104	122	184
Net periodic pension expense	\$ 107	511	286

Net periodic benefit expense for our post-retirement benefit plans includes the following components:

	Post-Retirement Plans		
	Years Ended December 31,		
	2023	2022	2021
	(Dollars in millions)		
Service cost	\$ 5	10	14
Interest cost	103	72	47
Realized to gain on sale of businesses	—	(32)	—
Recognition of prior service cost	(8)	8	15
Recognition of actuarial loss	(20)	(4)	4
Net periodic post-retirement benefit expense	\$ 80	54	80

Service costs for our Combined Pension Plan and post-retirement benefit plans are included in the cost of services and products and selling, general and administrative line items on our consolidated statements of operations and all other costs listed above, except for amounts realized as part of the net gain on sale of businesses, are included in other (expense) income, net on our consolidated statements of operations for the years ended December 31, 2023, 2022 and 2021. Additionally, a portion of the service cost is also allocated to certain assets under construction, which are capitalized and reflected as part of property, plant and equipment in our consolidated balance sheets. As a result of ongoing efforts to reduce our workforce, we recognized a one-time charge in 2023 and in 2021 of \$ 2 million and \$ 6 million, respectively, for special termination benefit enhancements paid to certain eligible employees upon voluntary retirement.

Our pension plan contains provisions that allow us, from time to time, to offer lump sum payment options to certain former employees in settlement of their future retirement benefits. We record an accounting settlement charge, consisting of the recognition of certain deferred costs of the pension plan associated with these lump sum payments only if, in the aggregate, they exceed or are probable to exceed the sum of the annual service and interest costs for the plan's net periodic pension benefit cost, which represents the settlement accounting threshold. The lump sum pension settlement payments for 2021 exceeded the settlement threshold. In addition, during the fourth quarter of 2021, we executed an annuity purchase contract with a third party insurer that triggered additional settlement activity (see discussion above for further information). As a result, we recognized a non-cash settlement charge of \$ 383 million as of December 31, 2021 to accelerate the recognition of a portion of the previously unrecognized actuarial losses in the qualified pension plan, which is reflected in other (expense) income, net in our consolidated statement of operations for the year ended December 31, 2021. This non-cash charge increased our recorded net loss and increased our recorded accumulated deficit, with an offset to accumulated other comprehensive loss in shareholders' equity for the year ended December 31, 2021. The amount of any future non-cash settlement charges will be dependent on several factors, including the total amount of our future lump sum benefit payments.

Benefit Obligations

The actuarial assumptions used to compute the funded status for the plans are based upon information available as of December 31, 2023 and 2022 and are as follows:

	Combined Pension Plan		Post-Retirement Benefit Plans	
	December 31,		December 31,	
	2023	2022	2023	2022
Actuarial assumptions at end of year:				
Discount rate	5.21 %	5.56 %	5.20 %	5.55 %
Rate of compensation increase	3.25 %	3.25 %	N/A	N/A
Initial health care cost trend rate	N/A	N/A	7.50 % / 5.40 %	7.20 % / 5.00 %
Ultimate health care cost trend rate	N/A	N/A	4.50 %	4.50 %
Year ultimate trend rate is reached	N/A	N/A	2031	2030

N/A - Not applicable

In 2021, we adopted the revised mortality tables and projection scales released by the Society of Actuaries, which increased the projected benefit obligation of our benefit plans by \$ 37 million for 2021. The Society of Actuaries did not release any revised mortality tables or projection scales in 2022 or 2023.

The short-term and long-term interest crediting rates during 2023 for cash balance components of the Combined Pension Plan were 4.0 % and 3.5 %, respectively.

The following tables summarize the change in the benefit obligations for the Combined Pension Plan and post-retirement benefit plans:

Combined Pension Plan Years Ended December 31,			
	2023	2022	2021
(Dollars in millions)			
Change in benefit obligation			
Benefit obligation at beginning of year	\$ 5,295	9,678	12,202
Plan spin-off	—	(2,552)	—
Service cost	25	37	56
Interest cost	270	154	201
Plan amendments	—	—	(13)
Special termination benefits charge	2	—	6
Actuarial loss (gain)	114	(1,432)	(337)
Benefits paid from plan assets	(494)	(590)	(766)
Settlement payments and annuity purchase	—	—	(1,671)
Benefit obligation at end of year	<u>\$ 5,212</u>	<u>5,295</u>	<u>9,678</u>

Post-Retirement Benefit Plans Years Ended December 31,			
	2023	2022	2021
(Dollars in millions)			
Change in benefit obligation			
Benefit obligation at beginning of year	\$ 1,995	2,781	3,048
Benefit obligation transferred to purchaser upon sale of business	—	(26)	—
Service cost	5	10	14
Interest cost	103	72	47
Participant contributions	32	37	41
Direct subsidy receipts	2	2	3
Plan amendments	—	(41)	—
Actuarial loss (gain)	14	(591)	(125)
Benefits paid by company	(228)	(249)	(247)
Benefits paid from plan assets	(4)	—	—
Benefit obligation at end of year	<u>\$ 1,919</u>	<u>1,995</u>	<u>2,781</u>

Plan Assets

We maintain plan assets for our Combined Pension Plan and certain post-retirement benefit plans. As previously noted, assets in the post-retirement benefit plan trusts were substantially depleted as of December 31, 2016. The fair value of post-retirement benefit plan assets was \$ 1 million, \$ 5 million and \$ 5 million at December 31, 2023, 2022 and 2021, respectively. Due to the insignificance of these assets on our consolidated financial statements, we have predominantly excluded them from the disclosures of plan assets in this Note, unless otherwise indicated.

The following table summarizes the change in the fair value of plan assets for the Combined Pension Plan:

	Combined Pension Plan Years Ended December 31,		
	2023	2022	2021
	(Dollars in millions)		
Change in plan assets			
Fair value of plan assets at beginning of year	\$ 4,715	8,531	10,546
Plan spin-off	—	(2,239)	—
Return on plan assets	255	(987)	422
Benefits paid from plan assets	(494)	(590)	(766)
Settlement payments and annuity purchase	—	—	(1,671)
Fair value of plan assets at end of year	<u>\$ 4,476</u>	<u>4,715</u>	<u>8,531</u>

The expected rate of return on plan assets is the long-term rate of return we expect to earn on the plan's assets, net of administrative expenses paid from plan assets. It is determined annually based on the strategic asset allocation and the long-term risk and return forecast for each asset class.

Our investment objective for the Combined Pension Plan assets is to achieve an attractive risk-adjusted return over time that will provide for the payment of benefits and minimize the risk of large losses. We employ a liability-aware investment strategy designed to reduce the volatility of pension assets relative to pension liabilities. This strategy is evaluated frequently and is expected to evolve over time with changes in the funded status and other factors. Approximately 50 % of plan assets is targeted to long-duration investment grade bonds and interest rate sensitive derivatives and 50 % is targeted to diversified equity, fixed income and private market investments that are expected to outperform the liability with moderate funded status risk. At the beginning of 2024, our expected annual long-term rate of return on pension assets before consideration of administrative expenses is assumed to be 7.0 %. Administrative expenses, including projected PBGC (Pension Benefit Guaranty Corporation) premiums, reduce the annual long-term expected return, net of administrative expenses, to 6.5 %.

Permitted investments: Plan assets are managed consistent with the restrictions set forth by the Employee Retirement Income Security Act of 1974, as amended.

Fair Value Measurements: Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between independent and knowledgeable parties who are willing and able to transact for an asset or liability at the measurement date. We use valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs when determining fair value and then we rank the estimated values based on the reliability of the inputs used following the fair value hierarchy set forth by the FASB. For additional information on the fair value hierarchy, see Note 14—Fair Value of Financial Instruments.

At December 31, 2023, we used the following valuation techniques to measure fair value for assets. There were no changes to these methodologies during 2023:

- Level 1—Assets were valued using the closing price reported in the active market in which the individual security was traded. U.S. Treasury securities are valued at the bid price reported in an active market in which the security is traded. Variation margin due from/(to) brokers is valued at the expected next day cash settlement amount.

- Level 2—Assets were valued using quoted prices in markets that are not active, broker dealer quotations, and other methods by which all significant inputs were observable at the measurement date. Fixed income securities primarily utilize observable market information and are based on a spread to U.S. Treasury securities and consider yields available on comparable securities of issuers with similar credit ratings, the new issue market for similar securities, secondary trading markets and dealer quotes. Option adjusted spread models are utilized to evaluate fixed income securities that have early redemption features. Derivative securities traded over the counter are valued based on gains or losses due to fluctuations in indices, interest rates, foreign currency exchange rates, security prices or other underlying factors. Repurchase agreements are valued based on expected settlement per the contract terms.
- Level 3—Assets were valued using unobservable inputs in which little or no market data exists as reported by the respective institutions at the measurement date. Valuation methods may consider a range of factors, including estimates based on the assumptions of the investment entity.

The Combined Pension Plan's assets are invested in various asset categories utilizing multiple strategies and investment managers. Interests in commingled funds are fair valued using a practical expedient to the net asset value ("NAV") per unit (or its equivalent) of each fund. The NAV reported by the fund manager is based on the market value of the underlying investments owned by each fund, minus its liabilities, divided by the number of shares outstanding. Commingled funds can be redeemed at NAV, with a frequency that includes daily, monthly, quarterly, semi-annually and annually. These commingled funds include redemption notice periods between same day and 180 days. Investments in private funds, primarily limited partnerships, represent long-term commitments with a fixed maturity date and are also valued at NAV. The plan has unfunded commitments related to certain private fund investments, which in aggregate are not material to the plan. Valuation inputs for these private fund interests are generally based on assumptions and other information not observable in the market. Underlying investments held in funds are aggregated and are classified based on the fund mandate. Investments held in separate accounts are individually classified.

The table below presents the fair value of plan assets by category and the input levels used to determine those fair values at December 31, 2023. It is important to note that the asset allocations do not include market exposures that are gained with derivatives. Investments include dividend and interest receivables, pending trades and accrued expenses.

Fair Value of Combined Pension Plan Assets at December 31, 2023				
	Level 1	Level 2	Level 3	Total
(Dollars in millions)				
Assets				
Investment grade bonds (a)	\$ 390	1,838	—	2,228
High yield bonds (b)	—	32	4	36
Emerging market bonds (c)	57	57	—	114
U.S. stocks (d)	247	—	1	248
Non-U.S. stocks (e)	6	—	—	6
Multi-asset strategies (l)	28	—	—	28
Total investments, excluding investments valued at NAV	\$ 728	1,927	5	2,660
Liabilities				
Repurchase agreements & other obligations (n)	\$ —	(375)	—	(375)
Derivatives (m)	(1)	—	—	(1)
Investments valued at NAV				2,192
Total pension plan assets				\$ 4,476

The table below presents the fair value of plan assets by category and the input levels used to determine those fair values at December 31, 2022. It is important to note that the asset allocations do not include market exposures that are gained with derivatives. Investments include dividend and interest receivable, pending trades and accrued expenses.

Fair Value of Combined Pension Plan Assets at December 31, 2022				
	Level 1	Level 2	Level 3	Total
(Dollars in millions)				
Assets				
Investment grade bonds (a)	\$ 446	1,720	—	2,166
High yield bonds (b)	—	48	4	52
Emerging market bonds (c)	49	78	—	127
U.S. stocks (d)	214	—	1	215
Non-U.S. stocks (e)	149	1	—	150
Multi-asset strategies (l)	25	—	—	25
Cash equivalents and short-term investments (o)	—	1	—	1
Total investments, excluding investments valued at NAV	\$ 883	1,848	5	2,736
Liabilities				
Repurchase agreements (n)	\$ —	(269)	—	(269)
Derivatives (m)	(1)	(10)	—	(11)
Investments valued at NAV				2,259
Total pension plan assets				\$ 4,715

The table below presents the fair value of plan assets valued at NAV by category for our Combined Pension Plan at December 31, 2023 and 2022.

	Fair Value of Plan Assets Valued at NAV	
	Combined Pension Plan at December 31,	
	2023	2022
	(Dollars in millions)	
Investment grade bonds (a)	\$ 105	99
High yield bonds (b)	110	81
U.S. stocks (d)	51	79
Non-U.S. stocks (e)	412	270
Emerging market stocks (f)	10	15
Private equity (g)	272	326
Private debt (h)	421	438
Market neutral hedge funds (i)	77	135
Directional hedge funds (j)	124	166
Real estate (k)	265	333
Multi-asset strategies (l)	27	24
Cash equivalents and short-term investments (o)	318	293
Total investments valued at NAV	\$ 2,192	2,259

Below is an overview of the asset categories and the underlying strategies used in the preceding tables:

- (a) *Investment grade bonds* represent investments in U.S. Treasury securities, agencies, corporate bonds, mortgage-backed securities, asset-backed securities and commercial mortgage-backed securities.
- (b) *High yield bonds* represent investments in below investment grade fixed income securities.
- (c) *Emerging market bonds* represent investments issued by governments and other entities located in emerging countries.
- (d) *U.S. stocks* represent investments in stocks of U.S. based companies.
- (e) *Non-U.S. stocks* represent investments in companies based in developed countries outside the U.S.
- (f) *Emerging market stocks* represent investments in stocks of companies located in emerging markets.
- (g) *Private equity* represents non-public investments in domestic and foreign buy out and venture capital funds. Private equity funds are primarily structured as limited partnerships and are valued according to the valuation policy of each partnership, subject to prevailing accounting and other regulatory guidelines.
- (h) *Private debt* represents non-public investments in distressed or mezzanine debt.
- (i) *Market neutral hedge funds* hold investments in a diversified mix of instruments that are intended in combination to exhibit low correlations to market fluctuations. These investments are typically combined with futures to achieve uncorrelated excess returns over various markets.
- (j) *Directional hedge funds*—This asset category represents investments that may exhibit somewhat higher correlations to market fluctuations than the market neutral hedge funds.
- (k) *Real estate* represents investments in a diversified portfolio of real estate properties.
- (l) *Multi-asset strategies* represent broadly diversified strategies that have the flexibility to tactically adjust exposures to different asset classes through time.
- (m) *Derivatives* include exchange traded futures contracts as well as privately negotiated over the counter contracts. The market values represent gains or losses that occur due to differences between stated contract terms and fluctuations in underlying market instruments.
- (n) *Repurchase agreements and other obligations* includes contracts where the security owner sells a security with the agreement to buy it back at a future date and price. Other obligations include obligations to repay cash collateral held by a plan, net liability for investment purchases pending settlement, and accrued plan expenses.
- (o) *Cash equivalents and short-term investments* represent investments that are used in conjunction with derivatives positions or are used to provide liquidity for the payment of benefits or other purposes.

Derivative instruments: Derivative instruments are used to reduce risk as well as provide return. The gross notional exposure of the derivative instruments directly held by the Combined Pension Plan is shown below. The notional amount of the derivatives corresponds to market exposure but does not represent an actual cash investment.

Gross Notional Exposure		
Combined Pension Plan		
Years Ended December 31,		
	2023	2022
(Dollars in millions)		
<u>Derivative instruments:</u>		
Exchange-traded U.S. equity futures	\$ 60	70
Exchange-traded Treasury and other interest rate futures	1,136	1,256
Exchange-traded Foreign currency futures	1	2
Interest rate swaps	214	82
Credit default swaps	72	139
Index swaps	94	90
Foreign exchange forwards	57	50
Options	32	251

Concentrations of Risk: Investments, in general, are exposed to various risks, such as significant world events, interest rate, credit, foreign currency and overall market volatility risk. These risks are managed by broadly diversifying assets across numerous asset classes and strategies with differing expected returns, volatilities and correlations. Risk is also broadly diversified across numerous market sectors and individual companies. Financial instruments that potentially subject the plans to concentrations of counterparty risk consist principally of investment contracts with high quality financial institutions. These investment contracts are typically collateralized obligations and/or are actively managed, limiting the amount of counterparty exposure to any one financial institution. Although the investments are well diversified, the value of plan assets could change materially depending upon the overall market volatility, which could affect the funded status of the plan.

The table below presents a rollforward of the Combined Pension Plan assets valued using Level 3 inputs:

Combined Pension Plan Assets Valued Using Level 3 Inputs			
	High Yield Bonds	U.S. Stocks	Total
(Dollars in millions)			
Balance at December 31, 2021	\$ 6	5	11
Dispositions	(1)	(4)	(5)
Actual return on plan assets	(1)	—	(1)
Balance at December 31, 2022	4	1	5
(Dispositions) acquisitions	(2)	—	(2)
Actual return on plan assets	2	—	2
Balance at December 31, 2023	\$ 4	1	5

Certain gains and losses are allocated between assets sold during the year and assets still held at year-end based on transactions and changes in valuations that occurred during the year. These allocations also impact our calculation of net acquisitions and dispositions.

For the year ended December 31, 2023, the investment program produced actual gains on Combined Pension Plan assets of \$ 255 million as compared to expected returns of \$ 287 million, for a difference of \$ 32 million. For the year ended December 31, 2022, the investment program produced actual losses on Combined Pension Plan assets of \$ 987 million as compared to the expected returns of \$ 329 million, for a difference of \$ 1.3 billion. The short-term annual returns on plan assets will almost always be different from the expected long-term returns and the plans could experience net gains or losses, due primarily to the volatility occurring in the financial markets during any given year.

Unfunded Status

The following table presents the unfunded status of the Combined Pension Plan and post-retirement benefit plans:

	Combined Pension Plan		Post-Retirement Benefit Plans	
	Years Ended December 31,		Years Ended December 31,	
	2023	2022	2023	2022
(Dollars in millions)				
Benefit obligation	\$ (5,212)	(5,295)	(1,919)	(1,995)
Fair value of plan assets	4,476	4,715	1	5
Unfunded status	(736)	(580)	(1,918)	(1,990)
Current portion of unfunded status	—	—	(193)	(210)
Non-current portion of unfunded status	\$ (736)	(580)	(1,725)	(1,780)

The current portion of our post-retirement benefit obligations is recorded on our consolidated balance sheets in accrued expenses and other current liabilities-salaries and benefits.

Accumulated Other Comprehensive Loss-Recognition and Deferrals

The following table presents cumulative items not recognized as a component of net periodic benefits expense as of December 31, 2022, items recognized as a component of net periodic benefits expense in 2023, additional items deferred during 2023 and cumulative items not recognized as a component of net periodic benefits expense as of December 31, 2023. The items not recognized as a component of net periodic benefits expense have been recorded on our consolidated balance sheets in accumulated other comprehensive loss:

	As of and for the Years Ended December 31,				
	2022	Recognition of Net Periodic Benefits Expense	Deferrals	Net Change in AOCL	2023
(Dollars in millions)					
Accumulated other comprehensive (loss) income					
Pension plans:					
Net actuarial (loss) gain	\$ (1,752)	80	(147)	(67)	(1,819)
Settlement charge	383	—	—	—	383
Prior service benefit (cost)	17	(7)	—	(7)	10
Deferred income tax benefit (expense)	367	(23)	37	14	381
Total pension plans	(985)	50	(110)	(60)	(1,045)
Post-retirement benefit plans:					
Net actuarial gain (loss)	371	(20)	(14)	(34)	337
Prior service benefit (cost)	37	(8)	—	(8)	29
Curtailment loss	4	—	—	—	4
Deferred income tax (expense) benefit	(104)	7	3	10	(94)
Total post-retirement benefit plans	308	(21)	(11)	(32)	276
Total accumulated other comprehensive (loss) income	\$ (677)	29	(121)	(92)	(769)

The following table presents cumulative items not recognized as a component of net periodic benefits expense as of December 31, 2021, items recognized as a component of net periodic benefits expense in 2022, additional items deferred during 2022 and cumulative items not recognized as a component of net periodic benefits expense as of December 31, 2022. The items not recognized as a component of net periodic benefits expense have been recorded on our consolidated balance sheets in accumulated other comprehensive loss:

As of and for the Years Ended December 31,					
	2021	Recognition of Net Periodic Benefits Expense	Deferrals	Net Change in AOCL	2022
(Dollars in millions)					
Accumulated other comprehensive (loss) income					
Pension plans:					
Net actuarial (loss) gain	\$ (2,564)	688	124	812	(1,752)
Settlement charge	383	—	—	—	383
Prior service benefit (cost)	45	(28)	—	(28)	17
Deferred income tax benefit (expense)	559	(166)	(26)	(192)	367
Total pension plans	(1,577)	494	98	592	(985)
Post-retirement benefit plans:					
Net actuarial (loss) gain	(217)	(3)	591	588	371
Prior service (cost) benefit	(5)	1	41	42	37
Curtailment loss	4	—	—	—	4
Deferred income tax benefit (expense)	54	1	(159)	(158)	(104)
Total post-retirement benefit plans	(164)	(1)	473	472	308
Total accumulated other comprehensive (loss) income	\$ (1,741)	493	571	1,064	(677)

Medicare Prescription Drug, Improvement and Modernization Act of 2003

We sponsor post-retirement health care plans with several benefit options that provide prescription drug benefits that we deem actuarially equivalent to or exceeding Medicare Part D. We recognize the impact of the federal subsidy received under the Medicare Prescription Drug, Improvement and Modernization Act of 2003 in the calculation of our post-retirement benefit obligation and net periodic post-retirement benefit expense.

Other Benefit Plans

Health Care and Life Insurance

We provide health care and life insurance benefits to essentially all of our active employees. We are largely self-funded for the cost of the health care plan. Our health care benefit expense for current employees was \$ 288 million, \$ 296 million and \$ 309 million for the years ended December 31, 2023, 2022 and 2021, respectively. Union-represented employee benefits are based on negotiated collective bargaining agreements. Employees contributed \$ 89 million, \$ 101 million, \$ 120 million for the years ended December 31, 2023, 2022 and 2021, respectively. Our group basic life insurance plans are fully insured and the premiums are paid by us.

401(k) Plans

We sponsor a qualified defined contribution plan covering substantially all of our U.S. employees. Under this plan, employees may contribute a percentage of their annual compensation up to certain maximums, as defined by the plan and by the Internal Revenue Service. Currently, we match a percentage of employee contributions in cash. At December 31, 2023 and 2022, the assets of the plan included approximately 9 million and 10 million shares of our common stock, all of which were the result of the combination of previous employer match and participant directed contributions. We recognized expenses related to this plan of \$ 87 million, \$ 91 million and \$ 96 million for the years ended December 31, 2023, 2022 and 2021, respectively.

Deferred Compensation Plans

We sponsor non-qualified deferred compensation plans for various groups that included certain of our current and former highly compensated employees. The value of liabilities related to these plans was not significant.

(12) Stock-based Compensation

We maintain an equity incentive program that allows our Board of Directors (through its Compensation Committee or a senior officer acting under delegated authority) to grant incentives to certain employees and outside directors in one or more forms, including: incentive and non-qualified stock options, stock appreciation rights, restricted stock awards, restricted stock units and market and performance shares.

Restricted Stock Awards and Restricted Stock Unit Awards

We grant equity based restricted stock and restricted stock units that contain service only conditions for vesting ("Service Awards"), awards that contain both service and market conditions for vesting ("Market Awards") and awards that contain both service and performance conditions for vesting ("Performance Awards"). The fair value of Service Awards is based upon the closing stock price on the accounting grant date and the awards generally vest over periods ranging from one to three years . The fair value of Market Awards is determined using Monte-Carlo simulations and the awards vest over periods up to three years . The number of shares ultimately earned for Market Awards is typically based upon our total shareholder return as compared to the return of selected peer companies and can range between 0 % and 200 % of the target number of shares for the award. The fair value of Performance Awards is based upon the closing stock price on the accounting grant date; however, the award value may increase, or decrease based upon the outcome of the performance conditions. Performance Awards vest over periods of up to three-years and specify a target number of shares for the award. The recipient ultimately can receive between 0 % and 200 % of the target number of shares depending upon the outcome of the performance conditions.

The following table summarizes activity involving restricted stock and restricted stock unit awards for the year ended December 31, 2023:

	Number of Shares (in thousands)	Weighted- Average Grant Date Fair Value
Non-vested at December 31, 2022	27,279	\$ 12.13
Granted	14,787	1.85
Vested	(7,170)	10.10
Forfeited	(6,844)	13.79
Non-vested at December 31, 2023	28,052	6.82

During 2023, we granted 14.8 million shares of restricted stock and restricted stock unit awards at a weighted-average price of \$ 1.85 . During 2022, we granted 18.8 million shares of restricted stock and restricted stock unit awards at a weighted-average price of \$ 11.47 . During 2021, we granted 13.9 million shares of restricted stock and restricted stock unit awards at a weighted-average price of \$ 13.95 . The total fair value of restricted stock and restricted stock unit awards that vested during 2023, 2022 and 2021, was \$ 21 million, \$ 98 million and \$ 139 million, respectively. We do not estimate forfeitures but recognize them as they occur.

Compensation Expense and Tax Benefit

For Service Awards that vest ratably over the service period, we recognize compensation expense on a straight-line basis over the requisite service period for the entire award. For Service Awards that vest at the end of the service period and for Market Awards, we recognize compensation expense over the service period. For our Performance Awards, we recognize compensation expense over the service period and based upon the expected performance outcome, until the final performance outcome is determined. Total compensation expense for all stock-based payment arrangements for the years ended December 31, 2023, 2022 and 2021, was \$ 52 million, \$ 98 million and \$ 120 million, respectively. Our tax benefit recognized in the consolidated statements of operations for our stock-based payment arrangements for the years ended December 31, 2023, 2022 and 2021, was \$ 12 million, \$ 25 million and \$ 29 million, respectively. At December 31, 2023, there was \$ 65 million of total unrecognized compensation expense related to our stock-based payment arrangements, which we expect to recognize over a weighted-average period of 1.5 years.

(13) (Loss) Earnings Per Common Share

Basic and diluted (loss) earnings per common share for the years ended December 31, 2023, 2022 and 2021 were calculated as follows:

	Years Ended December 31,		
	2023	2022	2021
	(Dollars in millions, except per share amounts, shares in thousands)		
(Loss) income (numerator)			
Net (loss) income	\$ (10,298)	(1,548)	2,033
Net (loss) income applicable to common stock for computing basic (loss) earnings per common share	(10,298)	(1,548)	2,033
Net (loss) income as adjusted for purposes of computing diluted (loss) earnings per common share	\$ (10,298)	(1,548)	2,033
Shares (denominator):			
Weighted average number of shares:			
Outstanding during period	1,006,787	1,028,069	1,077,393
Non-vested restricted stock	(23,706)	(20,552)	(17,852)
Weighted average shares outstanding for computing basic (loss) earnings per common share	983,081	1,007,517	1,059,541
Incremental common shares attributable to dilutive securities:			
Shares issuable under convertible securities	—	—	10
Shares issuable under incentive compensation plans	—	—	7,227
Number of shares as adjusted for purposes of computing diluted (loss) earnings per common share	983,081	1,007,517	1,066,778
Basic (loss) earnings per common share	\$ (10.48)	(1.54)	1.92
Diluted (loss) earnings per common share ⁽¹⁾	\$ (10.48)	(1.54)	1.91

⁽¹⁾ For the years ended December 31, 2023 and December 31, 2022, we excluded from the calculation of diluted loss per share 0.3 million and 3.8 million shares, respectively, potentially issuable under incentive compensation plans or convertible securities, as their effect, if included, would have been anti-dilutive.

Our calculation of diluted (loss) earnings per common share excludes shares of common stock that are issuable upon exercise of stock options when the exercise price is greater than the average market price of our common stock. We also exclude unvested restricted stock awards that are antidilutive as a result of unrecognized compensation cost. Such shares were 22.5 million, 13.8 million and 3.2 million for 2023, 2022 and 2021, respectively.

(14) Fair Value of Financial Instruments

Our financial instruments consist of cash, cash equivalents, restricted cash, accounts receivable, accounts payable, long-term debt (excluding finance lease and other obligations), interest rate swap contracts, certain equity investments and certain indemnification obligations. Due primarily to their short-term nature, the carrying amounts of our cash, cash equivalents, restricted cash, accounts receivable and accounts payable approximate their fair values.

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between independent and knowledgeable parties who are willing and able to transact for an asset or liability at the measurement date. We use valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs when determining fair value and then we rank the estimated values based on the reliability of the inputs using the below-described fair value hierarchy.

We determined the fair values of our long-term debt, including the current portion, based on quoted market prices where available or, if not available, based on inputs other than quoted market prices in active markets that are either directly or indirectly observable such as discounted future cash flows using current market interest rates.

The three input levels in the hierarchy of fair value measurements are defined by the FASB generally as follows:

Input Level	Description of Input
Level 1	Observable inputs such as quoted market prices in active markets.
Level 2	Inputs other than quoted prices in active markets that are either directly or indirectly observable.
Level 3	Unobservable inputs in which little or no market data exists.

The following table presents the carrying amounts and estimated fair values of our following financial assets and liabilities as of December 31, 2023 and 2022:

	Input Level	As of December 31, 2023		As of December 31, 2022	
		Carrying Amount	Fair Value	Carrying Amount	Fair Value
		(Dollars in millions)			
Equity securities ⁽¹⁾	1	\$ —	—	22	22
Long-term debt, excluding finance lease and other obligations	2	19,703	13,304	20,255	17,309
Indemnifications related to the sale of the Latin American business ⁽²⁾	3	86	86	86	86

⁽¹⁾ For the years ended December 31, 2023 and 2022, we recognized a \$ 22 million and a \$ 109 million of loss on equity securities in other (expense) income, net in our consolidated statements of operations.

⁽²⁾ Nonrecurring fair value is measured as of August 1, 2022.

Investment Held at Net Asset Value

We hold an investment in a limited partnership created as a holding company for various investments. The limited partnership has sole discretion as to the amount and timing of distributions of the underlying assets. As of December 31, 2023, the underlying investments held by the limited partnership were traded in active markets and as such, we account for our investment in the limited partnership using net asset value ("NAV"). Subject to restrictions imposed by law and other provisions of the limited partnership agreement, the general partner has the sole discretion as to the amounts and timing of distributions of partnership assets to partners. The following table summarizes the net asset value of our investment in this limited partnership.

	As of December 31, 2023	As of December 31, 2022
	Net Asset Value	
	(Dollars in millions)	
Investment in limited partnership ⁽¹⁾	\$ 10	85

⁽¹⁾ For the years ended December 31, 2023 and December 31, 2022, we recognized \$ 75 million and \$ 83 million of loss on investment, respectively, reflected in other (expense) income, net in our consolidated statement of operations.

(15) Derivative Financial Instruments

From time to time, we use derivative financial instruments, primarily interest rate swaps, to manage our exposure to fluctuations in interest rates. Our primary objective in managing interest rate risk is to decrease the volatility of our earnings and cash flows affected by changes in the underlying rates. We have floating rate long-term debt (see Note 7—Long-Term Debt and Credit Facilities). These obligations expose us to variability in interest payments due to changes in interest rates. If interest rates increase, our interest expense increases. Conversely, if interest rates decrease, our interest expense also decreases. Through their expiration on June 30, 2022, we designated the interest rate swap agreements described below as cash flow hedges. Under these hedges, we received variable-rate amounts from a counterparty in exchange for us making fixed-rate payments over the lives of the agreements without exchange of the underlying notional amount. The change in the fair value of the interest rate swap agreements was reflected in accumulated other comprehensive loss and was subsequently reclassified into earnings in the period that the hedged transaction affected earnings by virtue of qualifying as effective cash flow hedges. We do not use derivative financial instruments for speculative purposes.

In 2019, we entered into variable-to-fixed interest rate swap agreements to hedge the interest on \$ 4.0 billion notional amount of floating rate debt. As of December 31, 2021, we evaluated the effectiveness of our remaining hedges quantitatively and determined that hedges in effect on such dates qualified as effective hedge relationships. All remaining hedges were expired as of December 31, 2022.

Amounts accumulated in accumulated other comprehensive loss related to derivatives were indirectly recognized in earnings as periodic settlement payments were made throughout the term of the swaps.

The amount of unrealized losses recognized in accumulated other comprehensive loss consists of the following (in millions):

Derivatives designated as hedging instruments

Cash flow hedging contracts

Year Ended December 31, 2021	\$ 1
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The amount of realized losses reclassified from accumulated other comprehensive loss to the statement of operations consists of the following (in millions):

Derivatives designated as hedging instruments

Cash flow hedging contracts

	2022	2021
Years Ended December 31,	\$ 22	83

For the year ended December 31, 2022, amounts included in accumulated other comprehensive loss at the beginning of the period were reclassified into earnings upon the settlement of the cash flow hedging contracts on March 31, 2022 and June 30, 2022. During the year ended December 31, 2022, \$ 19 million of net losses on the interest rate swaps have been reflected in our consolidated statements of operations upon settlement of the agreements in the first half of 2022.

(16) Income Taxes

The components of the income tax expense are as follows:

	Years Ended December 31,		
	2023	2022	2021
	(Dollars in millions)		
Income tax expense:			
Federal			
Current	\$ 7	838	5
Deferred	(2)	(332)	514
State			
Current	(6)	283	42
Deferred	55	(191)	72
Foreign			
Current	—	32	23
Deferred	7	(73)	12
Total income tax expense	\$ 61	557	668

	Years Ended December 31,		
	2023	2022	2021
	(Dollars in millions)		
Income tax expense was allocated as follows:			
Income tax expense in the consolidated statements of operations:			
Attributable to income	\$ 61	557	668
Stockholders' equity:			
Tax effect of the change in accumulated other comprehensive loss	\$ (21)	297	222

The following is a reconciliation from the statutory federal income tax rate to our effective income tax rate:

	Years Ended December 31,		
	2023	2022	2021
	(Percentage of pre-tax (loss) income)		
Statutory federal income tax rate	21.0 %	21.0 %	21.0 %
State income taxes, net of federal income tax benefit	(0.2)%	(8.8)%	3.3 %
Goodwill impairment	(21.9)%	(68.9)%	— %
Change in liability for unrecognized tax position	(0.1)%	(0.2)%	0.1 %
Nondeductible executive stock compensation	— %	(0.1)%	0.2 %
Change in valuation allowance	1.3 %	0.9 %	— %
Net foreign income taxes	— %	3.0 %	0.6 %
Research and development credits	0.1 %	1.1 %	(0.5)%
Divestitures of businesses ⁽¹⁾	(0.4)%	(4.0)%	— %
Other, net	(0.4)%	(0.2)%	— %
Effective income tax rate	(0.6)%	(56.2)%	24.7 %

⁽¹⁾ Includes GILTI (as defined below) incurred as a result of the sale of our Latin American business.

The effective tax rate for the year ended December 31, 2023 includes a \$ 2.2 billion unfavorable impact of a non-deductible goodwill impairment and a \$ 137 million favorable impact as a result of utilizing available capital losses generated by the sale of our Latin American business in 2022. The effective tax rate for the year ended December 31, 2022 includes a \$ 682 million unfavorable impact of non-deductible goodwill impairments and \$ 128 million unfavorable impact related to incurring tax on Global Intangible Low-Tax Income ("GILTI") as a result of the sale of our Latin American business.

The tax effects of temporary differences that gave rise to significant portions of the deferred tax assets and deferred tax liabilities were as follows:

	As of December 31,	
	2023	2022 ⁽¹⁾
	(Dollars in millions)	
Deferred tax assets		
Post-retirement and pension benefit costs	\$ 659	725
Net operating loss carryforwards	794	871
Other employee benefits	23	85
Other	511	519
Gross deferred tax assets	1,987	2,200
Less valuation allowance	(399)	(550)
Net deferred tax assets	1,588	1,650
Deferred tax liabilities		
Property, plant and equipment, primarily due to depreciation differences	(3,332)	(3,046)
Goodwill and other intangible assets	(1,271)	(1,634)
Gross deferred tax liabilities	(4,603)	(4,680)
Net deferred tax liability	\$ (3,015)	(3,030)

⁽¹⁾ Excludes \$ 138 million of deferred tax assets and \$ 38 million of deferred tax liabilities related to the EMEA business sold November 1, 2023, that were classified as held for sale as of December 31, 2022.

Of the \$ 3.0 billion net deferred tax liability at December 31, 2023 and 2022, respectively, \$ 3.1 billion and \$ 3.2 billion is reflected as a long-term liability and \$ 112 million and \$ 133 million is reflected as a net noncurrent deferred tax asset, in other, net on our consolidated balance sheets at December 31, 2023 and 2022, respectively.

Income taxes receivable as of December 31, 2023 was \$ 273 million and income taxes payable as of December 31, 2022 was \$ 943 million.

At December 31, 2023, we had federal NOLs of approximately \$ 800 million, net of expirations from Section 382 limitations and uncertain tax positions, for U.S. federal income tax purposes. We expect to use substantially all of these tax attributes to reduce our future federal tax liabilities, although the timing of that use will depend upon our future earnings and future tax circumstances. Our ability to use these NOLs is subject to annual limits imposed by Section 382. As a result, we anticipate that our cash income tax liabilities will increase in future periods. If unused, the NOLs will expire between 2026 and 2029.

At December 31, 2023 we had state net operating loss carryforwards of \$ 13 billion (net of uncertain tax positions). Our ability to use these NOLs is subject to annual limits imposed by Section 382.

We establish valuation allowances when necessary to reduce the deferred tax assets to amounts we expect to realize. As of December 31, 2023, we established a valuation allowance of \$ 399 million as it is more likely than not that this amount of net operating loss will not be utilized prior to expiration. Our valuation allowance at December 31, 2023 and 2022 is primarily related to NOL carryforwards. This valuation allowance decreased by \$ 151 million during 2023, primarily due to the impact of utilization of available capital losses.

A reconciliation of the change in our gross unrecognized tax benefits (excluding both interest and any related federal benefit) from January 1 to December 31 for 2023 and 2022 is as follows:

	2023	2022
	(Dollars in millions)	
Unrecognized tax benefits at beginning of year	\$ 1,318	1,375
Decrease in tax positions of prior periods netted against deferred tax assets	(411)	(661)
(Decrease) increase in tax positions taken in the current year	(73)	634
Increase (decrease) in tax positions taken in the prior year	752	(3)
Decrease due to payments/settlements	(1)	—
Decrease from the lapse of statute of limitations	(52)	—
Decrease related to divestitures of businesses	\$ (109)	(27)
Unrecognized tax benefits at end of year	<u>\$ 1,424</u>	<u>1,318</u>

As of December 31, 2023 the total amount of unrecognized tax benefits that, if recognized, would impact the effective income tax rate was \$ 280 million. The unrecognized tax benefits also includes tax positions that, if recognized, would result in adjustments to other tax accounts, primarily deferred taxes, that would not impact the effective tax rate but could impact cash tax amounts payable to taxing authorities.

Our policy is to reflect interest expense associated with unrecognized tax benefits in income tax expense. We had accrued interest (presented before related tax benefits) of approximately \$ 100 million and \$ 26 million at December 31, 2023 and 2022, respectively.

We, or at least one of our subsidiaries, file income tax returns in the U.S. federal jurisdiction and various states and foreign jurisdictions. With few exceptions, we are no longer subject to U.S. federal, state and local, or non-U.S. income tax examinations by tax authorities for years before 2004. The Internal Revenue Service and state and local taxing authorities reserve the right to audit any period where net operating loss carryforwards are available.

Based on our current assessment of various factors, including (i) the potential outcomes of these ongoing examinations, (ii) the expiration of statute of limitations for specific jurisdictions, (iii) the negotiated settlement of certain disputed issues, and (iv) the administrative practices of applicable taxing jurisdictions, it is reasonably possible that the related unrecognized tax benefits for uncertain tax positions previously taken may decrease by up to \$ 676 million within the next 12 months. The actual amount of such decrease, if any, will depend on several future developments and events, many of which are outside our control.

In August 2022, the Inflation Reduction Act was signed into law and which, among other things, implemented a corporate alternative minimum tax ("CAMT") on adjusted financial statement income effective for tax periods occurring after December 31, 2022. The CAMT had no material impact on our financial results as of December 31, 2023. In addition, the Organization for Economic Co-operation and Development has issued Pillar Two model rules introducing a new global minimum tax of 15% intended to be effective on January 1, 2024. While the US has not yet adopted the Pillar Two rules, various other governments around the world are enacting legislation, some of which are effective for tax periods after December 31, 2023. While the global minimum tax will increase our administrative and compliance burdens, it is expected to have an immaterial impact to our financial statements.

(17) Segment Information

We report our results within two segments: Business and Mass Markets.

Under our Business segment we provide products and services to meet the needs of our enterprise and wholesale customers under four distinct sales channels: Large Enterprise, Mid-Market Enterprise, Public Sector and Wholesale. For Business segment revenue, we report the following product categories: Grow, Nurture, Harvest and Other, in each case through the sales channels outlined above. The Business segment included the results of our Latin American, ILEC and EMEA businesses prior to their sales on August 1, 2022, October 3, 2022 and November 1, 2023, respectively.

Under our Mass Markets Segment, we provide products and services to residential and small business customers. We report the following product categories: Fiber Broadband, Other Broadband and Voice and Other. The Mass Markets segment included the results of our ILEC business prior to its sale on October 3, 2022.

See detailed descriptions of these product and service categories in Note 4—Revenue Recognition.

As described in more detail below, our segments are managed based on the direct costs of providing services to their customers and directly associated selling, general and administrative costs (primarily salaries and commissions). Shared costs are managed separately and included in "other unallocated expense" in the table included below "—Revenue and Expenses". As referenced above, we reclassified certain prior period amounts to conform to the current period presentation. See Note 1—Background and Summary of Significant Accounting Policies for additional detail on these changes.

The following tables summarize our segment results for 2023, 2022 and 2021 based on the segment categorization we were operating under at December 31, 2023.

	Year Ended December 31, 2023	
	Business	Mass Markets
	(Dollars in millions)	
Segment revenue	\$ 11,535	3,022
Segment expense		
Cost of services and products	3,138	92
Selling, general and administrative	1,232	1,341
Total expense	4,370	1,433
Total segment adjusted EBITDA	\$ 7,165	1,589

	Year Ended December 31, 2022	
	Business	Mass Markets
	(Dollars in millions)	
Segment revenue	\$ 13,041	4,437
Segment expense		
Cost of services and products	3,257	124
Selling, general and administrative	1,215	1,623
Total expense	4,472	1,747
Total segment adjusted EBITDA	\$ 8,569	2,690

	Year Ended December 31, 2021	
	Business	Mass Markets
	(Dollars in millions)	
Segment revenue	\$ 14,119	5,568
Segment expense		
Cost of services and products	3,488	153
Selling, general and administrative	1,273	1,685
Total expense	4,761	1,838
Total segment adjusted EBITDA	\$ 9,358	3,730

Revenue and Expenses

Our segment revenue includes all revenue from our two segments as described in more detail above. Our segment revenue is based upon each customer's classification. We report our segment revenue based upon all services provided to that segment's customers. Our segment expenses include specific cost of service expenses incurred as a direct result of providing services and products to segment customers, along with selling, general and administrative expenses that are directly associated with specific segment customers or activities. We have not allocated assets or debt to specific segments.

The following items are excluded from our segment results, because they are centrally managed and not monitored by or reported to our chief operating decision maker by segment:

- network expenses not incurred as a direct result of providing services and products to segment customers and centrally managed expenses such as Finance, Human Resources, Legal, Marketing, Product Management and IT, all of which are reported as "other unallocated expense" in the table below;
- depreciation and amortization expense;
- goodwill or other impairments;
- interest expense;
- stock-based compensation; and
- other income and expense items.

The following table reconciles total segment adjusted EBITDA to net (loss) income for the years ended December 31, 2023, 2022 and 2021:

	Years Ended December 31,		
	2023	2022	2021
	(Dollars in millions)		
Total segment adjusted EBITDA	\$ 8,754	11,259	13,088
Depreciation and amortization	(2,985)	(3,239)	(4,019)
Goodwill impairment	(10,693)	(3,271)	—
Other unallocated expense	(4,608)	(4,556)	(4,664)
Stock-based compensation	(52)	(98)	(120)
Operating (loss) income	(9,584)	95	4,285
Total other expense, net	(653)	(1,086)	(1,584)
(Loss) income before income taxes	(10,237)	(991)	2,701
Income tax expense	61	557	668
Net (loss) income	\$ (10,298)	(1,548)	2,033

We do not have any single customer that comprises more than 10% of our consolidated total operating revenue.

The assets we hold outside of the U.S. represent less than 10% of our total assets. Revenue from sources outside of the U.S. comprises less than 10% of our total operating revenue.

(18) Commitments, Contingencies and Other Items

We are subject to various claims, legal proceedings and other contingent liabilities, including the matters described below, which individually or in the aggregate could materially affect our financial condition, future results of operations or cash flows. As a matter of course, we are prepared to both litigate these matters to judgment as needed, as well as to evaluate and consider reasonable settlement opportunities.

We review our litigation accrual liabilities on a quarterly basis, but in accordance with applicable accounting guidelines only establish accrual liabilities when losses are deemed probable and reasonably estimable and only revise previously-established accrual liabilities when warranted by changes in circumstances, in each case based on then-available information. As such, as of any given date we could have exposure to losses under proceedings as to which no liability has been accrued or as to which the accrued liability is inadequate. Subject to these limitations, at December 31, 2023 and December 31, 2022, we had accrued \$ 84 million and \$ 88 million, respectively, in the aggregate for our litigation and non-income tax contingencies, which is included in other current liabilities or other liabilities in our consolidated balance sheet as of such date. We cannot at this time estimate the reasonably possible loss or range of loss in excess of this \$ 84 million accrual due to the inherent uncertainties and speculative nature of contested proceedings. The establishment of an accrual does not mean that actual funds have been set aside to satisfy a given contingency. Thus, the resolution of a particular contingency for the amount accrued could have no effect on our results of operations but nonetheless could have an adverse effect on our cash flows.

In this Note, when we refer to a class action as "putative" it is because a class has been alleged, but not certified, in that matter.

Principal Proceedings

Shareholder Class Action Suits

Lumen and certain Lumen Board of Directors members and officers were named as defendants in a putative shareholder class action lawsuit filed on June 12, 2018 in the Boulder County District Court of the state of Colorado, captioned Houser et al. v. CenturyLink, et al. The complaint asserted claims on behalf of a putative class of former Level 3 shareholders who became CenturyLink, Inc. shareholders as a result of our acquisition of Level 3. It alleged that the proxy statement provided to the Level 3 shareholders failed to disclose various material information of several kinds, including information about strategic revenue, customer loss rates, and customer account issues, among other items. The complaint seeks damages, costs and fees, rescission, rescissory damages, and other equitable relief. In May 2020, the court dismissed the complaint. Plaintiffs appealed that decision, and in March 2022, the appellate court affirmed the district court's order in part and reversed it in part. It then remanded the case to the district court for further proceedings. Plaintiff filed an amended complaint, and we filed a motion to dismiss. The court granted our motion to dismiss and the plaintiffs have appealed that dismissal.

On March 3, 2023, a purported shareholder of Lumen filed a putative class action complaint captioned Voigt v. Lumen Technologies, Inc., et al., Case 3:23-cv-00286-TAD-KDM, in the U.S. District Court for the Western District of Louisiana. The complaint alleges that Lumen and certain of its current or former officers violated the federal securities laws by omitting or misstating material information related to Lumen's expansion of its Quantum Fiber business. The complaint seeks money damages, attorneys' fees and costs, and other relief.

On September 15, 2023, a purported shareholder of Lumen filed a putative class action complaint captioned McLemore v. Lumen Technologies, Inc., et al., Case 3:23-cv-01290, in the U.S. District Court for the Western District of Louisiana. The complaint alleges that Lumen and certain of its current or former officers violated the federal securities laws by omitting or misstating material information related to Lumen's responsibility for environmental degradation allegedly caused by the lead sheathing of certain telecommunications cables. The complaint seeks money damages, attorneys' fees and costs, and other relief.

State Tax Suits

Since 2012, a number of Missouri municipalities have asserted claims in the Circuit Court of St. Louis County, Missouri, alleging that we and several of our subsidiaries have underpaid taxes. These municipalities are seeking, among other things, declaratory relief regarding the application of business license and gross receipts taxes and back taxes from 2007 to the present, plus penalties and interest. In a February 2017 ruling in connection with one of these pending cases, the court entered an order awarding the plaintiffs \$ 4 million and broadening the tax base on a going-forward basis. We appealed that decision to the Missouri Supreme Court. In December 2019, it affirmed the circuit court's order in some respects and reversed it in others, remanding the case to the circuit court for further proceedings. The Missouri Supreme Court's decision reduced our exposure in the case. In a June 2021 ruling in one of the pending cases, another trial court awarded the cities of Columbia and Joplin approximately \$ 55 million, plus statutory interest. On appeal, the Missouri Court of Appeals affirmed in part and reversed in part, vacated the judgment and remanded the case to the trial court with instructions for further proceedings consistent with the Missouri Supreme Court's decision. We continue to vigorously defend against these claims.

Billing Practices Suits

In June 2017, a former employee filed an employment lawsuit against us claiming that she was wrongfully terminated for alleging that we charged some of our retail customers for products and services they did not authorize. Thereafter, based in part on the allegations made by the former employee, several legal proceedings were filed, including consumer class actions in federal and state courts, a series of securities investor class actions in federal courts and several shareholder derivative actions in federal and Louisiana state courts. The derivative cases were brought on behalf of CenturyLink, Inc. against certain current and former officers and directors of the Company and seek damages for alleged breaches of fiduciary duties.

The consumer class actions, the securities investor class actions, and the federal derivative actions were transferred to the U.S. District Court for the District of Minnesota for coordinated and consolidated pretrial proceedings as In Re: CenturyLink Sales Practices and Securities Litigation. We have settled the consumer and securities investor class actions and the derivative actions.

We have engaged in discussions regarding related claims with a number of state attorneys general, and have entered into agreements settling certain of the consumer practices claims asserted by state attorneys general. While we do not agree with allegations raised in these matters, we have been willing to consider reasonable settlements where appropriate.

December 2018 Outage Proceedings

We experienced an outage on one of our transport networks that impacted voice, IP, 911, and transport services for some of our customers between the 27th and 29th of December 2018. We believe that the outage was caused by a faulty network management card from a third-party equipment vendor.

The FCC and four states (both Washington Utilities and Transportation Commission ("WUTC") and the Washington Attorney General; the Montana Public Service Commission; the Nebraska Public Service Commission; and the Wyoming Public Service Commission) initiated formal investigations. In November 2020, following the FCC's release of a public report on the outage, we negotiated a settlement which was released by the FCC in December 2020. The amount of the settlement was not material to our financial statements.

In December 2020, the Staff of the WUTC filed a complaint against us based on the December 2018 outage, seeking penalties of approximately \$ 7 million for alleged violations of Washington regulations and laws. The Washington Attorney General's office sought penalties of \$ 27 million. Following trial before the WUTC, it issued an order in June 2023 penalizing us for approximately \$ 1 million. We and the Washington Attorney General's office have both filed for reconsideration. Those motions are pending.

Latin American Tax Litigation and Claims

In connection with the 2022 divestiture of our Latin American business, the purchaser assumed responsibility for the Peruvian tax litigation and Brazilian tax claims described in our prior periodic reports filed with the SEC. We agreed to indemnify the purchaser for amounts paid in respect of the Brazilian tax claims. The value of this indemnification is included in the indemnification amount as disclosed in Note 14—Fair Value of Financial Instruments.

Huawei Network Deployment Investigations

Lumen has received requests from the following federal agencies for information relating to the use of equipment manufactured by Huawei Technologies Company ("Huawei") in Lumen's networks.

- DOJ. Lumen has received a civil investigative demand from the U.S. Department of Justice in the course of a False Claims Act investigation alleging that Lumen Technologies, Inc. and Lumen Technologies Government Solutions, Inc. failed to comply with the requirements in federal contracts concerning their use of Huawei equipment.
- FCC. The FCC's Enforcement Bureau issued a Letter of Inquiry to Lumen Technologies, Inc. regarding its written certifications to the FCC that Lumen has complied with FCC rules governing the use of resources derived from the High Cost Program, Lifeline Program, Rural Health Care Program, E-Rate Program, Emergency Broadband Benefit Program, and the Affordable Connectivity Program. Under these programs, federal funds may not be used to facilitate the deployment or maintenance of equipment or services provided by Huawei, a company that the FCC has determined poses a national security threat to the integrity of communications networks or the communications supply chain.
- Team Telecom. The Committee for the Assessment of Foreign Participation in the United States Telecommunications Service Sector (comprised of the U.S. Attorney General, and the Secretaries of the Department of Homeland Security, and the Department of Defense), commonly referred to as Team Telecom, issued questions and requests for information relating to Lumen's FCC licenses and its use of Huawei equipment.

We are cooperating with the investigations.

Marshall Fire Litigation

On December 30, 2021, a wildfire referred to as the Marshall Fire ignited near Boulder, Colorado. The Marshall Fire killed two people, and it burned thousands of acres, including entire neighborhoods. Approximately 300 lawsuits naming various defendants and asserting various claims for relief have been filed. To date, three of those name our affiliate Qwest Corporation as being at fault: Allstate Fire and Casualty Insurance Company, et al., v. Qwest Corp., et al., Case No. 2023-cv-3048, and Wallace, et al. v. Qwest Corp., et al, Case No. 2023-cv-30488, both of which have been consolidated with Kupfner et al v Public Service Company of Colorado, et al. Case No. 2022-cv-30195. The consolidated proceeding is pending in Colorado District Court, Boulder, Colorado. Preliminary estimates of potential damage claims exceed \$ 2 billion. Qwest is vigorously defending the claims.

911 Surcharge

In June 2021, the Company was served with a complaint filed in the Santa Fe County District Court by Phone Recovery Services, LLC ("PRS"), acting on behalf of the State of New Mexico. The complaint claims Qwest Corporation and CenturyTel of the Southwest have violated the New Mexico Fraud Against Taxpayers Act since 2004 by failing to bill, collect and remit certain 911 surcharges from customers. Through pre-trial proceedings, the Court has narrowed the issues to be resolved by jury, ruling that Lumen bears the burden of proving that its actions were reasonable or known and approved by the State. Qwest is defending the New Mexico claims vigorously, as it has done successfully with other 911 claims involving PRS in other states.

Other Proceedings, Disputes and Contingencies

From time to time, we are involved in other proceedings incidental to our business, including patent infringement allegations, regulatory hearings relating primarily to our rates or services, actions relating to employee claims, various tax issues, environmental law issues, grievance hearings before labor regulatory agencies and miscellaneous third-party tort actions or commercial disputes.

We are currently defending several patent infringement lawsuits asserted against us by non-practicing entities, many of which are seeking substantial recoveries. These cases have progressed to various stages and one or more may go to trial within the next twelve months if they are not otherwise resolved. Where applicable, we are seeking full or partial indemnification from our vendors and suppliers. As with all litigation, we are vigorously defending these actions and, as a matter of course, are prepared to litigate these matters to judgment, as well as to evaluate and consider all reasonable settlement opportunities.

We are subject to various foreign, federal, state and local environmental protection and health and safety laws. From time to time, we are subject to judicial and administrative proceedings brought by various governmental authorities under these laws. Several such proceedings are currently pending, but none is reasonably expected to exceed \$ 300,000 in fines and penalties. In addition, in the past we acquired companies that had installed lead-sheathed cables several decades earlier, or had operated certain manufacturing companies in the first part of the 1900s. Under applicable environmental laws, we could be named as a potentially responsible party for a share of the remediation of environmental conditions arising from the historical operations of our predecessors.

The outcome of these other proceedings described under this heading is not predictable. However, based on current circumstances, we do not believe that the ultimate resolution of these other proceedings, after considering available defenses and any insurance coverage or indemnification rights, will have a material adverse effect on us.

The matters listed in this Note do not reflect all of our contingencies. The ultimate outcome of the above-described matters may differ materially from the outcomes anticipated, estimated, projected or implied by us in certain of our statements appearing above in this Note, and proceedings currently viewed as immaterial by us may ultimately materially impact us.

Right-of-Way

At December 31, 2023, our future rental commitments and Right-of-Way ("ROW") agreements were as follows:

	Future Rental Commitments and ROW Agreements	
	(Dollars in millions)	
2024	\$	184
2025		64
2026		60
2027		59
2028		51
2029 and thereafter		676
Total future minimum payments	\$	1,094

Purchase Commitments

We have several commitments primarily for marketing activities and support services from a variety of vendors to be used in the ordinary course of business totaling \$ 1.0 billion at December 31, 2023. Of this amount, we expect to purchase \$ 403 million in 2024, \$ 378 million in 2025 through 2026, \$ 78 million in 2027 through 2028 and \$ 127 million in 2029 and thereafter. These amounts do not represent our entire anticipated purchases in the future, but represent only those items for which we were contractually committed as of December 31, 2023.

(19) Other Financial Information

Other Current Assets

The following table presents details of other current assets reflected in our consolidated balance sheets:

	As of December 31,	
	2023	2022 ⁽¹⁾
	(Dollars in millions)	
Prepaid expenses	\$ 395	319
Income tax receivable	273	—
Materials, supplies and inventory	209	236
Contract assets	19	20
Contract acquisition costs	107	123
Contract fulfillment costs	102	100
Other	14	5
Total other current assets	\$ 1,119	803

⁽¹⁾ Excludes \$ 59 million of other current assets related to the EMEA business sold on November 1, 2023 that were classified as held for sale as of December 31, 2022.

Included in accounts payable at December 31, 2023 and 2022 were \$ 274 million and \$ 265 million, respectively, associated with capital expenditures.

(20) Repurchases of Lumen Common Stock

During the fourth quarter of 2022, our Board of Directors authorized a two-year program to repurchase up to an aggregate of \$ 1.5 billion of our outstanding common stock. During the year ended December 31, 2023, we did not repurchase any shares of our outstanding common stock under this program. During the year ended December 31, 2022, we repurchased under this program 33 million shares of our outstanding common stock in the open market for an aggregate market price of \$ 200 million, or an average purchase price of \$ 6.07 per share. All repurchased common stock has been retired. As a result, common stock and additional paid-in capital were reduced as of December 31, 2022 by \$ 33 million and \$ 167 million, respectively.

On August 3, 2021, our Board of Directors authorized a 24 -month program to repurchase up to an aggregate of \$ 1.0 billion of our outstanding common stock. During the year ended December 31, 2021, we repurchased under this program 80.9 million shares of our outstanding common stock in the open market for an aggregate market price of \$ 1.0 billion, or an average purchase price of \$ 12.36 per share, thereby fully exhausting the program. All repurchased common stock has been retired. As a result, common stock and additional paid-in capital were reduced as of December 31, 2021 by \$ 81 million and \$ 919 million, respectively.

Any repurchases made in 2024 or thereafter will be subject to a non-deductible 1% excise tax on the fair market value of the stock under the Inflation Reduction Act of 2022.

(21) Accumulated Other Comprehensive Loss

Information Relating to 2023

The table below summarizes changes in accumulated other comprehensive loss recorded on our consolidated balance sheet by component for the year ended December 31, 2023:

	Pension Plans	Post-Retirement Benefit Plans	Foreign Currency Translation Adjustment and Other	Total
	(Dollars in millions)			
Balance at December 31, 2022	\$ (985)	308	(422)	(1,099)
Other comprehensive loss before reclassifications	(110)	(11)	(1)	(122)
Amounts reclassified from accumulated other comprehensive loss	50	(21)	382	411
Net current-period other comprehensive (loss) income	(60)	(32)	381	289
Balance at December 31, 2023	\$ (1,045)	276	(41)	(810)

The table below presents further information about our reclassifications out of accumulated other comprehensive loss by component for the year ended December 31, 2023:

Year Ended December 31, 2023	(Decrease) Increase in Net Loss	Affected Line Item in Consolidated Statement of Operations
	(Dollars in millions)	
Amortization of pension & post-retirement plans ⁽¹⁾		
Net actuarial loss	\$ 82	Other (expense) income, net
Prior service cost	(15)	Other (expense) income, net
Total before tax	67	
Income tax benefit	(16)	Income tax expense
Net of tax	\$ 51	
	Reclassification out of Accumulated Other Comprehensive Loss	Affected line item in Consolidated Balance Sheets and Consolidated Statement of Operations
Year Ended December 31, 2023		
Reclassification of realized loss on foreign currency translation to valuation allowance within assets held for sale ⁽²⁾	\$ 389	Assets held for sale
Reclassification of realized loss on foreign currency translation to loss on sale of business ⁽³⁾	(7)	Net loss (gain) on sale of businesses
Subtotal reclassification of realized loss on foreign currency	382	
Reclassification of net actuarial loss to valuation allowance within assets held for sale ⁽²⁾	(24)	Assets held for sale
Reclassification of net actuarial gain to loss on sale of business ⁽³⁾	2	Net loss (gain) on sale of businesses
Subtotal reclassification of net actuarial loss	(22)	
Income tax benefit	—	Income tax expense
Net of tax	\$ 360	

⁽¹⁾ See Note 11—Employee Benefits for additional information on our net periodic benefit (expense) income related to our pension and post-retirement plans.

⁽²⁾ Recognized in net income through net loss (gain) on sale of business for the year ended December 31, 2022 and included in our valuation allowance in assets held for sale as of December 31, 2022.

⁽³⁾ (Decrease) increase to net loss for the year ended December 31, 2023.

Information Relating to 2022

The table below summarizes changes in accumulated other comprehensive loss recorded on our consolidated balance sheet by component for the year ended December 31, 2022:

	Pension Plans	Post-Retirement Benefit Plans	Foreign Currency Translation Adjustment and Other	Interest Rate Swap	Total
(Dollars in millions)					
Balance at December 31, 2021	\$ (1,577)	(164)	(400)	(17)	(2,158)
Other comprehensive income (loss) before reclassifications	98	473	(134)	—	437
Amounts reclassified from accumulated other comprehensive loss	494	(1)	112	17	622
Net current-period other comprehensive income (loss)	592	472	(22)	17	1,059
Balance at December 31, 2022	\$ (985)	308	(422)	—	(1,099)

The table below presents further information about our reclassifications out of accumulated other comprehensive loss by component for the year ended December 31, 2022:

Year Ended December 31, 2022	(Decrease) Increase in Net Loss	Affected Line Item in Consolidated Statement of Operations
(Dollars in millions)		
Interest rate swap	\$ 22	Interest expense
Income tax benefit	(5)	Income tax expense
Net of tax	\$ 17	
Amortization of pension & post-retirement plans ⁽¹⁾		
Net actuarial loss	\$ 121	Other (expense) income, net
Settlement charge	(2)	Other (expense) income, net
Reclassification of net actuarial loss and prior service credit to gain on the sale of business	539	Net loss (gain) on sale of businesses
Total before tax	658	
Income tax benefit	(165)	Income tax expense
Net of tax	\$ 493	
Reclassification of realized loss on foreign currency translation to loss (gain) on sale of businesses	\$ 112	Net loss (gain) on sale of businesses
Income tax benefit	—	Income tax expense
Net of tax	\$ 112	

⁽¹⁾ See Note 11—Employee Benefits for additional information on our net periodic benefit (expense) income related to our pension and post-retirement plans.

(22) Labor Union Contracts

As of December 31, 2023, approximately 21 % of our employees were represented by the Communications Workers of America ("CWA") or the International Brotherhood of Electrical Workers ("IBEW"). None of our collective bargaining agreements were in expired status as of December 31, 2023. Approximately 2 % of our represented employees are subject to collective bargaining agreements that are scheduled to expire over the 12 month period ending December 31, 2024.

(23) Dividends

On November 2, 2022, we announced that our Board had terminated our quarterly cash dividend program; as a result no dividends were declared and paid in 2023.

Our Board of Directors declared the following dividends payable in 2022:

Date Declared	Record Date	Dividend Per Share	Total Amount (in millions)	Payment Date
August 18, 2022	8/30/2022	\$ 0.25	\$ 253	9/9/2022
May 19, 2022	5/31/2022	0.25	253	6/10/2022
February 24, 2022	3/8/2022	0.25	253	3/18/2022

The declaration of dividends is solely at the discretion of our Board of Directors.

(24) Subsequent Events***Transaction Support Agreement***

On January 22, 2024, the Company, Level 3, Qwest and a group of creditors holding a majority of our consolidated debt (the "TSA Parties") amended and restated the transaction support agreement that we originally entered into with a subset of the TSA Parties on October 31, 2023 (as amended and restated, the "Transaction Support Agreement").

The Transaction Support Agreement defines the parties' commitments to effect a series of transactions (the "TSA Transactions") set forth in the term sheet attached thereto (the "Term Sheet"). Among other things and subject to the terms and conditions set forth therein, the Transaction Support Agreement, including the Term Sheet, contemplates:

- the incurrence by Level 3 of \$ 1.325 billion in new money long term senior secured first lien indebtedness, which indebtedness will be backstopped by certain of the consenting lenders;
- a new revolving credit facility at Lumen in an amount expected to be approximately \$ 1 billion;
- the extension of maturities, covenant modifications and rate increases of certain secured and unsecured indebtedness at the Company and Level 3 through a series of exchanges and other debt transactions with certain consenting lenders as set forth in the Term Sheet; and
- the repayment of certain indebtedness of the Company and Qwest.

The outside date for completion of the TSA Transactions under the Transaction Support Agreement is February 29, 2024, which the Company may unilaterally extend at its discretion to March 31, 2024. The Company expects to consummate the TSA Transactions in the first quarter of 2024, subject to the satisfaction of remaining closing conditions.

Following consummation of the TSA Transactions, the Company may assess potential follow-on transactions with respect to non-participating creditors.

Additional information about the Transaction Support Agreement and the TSA Transactions is available in our Current Report on Form 8-K filed with the Securities and Exchange Commission on January 25, 2024, and Exhibit 10.16 to this annual report.

Tax Refund

During the year ended December 31, 2023 we requested a U.S. Federal income tax refund of approximately \$ 900 million. We applied approximately \$ 200 million of that refund to pay our 2023 estimated taxes and, in January 2024, we received a cash refund of approximately \$ 729 million, including interest.

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

None.

ITEM 9A. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

We maintain disclosure controls and procedures (as defined in Rule 13a-15(e) promulgated under the Securities Exchange Act of 1934 (the “Exchange Act”)) designed to provide reasonable assurance that the information required to be disclosed by us in the reports we file or furnish under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in the SEC’s rules and forms. These include controls and procedures designed to ensure this information is accumulated and communicated to our senior management, including our Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure. Management, with the participation of our President and Chief Executive Officer, Kate Johnson, and our Executive Vice President and Chief Financial Officer, Chris Stansbury, evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2023. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded our disclosure controls and procedures were effective, as of December 31, 2023, in providing reasonable assurance the information required to be disclosed by us in this report was accumulated and communicated in the manner provided above.

Changes in Internal Control Over Financial Reporting

Other than the implementation of controls over accounting and reporting for the completed divestiture of our EMEA business, there have been no changes in our internal control over financial reporting (as defined in Rule 13a-15(f) of the Exchange Act) that occurred during the fourth quarter of 2023 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations of Internal Controls

The effectiveness of our or any system of disclosure controls and procedures is subject to certain limitations, including the exercise of judgment in designing, implementing and evaluating the controls and procedures, the assumptions used in identifying the likelihood of future events and the inability to eliminate misconduct completely. As a result, there can be no assurance that our disclosure controls and procedures will detect all errors or fraud. By their nature, our or any system of disclosure controls and procedures can provide only reasonable assurance regarding management’s control objectives.

Internal Control Over Financial Reporting

Management's Report on Internal Control over Financial Reporting

Management of the Company is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rule 13a-15(f) of the Exchange Act), a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles in the United States. Under the supervision and with the participation of management, including our principal executive officer and principal financial officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in Internal Control-Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on our evaluation under the framework of COSO, management concluded that our internal control over financial reporting was effective at December 31, 2023. The effectiveness of our internal control over financial reporting at December 31, 2023 has been audited by KPMG LLP, as stated in their report entitled "Opinion on Internal Control Over Financial Reporting" appearing in Item 8, which is incorporated into this item by reference.

Management's Report on the Consolidated Financial Statements

Management has prepared and is responsible for the integrity and objectivity of our consolidated financial statements for the year ended December 31, 2023. The consolidated financial statements included in this report have been prepared in accordance with accounting principles generally accepted in the United States and necessarily include amounts determined using our best judgments and estimates.

Our consolidated financial statements have been audited by KPMG LLP, an independent registered public accounting firm, who have expressed an unqualified opinion on the consolidated financial statements. Their audit was conducted in accordance with standards of the Public Company Accounting Oversight Board (United States).

ITEM 9B. OTHER INFORMATION

Not applicable.

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

Not applicable.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by Item 10 is incorporated by reference to the Proxy Statement.

ITEM 11. EXECUTIVE COMPENSATION

The information required by Item 11 is incorporated by reference to the Proxy Statement.

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

The balance of the information required by Item 12 is incorporated by reference to the Proxy Statement.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE

The information required by Item 13 is incorporated by reference to the Proxy Statement.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by Item 14 is incorporated by reference to the Proxy Statement.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

Exhibits designated with an asterisk have been filed as part of this electronic submission. All others are on file with the SEC and are incorporated herein by reference. All references in this Item 15 to "Registrant" are to Lumen Technologies, Inc., which was formerly named CenturyLink, Inc. and Century Telephone Enterprises, Inc.

Exhibit Number	Description
2.1	<u>Agreement, dated as of February 8, 2023, by and among certain affiliates of Registrant, and Colt Technology Services Group Limited (incorporated by reference to Exhibit 2.2 to Registrant's Annual Report on Form 10 K for the year ended December 31, 2022 (File No. 001-07784) filed with the Securities and Exchange Commission on February 23, 2023).</u>
3.1	<u>Composite Articles of Incorporation of Registrant, as amended through January 22, 2021 (incorporated by reference to Exhibit 3.1 to Registrant's Annual Report on Form 10-K (File No. 001-07784) for the year ended December 31, 2020 filed with the Securities and Exchange Commission on February 25, 2021).</u>
3.2	<u>Bylaws of Registrant, as amended and restated through May 17, 2023 (incorporated by reference to Exhibit 3.1 to Registrant's Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on May 17, 2023).</u>
4.1*	<u>Description of Registrant's securities registered under Section 12 of the Securities Exchange Act of 1934, as amended.</u>
4.2	<u>Form of Registrant's common stock certificate (incorporated by reference to Exhibit 4.1 to Registrant's Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on January 26, 2021).</u>
4.3*	<u>Second Amended and Restated Section 382 Rights Agreement by and between Registrant and Computershare Trust Company, N.A., dated as of November 15, 2023⁽¹⁾.</u>
4.4	Instruments relating to Registrant's Senior Secured Credit Facilities. <ul style="list-style-type: none"> a. <u>Restatement Agreement, dated as of January 31, 2020, by and among Registrant, as Borrower, Bank of America, N.A., as Administrative Agent and Collateral Agent, and the other lenders named therein (incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on January 31, 2020).</u> b. <u>Amended and Restated Credit Agreement, dated as of January 31, 2020, by and among Registrant, as Borrower, Bank of America, N.A. as Administrative Agent and Collateral Agent, and the other lenders, agents, arrangers and bookrunners named therein (incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on January 31, 2020).</u> c. <u>LIBOR Transition Amendment, dated as of March 17, 2023, by and among Registrant, the Guarantors party thereto, and Bank of America, N.A., as administrative agent and collateral agent, amending the parties' Amended and Restated Credit Agreement dated as of January 31, 2020 (incorporated by reference to Exhibit 10.1 to Registrant's Quarterly Report on Form 10-Q (File No. 001-07784) for the quarterly period ended March 31, 2023).</u> d.* <u>Amendment Agreement, dated as of February 15, 2024, by and among the Registrant, Bank of America, N.A., as a administrative agent and collateral agent, and the lenders party thereto, amending the parties' Amended and Restated Credit Agreement dated as of January 31, 2020.</u>
4.5	Instruments relating to Registrant's public senior debt. ⁽²⁾ <ul style="list-style-type: none"> a. <u>Indenture, dated as of March 31, 1994, by and between Registrant and Regions Bank (successor-in-interest to First American Bank & Trust of Louisiana), as Trustee (incorporated by reference to Exhibit 4.4(a) to Registrant's Annual Report on Form 10-K (File No. 001-07784) for the year ended December 31, 2014 filed with the Securities and Exchange Commission on February 24, 2015).</u> <ul style="list-style-type: none"> (i). Form of 7.2% Senior Notes, Series D, due 2025 (incorporated by reference to Exhibit 4.27 to Registrant's Annual Report on Form 10-K for the year ended December 31, 1995 (File No. 001-07784) filed with the Securities and Exchange Commission on March 18, 1996).

Exhibit Number	Description
	<ul style="list-style-type: none"> (ii). Form of 6.875% Debentures, Series G, due 2028, (incorporated by reference to Exhibit 4.9 to Registrant's Annual Report on Form 10-K for the year ended December 31, 1997 (File No. 001-07784) filed with the Securities and Exchange Commission on March 16, 1998). (iii). <u>Fifth Supplemental Indenture, dated as of September 21, 2009, by and between Registrant and Regions Bank, as Trustee, designating and outlining the terms and conditions of Registrant's 7.60% Senior Notes, Series P, due 2039 (incorporated by reference to Exhibit 4.1 to Registrant's Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on September 22, 2009).</u> (iv). <u>Seventh Supplemental Indenture, dated as of March 12, 2012, by and between Registrant and Regions Bank, as Trustee, designating and outlining the terms and conditions of Registrant's 7.65% Senior Notes, Series U, due 2042 (incorporated by reference to Exhibit 4.1 to Registrant's Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on March 12, 2012).</u> (v). <u>Tenth Supplemental Indenture, dated as of March 19, 2015, by and between Registrant and Regions Bank, as Trustee, designating and outlining the terms and conditions of Registrant's 5.625% Senior Notes, Series X, due 2025 (incorporated by reference to Exhibit 4.2 to Registrant's Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on March 19, 2015).</u>
	<ul style="list-style-type: none"> b. <u>Indenture, dated December 16, 2019, between Registrant and Regions Bank, as Trustee (incorporated by reference to Exhibit 4.1 to Registrant's Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on December 16, 2019).</u> <ul style="list-style-type: none"> (i). <u>First Supplemental Indenture, dated December 16, 2019, between Registrant and Regions Bank, as Trustee, designating and outlining the terms and conditions of Registrant's 5.125% Senior Notes due 2026 (incorporated by reference to Exhibit 4.2 to Registrant's Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on December 16, 2019).</u> c. <u>Indenture, dated January 24, 2020, between Registrant and Wells Fargo Bank, National Association, as Trustee and Notes Collateral Agent, designating and outlining the terms and conditions of Registrant's 4.000% Senior Secured Notes due 2027 (incorporated by reference to Exhibit 4.1 to Registrant's Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on January 24, 2020).</u> d. <u>Indenture, dated November 27, 2020, among Registrant's, as Issuer, and Regions Bank, as Trustee, designating and outlining the terms and conditions of Registrant, Inc. 4.500% Senior Notes due 2029 (incorporated by reference to Exhibit 4.1 to Registrant's Current Report on Form 8-K (File No. 001-07784) dated November 27, 2020).</u> e. <u>Indenture, dated June 15, 2021, among Registrant, as issuer, and Regions Bank, as trustee, relating to the issuance of Registrant's 5.375% Senior Notes due 2029 (incorporated by reference to Exhibit 4.1 to Registrant's Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on June 15, 2021).</u>
4.6	<p>Instruments relating to indebtedness of subsidiaries of Qwest Communications International, Inc. ⁽²⁾</p> <ul style="list-style-type: none"> a. <u>Indenture, dated as of April 15, 1990, by and between The Mountain States Telephone and Telegraph Company (currently named Qwest Corporation) and The First National Bank of Chicago, under which Qwest Corporation's 7.375% Notes due 2030 were issued (incorporated by reference to Exhibit 4.2 to Qwest Corporation's Annual Report on Form 10-K for the year ended December 31, 2002 (File No. 001-03040) filed with the Securities and Exchange Commission on January 13, 2004).</u> <ul style="list-style-type: none"> (i). <u>First Supplemental Indenture, dated as of April 16, 1991, by and between U S WEST Communications, Inc. (currently named Qwest Corporation) and The First National Bank of Chicago (incorporated by reference to Exhibit 4.3 to Qwest Corporation's Annual Report on Form 10-K for the year ended December 31, 2002 (File No. 001-03040) filed with the Securities and Exchange Commission on January 13, 2004).</u>

Exhibit Number	Description
	<p>b. <u>Indenture, dated as of April 15, 1990, by and between Northwestern Bell Telephone Company (predecessor to Qwest Corporation) and The First National Bank of Chicago, under which Qwest Corporation's 7.250% Notes due 2025 and 7.750% Notes due 2030 were issued (incorporated by reference to Exhibit 4.5(b) to Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2012 (File No. 001-07784) filed with the Securities and Exchange Commission on May 10, 2012).</u></p> <p>(i). <u>First Supplemental Indenture, dated as of April 16, 1991, by and between U S WEST Communications, Inc. (currently named Qwest Corporation) and The First National Bank of Chicago (incorporated by reference to Exhibit 4.3 to Qwest Corporation's Annual Report on Form 10-K for the year ended December 31, 2002 (File No. 001-03040) filed with the Securities and Exchange Commission on January 13, 2004).</u></p> <p>c. Indenture, dated as of June 29, 1998, by and among U S WEST Capital Funding, Inc. (currently named Qwest Capital Funding, Inc.), U S WEST, Inc. (predecessor to Qwest Communications International Inc.) and The First National Bank of Chicago, as trustee (incorporated by reference to Exhibit 4(a) to U S WEST, Inc.'s Current Report on Form 8-K (File No. 001-14087) filed with the Securities and Exchange Commission on November 18, 1998).</p> <p>(i). <u>First Supplemental Indenture, dated as of June 30, 2000, by and among U S WEST Capital Funding, Inc. (currently named Qwest Capital Funding, Inc.), U S WEST, Inc. (predecessor to Qwest Communications International Inc.) and Bank One Trust Company, N.A., as trustee (incorporated by reference to Exhibit 4.10 to Qwest Communications International Inc.'s Quarterly Report on Form 10-Q for the period ended June 30, 2000 (File No. 001-15577) filed with the Securities and Exchange Commission on August 11, 2000).</u></p> <p>d. <u>Indenture, dated as of October 15, 1999, by and between US West Communications, Inc. (currently named Qwest Corporation) and Bank One Trust Company, N.A., as trustee (incorporated by reference to Exhibit 4(b) to Qwest Corporation's Annual Report on Form 10-K for the year ended December 31, 1999 (File No. 001-03040) filed with the Securities and Exchange Commission on March 3, 2000).</u></p> <p>(i). <u>Sixteenth Supplemental Indenture, dated as of August 22, 2016, by and between Qwest Corporation and U.S. Bank National Association, designating and outlining the terms and conditions of Qwest 6.500% Notes due 2056 (incorporated by reference to Exhibit 4.17 to Qwest Corporation's Form 8-A (File No. 001-03040) filed with Securities and Exchange Commission on August 22, 2016).</u></p> <p>(ii). <u>Seventeenth Supplemental Indenture dated as of April 27, 2017, by and between Qwest Corporation and U.S. Bank National Association, designating and outlining the terms and conditions of Qwest Corporation's 6.750% Notes due 2057 (incorporated by reference to Exhibit 4.18 to Qwest Corporation's Form 8-A (File No. 03040) filed with the Securities and Exchange Commission on April 27, 2017).</u></p> <p>e. <u>Amended and Restated Credit Agreement, dated as of October 23, 2020, by and among Qwest Corporation, the several lenders from time to time parties thereto, and CoBank, ACB, as administrative agent (incorporated by reference to Exhibit 4.6(e) to Registrant's Annual Report on Form 10-K (File No. 001-07784) for the year ended December 31, 2020 filed with the Securities and Exchange Commission on February 25, 2021).</u></p> <p>(i). <u>First Amendment to Amended and Restated Credit Agreement, dated as of March 27, 2023, by and between Qwest Corporation and CoBank, ACB, as administrative agent, amending the parties' Amended and Restated Credit Agreement dated as of October 23, 2020 (incorporated by reference to Exhibit 10.2 to Registrant's Quarterly Report on Form 10-Q (File No. 001-07784) for the quarterly period ended March 31, 2023).</u></p>
4.7	<p>Instruments relating to indebtedness of Level 3 Communications, Inc. and its subsidiaries. ⁽²⁾</p> <p>a. <u>Indenture, dated as of September 25, 2019, among Level 3 Parent, LLC, as Guarantor, Level 3 Financing, Inc., as Issuer, and the Bank of New York Mellon Trust Company, N.A., as Trustee, relating to the 4.625% Senior Notes due 2027 of Level 3 Financing, Inc. (incorporated by reference to Exhibit 99.1 to Level 3 Parent, LLC's Current Report on Form 8-K (File No. 001-35134) filed with the Securities and Exchange Commission on September 26, 2019).</u></p>

Exhibit Number	Description
	<p>(i). <u>First Supplemental Indenture, dated as of March 2, 2020, among Level 3 Parent LLC, as guarantor, Level 3 Communications, LLC, as guarantor, Level 3 Financing, Inc., as issuer, and The Bank of New York Mellon Trust Company, N.A., as trustee, designating and outlining the terms and conditions of Level 3 Communications, LLC's unsecured guarantee of the 4.625% Senior Notes due 2027 of Level 3 Financing, Inc. (incorporated by reference to Exhibit 4.8(d)(i) to Registrant's Annual Report on Form 10-K (File No. 001-07784) for the year ended December 31, 2020 filed with the Securities and Exchange Commission on February 25, 2021).</u></p> <p>(ii). <u>Second Supplemental Indenture, dated as of March 2, 2020, among Level 3 Parent LLC, as guarantor, Level 3 Communications, LLC, as guarantor, Level 3 Financing, Inc., as issuer, and The Bank of New York Mellon Trust Company, N.A., as trustee, relating to the subordination in any bankruptcy, liquidation or winding up proceeding of the guarantee by Level 3 Communications, LLC of the 4.625% Senior Notes due 2027 of Level 3 Financing, Inc. (incorporated by reference to Exhibit 4.8(d)(ii) to Registrant's Annual Report on Form 10-K (File No. 001-07784) for the year ended December 31, 2020 filed with the Securities and Exchange Commission on February 25, 2021).</u></p>
b.	<p><u>Indenture, dated as of November 29, 2019, among Level 3 Parent, LLC and the other guarantors party thereto, Level 3 Financing, Inc., as Issuer, and The Bank of New York Mellon Trust Company, N.A., as Trustee and Notes Collateral Agent, designating and outlining the terms and conditions of Level 3 Financing, Inc.'s 3.400% Senior Secured Notes due 2027 (incorporated by reference to Exhibit 10.2 to Level 3 Parent, LLC's Current Report on Form 8-K (File No. 001-35134) filed with the Securities and Exchange Commission on December 4, 2019).</u></p> <p>(i). <u>Supplemental Indenture, dated as of April 15, 2020, among Level 3 Financing, Inc., as issuer, The Bank of New York Mellon Trust Company, N.A., as trustee, and Level 3 Parent, LLC and several of its subsidiaries, as guarantors, designating and outlining the terms and conditions of the secured guarantees of the 3.400% Senior Secured Notes due 2027 of Level 3 Financing, Inc. (incorporated by reference to Exhibit 4.8(e)(i) to Registrant's Annual Report on Form 10-K (File No. 001-07784) for the year ended December 31, 2020 filed with the Securities and Exchange Commission on February 25, 2021).</u></p> <p>(ii). <u>Supplement, dated as of October 26, 2023, to the Supplemental Indenture dated as of April 15, 2020, among Level 3 Financing, Inc., as Issuer, The Bank of New York Mellon Trust Company, N.A., as Trustee and Notes Collateral Agent, and Level 3 Parent, LLC and several of its subsidiaries, as guarantors, clarifying which subsidiaries are guarantors of the 3.400% Senior Secured Notes due 2027 of Level 3 Financing, Inc. (incorporated by reference to Exhibit 4.1 to Registrant's Quarterly Report on Form 10-Q (File No. 001-07784) for the quarterly period ended September 30, 2023).</u></p> <p>(iii).* <u>Second Supplemental Indenture, dated as of December 29, 2023, among Level 3 Financing, Inc., on behalf of itself as issuer and certain specified existing guarantors, The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent, Level 3 Parent, LLC, as guarantor, and several subsidiaries thereof, designating such subsidiaries as additional guarantors of Level 3 Financing, Inc.'s 3.400% Senior Secured Notes due 2027.</u></p>
c.	<p><u>Indenture, dated as of November 29, 2019, among Level 3 Parent, LLC and the other guarantors party thereto, Level 3 Financing, Inc., as Issuer, and The Bank of New York Mellon Trust Company, N.A., as Trustee and Notes Collateral Agent, designating and outlining the terms and conditions of Level 3 Financing, Inc.'s 3.875% Senior Secured Notes due 2029 (incorporated by reference to Exhibit 10.3 to Level 3 Parent, LLC's Current Report on Form 8-K (File No. 001-35134) filed with the Securities and Exchange Commission on December 4, 2019).</u></p> <p>(i). <u>Supplemental Indenture, dated as of April 15, 2020, among Level 3 Financing, Inc., as issuer, The Bank of New York Mellon Trust Company, N.A., as trustee, and Level 3 Parent, LLC and several of its subsidiaries, as guarantors, designating and outlining the terms and conditions of the secured guarantees of the 3.875% Senior Secured Notes due 2029 of Level 3 Financing, Inc. (incorporated by reference to Exhibit 4.8(f)(i) to Registrant's Annual Report on Form 10-K (File No. 001-07784) for the year ended December 31, 2020 filed with the Securities and Exchange Commission on February 25, 2021).</u></p>

Exhibit Number	Description
	<p>(ii). <u>Supplement, dated as of October 26, 2023, to the Supplemental Indenture dated as of April 15, 2020, among Level 3 Financing, Inc., as Issuer, The Bank of New York Mellon Trust Company, N.A., as Trustee and Notes Collateral Agent, and Level 3 Parent, LLC and several of its subsidiaries, as guarantors, clarifying which subsidiaries are guarantors of the 3.875% Senior Secured Notes due 2029 of Level 3 Financing, Inc. (incorporated by reference to Exhibit 4.2 to Registrant's Quarterly Report on Form 10-Q (File No. 001-07784) for the quarterly period ended September 30, 2023).</u></p> <p>(iii).* <u>Second Supplemental Indenture, dated as of December 29, 2023, among Level 3 Financing, Inc., on behalf of itself as issuer and certain specified existing guarantors, The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent, Level 3 Parent, LLC, as guarantor, and several subsidiaries thereof, designating such subsidiaries as additional guarantors of Level 3 Financing, Inc.'s 3.875% Senior Secured Notes due 2029.</u></p>
d.	<p><u>Indenture, dated as of June 15, 2020, among Level 3 Parent, LLC, as Guarantor, Level 3 Financing, Inc., as Issuer, and The Bank of New York Mellon Trust Company, N.A., as Trustee, relating to the 4.250% Senior Notes due 2028 of Level 3 Financing, Inc. (incorporated by reference to Exhibit 4.1 to Registrant's Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on June 15, 2020).</u></p> <p>(i). <u>First Supplemental Indenture, dated as of December 21, 2020, among Level 3 Parent LLC, as guarantor, Level 3 Communications, LLC, as guarantor, Level 3 Financing, Inc., as issuer, and The Bank of New York Mellon Trust Company, N.A., as trustee, designating and outlining the terms and conditions of Level 3 Communications, LLC's unsecured guarantee of the 4.250% Senior Notes due 2028 of Level 3 Financing, Inc. (incorporated by reference to Exhibit 4.8(g)(i) to Registrant's Annual Report on Form 10-K (File No. 001-07784) for the year ended December 31, 2020 filed with the Securities and Exchange Commission on February 25, 2021).</u></p> <p>(ii). <u>Second Supplemental Indenture, dated as of December 21, 2020, among Level 3 Parent LLC, as guarantor, Level 3 Communications, LLC, as guarantor, Level 3 Financing, Inc., as issuer, and The Bank of New York Mellon Trust Company, N.A., as trustee, relating to the subordination in any bankruptcy, liquidation or winding up proceeding of the guarantee by Level 3 Communications, LLC of the 4.250% Senior Notes due 2028 of Level 3 Financing, Inc. (incorporated by reference to Exhibit 4.8(g)(ii) to Registrant's Annual Report on Form 10-K (File No. 001-07784) for the year ended December 31, 2020 filed with the Securities and Exchange Commission on February 25, 2021).</u></p>
e.	<p><u>Indenture, dated August 12, 2020, among Level 3 Parent, LLC, as Guarantor, Level 3 Financing, Inc., as Issuer, and The Bank of New York Mellon Trust Company, N.A., as Trustee, relating to the 3.625% Senior Notes due 2029 of Level 3 Financing, Inc. (incorporated by reference to Exhibit 4.1 to Registrant's Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on August 12, 2020).</u></p> <p>(i). <u>First Supplemental Indenture, dated as of December 21, 2020, among Level 3 Parent LLC, as guarantor, Level 3 Communications, LLC, as guarantor, Level 3 Financing, Inc., as issuer, and The Bank of New York Mellon Trust Company, N.A., as trustee, designating and outlining the terms and conditions of Level 3 Communications, LLC's unsecured guarantee of the 3.625% Senior Notes due 2029 of Level 3 Financing, Inc. (incorporated by reference to Exhibit 4.8(h)(i) to Registrant's Annual Report on Form 10-K (File No. 001-07784) for the year ended December 31, 2020 filed with the Securities and Exchange Commission on February 25, 2021).</u></p> <p>(ii). <u>Second Supplemental Indenture, dated as of December 21, 2020, among Level 3 Parent LLC, as guarantor, Level 3 Communications, LLC, as guarantor, Level 3 Financing, Inc., as issuer, and The Bank of New York Mellon Trust Company, N.A., as trustee, relating to the subordination in any bankruptcy, liquidation or winding up proceeding of the guarantee by Level 3 Communications, LLC of the 3.625% Senior Notes due 2029 of Level 3 Financing, Inc. (incorporated by reference to Exhibit 4.8(h)(ii) to Registrant's Annual Report on Form 10-K (File No. 001-07784) for the year ended December 31, 2020 filed with the Securities and Exchange Commission on February 25, 2021).</u></p>

Exhibit Number	Description
	<p>f. Indenture, dated January 13, 2021, among Level 3 Parent, LLC, as Guarantor, Level 3 Financing, Inc., as Issuer, and The Bank of New York Mellon Trust Company, N.A., as Trustee, relating to the 3.750% Sustainability-Linked Senior Notes due 2029 of Level 3 Financing, Inc. (incorporated by reference to Exhibit 4.1 to Registrant's Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on January 13, 2021).</p> <p>(i). First Supplemental Indenture, dated as of May 7, 2021, among Level 3 Parent, LLC, as guarantor, Level 3 Communications, LLC, as guarantor, Level 3 Financing, Inc., as issuer, and The Bank of New York Mellon Trust Company, N.A., as trustee, designating and outlining the terms and conditions of Level 3 Communications, LLC's unsecured guarantee of the 3.750% Sustainability-Linked Senior Notes due 2029 of Level 3 Financing, Inc. (incorporated by reference to Exhibit 4.8(h)(i) to Registrant's Annual Report on Form 10-K (File No. 001-07784) filed with the Securities and Exchange Commission on February 24, 2022).</p> <p>(ii). Second Supplemental Indenture, dated as of May 7, 2021, among Level 3 Parent, LLC, as guarantor, Level 3 Communications, LLC, as guarantor, Level 3 Financing, Inc., as issuer, and The Bank of New York Mellon Trust Company, N.A., as trustee, relating to the subordination in any bankruptcy, liquidation or winding up proceeding of the guarantee by Level 3 Communications, LLC of the 3.750% Sustainability-Linked Senior Notes due 2029 of Level 3 Financing, Inc. (incorporated by reference to Exhibit 4.8(h)(ii) to Registrant's Annual Report on Form 10-K (File No. 001-07784) filed with the Securities and Exchange Commission on February 24, 2022).</p> <p>g. Indenture dated March 31, 2023, among Level 3 Financing, Inc., as Issuer, Level 3 Parent, LLC, as Guarantor, the subsidiary guarantors party thereto, and The Bank of New York Mellon Trust Company, as Trustee and Note Collateral Agent, designating and outlining the terms and conditions of Level 3 Financing, Inc.'s 10.500% Senior Secured Notes due 2030 (incorporated by reference to Exhibit 4.1 to Registrant's Current Report on Form 8 K (File No. 001-07784) filed with the Securities and Exchange Commission on March 31, 2023).</p> <p>(i). Supplemental Indenture, dated as of October 23, 2023, among Level 3 Financing, Inc., as Issuer, The Bank of New York Mellon Trust Company, N.A., as Trustee and Notes Collateral Agent, and Level 3 Parent, LLC and several of its subsidiaries, as guarantors, designating and outlining the terms and conditions of certain specified secured guarantees of the 10.500% Senior Secured Notes due 2030 of Level 3 Financing, Inc. (incorporated by reference to Exhibit 4.3 to Registrant's Quarterly Report on Form 10-Q (File No. 001-07784) for the quarterly period ended September 30, 2023).</p> <p>(ii).* Second Supplemental Indenture, dated as of December 29, 2023, among Level 3 Financing, Inc., on behalf of itself as issuer and certain specified existing guarantors, The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent, Level 3 Parent, LLC, as guarantor, and several subsidiaries thereof, designating such subsidiaries as additional guarantors of Level 3 Financing, Inc.'s 10.500% Senior Secured Notes due 2030.</p> <p>h. Thirteenth Amendment Agreement to the Amended and Restated Credit Agreement, dated as of November 29, 2019, by and between Level 3 Parent, LLC, Level 3 Financing, Inc., the Lenders party thereto and Merrill Lynch Capital Corporation (incorporated by reference to Exhibit 10.1 to Level 3 Parent, LLC's Current Report on Form 8-K (File No. 001-35134) filed with the Securities and Exchange Commission on December 4, 2019).</p> <p>(i). LIBOR Transition Amendment, dated as of March 17, 2023, by and among Level 3 Parent, LLC, Level 3 Financing, Inc., the Subsidiary Loan Parties party thereto, and Merrill Lynch Capital Corporation, as administrative agent, amending the parties' Amended and Restated Credit Agreement dated as of November 29, 2019 (incorporated by reference to Exhibit 10.3 to Registrant's Quarterly Report on Form 10-Q (File No. 001-07784) for the quarterly period ended March 31, 2023).</p>
10.1+	Registrant's Second Amended and Restated 2018 Equity Incentive Plan, as amended and re stated through May 17, 2023 (incorporated by reference to Exhibit 10.1 to Lumen Technologies, Inc.'s Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on May 17, 2023).

Exhibit Number	Description
	<ul style="list-style-type: none"> (i). Form of Restricted Stock Agreement for annual equity grants to non-management directors beginning in 2018 (incorporated by reference to Exhibit 10.1A to Registrant's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2018 (File No. 001-07784) filed with the Securities and Exchange Commission on August 9, 2018). (ii). Form of RSU Agreement for annual time-based equity grants to Jeffrey K. Storey (incorporated by reference to Exhibit 10.2(vi) to Registrant's Annual Report on Form 10-K (File No. 001-07784) filed with the Securities and Exchange Commission on February 24, 2022). (iii). Form of Restricted Stock Agreement for annual time-based equity grants to certain executive officers (incorporated by reference to Exhibit 10.2(viii) to Registrant's Annual Report on Form 10-K (File No. 001-07784) filed with the Securities and Exchange Commission on February 24, 2022). (iv). Form of Restricted Stock Agreement for annual performance-based equity grants to certain executive officers (incorporated by reference to Exhibit 10.2(ix) to Registrant's Annual Report on Form 10-K (File No. 001-07784) filed with the Securities and Exchange Commission on February 24, 2022). (v). Form of Restricted Stock Agreement for annual time-based equity grants to Kate Johnson (incorporated by reference to Exhibit 10.2(vi) to Registrant's Annual Report on Form 10-K for the year ended December 31, 2022 (File No. 001-00784) filed with the Securities and Exchange Commission on February 23, 2023). (vi). Restricted Stock Agreement for sign-on time-based award to Kate Johnson on November 7, 2022 (incorporated by reference to Exhibit 10.2(vii) to Registrant's Annual Report on Form 10 K for the year ended December 31, 2022 (File No. 001-00784) filed with the Securities and Exchange Commission on February 23, 2023).
10.2+	Registrant's Supplemental Dollars & Sense Plan, 2014 Restatement, effective January 1, 2014 (incorporated by reference to Exhibit 10.3 to Registrant's Annual Report on Form 10-K for the year ended December 31, 2018 (File No. 001-07784) filed with the Securities and Exchange Commission on March 11, 2019).
10.3+	Registrant's Supplemental Defined Benefit Pension Plan, effective as of January 1, 2012 (incorporated by reference to Exhibit 10.5 to Registrant's Annual Report on Form 10-K for the year ended December 31, 2011 (File No. 001-07784) filed with the Securities and Exchange Commission on February 28, 2012).
10.4+	Registrant's - Short-Term Incentive Plan - Annual (incorporated by reference to Exhibit 10.5 to Registrant's Annual Report on Form 10-K for the year ended December 31, 2022 (File No. 001-07784) filed with the Securities and Exchange Commission on February 23, 2023).
10.5+	Form of Indemnification Agreement entered into between Registrant and each of its directors on or after February 24, 2016 (incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on February 29, 2016).
10.6+	Form of Indemnification Agreement entered into between Registrant and each of its officers on or after February 24, 2016 (incorporated by reference to Exhibit 10.2 to Registrant's Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on February 29, 2016).
10.7+	Change of Control Agreement, by and between Kate Johnson and Registrant (incorporated by reference to Exhibit 10.8 to Registrant's Annual Report on Form 10-K for the year ended December 31, 2022 (File No. 001-07784) filed with the Securities and Exchange Commission on February 23, 2023).
10.8+	Form of Change of Control Agreement, on or after January 1, 2011 between Registrant and each of its other executive officers (incorporated by reference to Exhibit 10.12 to Registrant's Annual Report on Form 10-K for the year ended December 31, 2010 (File No. 001-07784) filed with the Securities and Exchange Commission on March 1, 2011).
10.9+	Registrant's Amended and Restated Lumen Executive Severance Plan, effective October 10, 2017 (with updated exhibits and branding as of October 2020) (incorporated by reference to Exhibit 10.11 to Registrant's Annual Report on Form 10-K (File No. 001-07784) filed with the Securities and Exchange Commission on February 24, 2022).

Exhibit Number	Description
10.10+	Amended and Restated CenturyLink, Inc. Bonus Life Insurance Plan for Executive Officers, dated as of April 3, 2008 (incorporated by reference to Exhibit 10.4 to Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2008 (File No. 001-07784) filed with the Securities and Exchange Commission on May 7, 2008) and First Amendment thereto (incorporated by reference to Exhibit 10.13 to Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2010 (File No. 001-07784) filed with the Securities and Exchange Commission on November 5, 2010).
10.11+	Registrant's Supplemental Savings Plan, as amended and restated (incorporated by reference to Exhibit 10.2 to Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2022 (File No. 001-07784) filed with the Securities and Exchange Commission on May 4, 2022).
10.12+	Registrant's Non-Employee Director Deferred Compensation Plan, effective April 18, 2019 (updated for branding as of October 2020) (incorporated by reference to Exhibit 10.15 to Registrant's Annual Report on Form 10-K (File No. 001-07784) filed with the Securities and Exchange Commission on February 24, 2022).
10.13+	Legacy Qwest Deferred Compensation Plan for Nonemployee Directors, as amended and restated, Amendment to Deferred Compensation Plan for Nonemployee Directors (incorporated by reference to Exhibit 10.2 to Qwest Communications International Inc.'s Current Report on Form 8-K (File No. 001-15577) filed with the Securities and Exchange Commission on December 16, 2005 and Exhibit 10.8 to Qwest Communication International Inc.'s Quarterly Report on Form 10-Q for the period ended September 30, 2008 (File No. 001-15577) filed with the Securities and Exchange Commission on October 29, 2008) and Amendment No. 2011-1 to Deferred Compensation Plan for Nonemployee Directors (incorporated by reference to Exhibit 10.15(c) to Registrant's Annual Report for the year ended December 31, 2011 (File No. 001-07784) filed with the Securities and Exchange Commission on February 28, 2012).
10.14+	Retention Letter between Lumen Technologies, Inc. and Stacey Goff, dated December 9, 2022 (incorporated by reference to Exhibit 10.20 to Registrant's Annual Report on Form 10-K for the year ended December 31, 2022 (File No. 001-00784) filed with the Securities and Exchange Commission on February 23, 2023).
10.15+	Offer Letters ⁽³⁾ <ol style="list-style-type: none"> a. Offer Letter dated September 12, 2022 between Registrant and Kate Johnson (incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on September 13, 2022). b. Offer Letter dated March 24, 2022 between Registrant and Christopher D. Stansbury (incorporated by reference to Exhibit 10.1 to Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2022 (File No. 001-07784) filed with the Securities and Exchange Commission on May 4, 2022). c.* Offer Letter dated December 5, 2022 between Registrant and Ashley Haynes-Gaspar.
10.16	Amended and Restated Transaction Support Agreement by and among Registrant, Level 3 Financing, Inc., Qwest Corporation, and the Consenting Parties identified therein, dated January 22, 2024 (incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K (File No. 001-07784) filed with the Securities and Exchange Commission on January 25, 2024).
21*	Subsidiaries of Registrant.
23*	Independent Registered Public Accounting Firm Consent.
31.1*	Certification of the Chief Executive Officer of Lumen Technologies, Inc. furnished pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification of the Chief Financial Officer of Lumen Technologies, Inc. furnished pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1*	Certification of the Chief Executive Officer of Lumen Technologies, Inc. pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2*	Certification of the Chief Financial Officer of Lumen Technologies, Inc. pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
97*	Registrant's Policy Relating to Recovery of Erroneously Awarded Compensation, adopted August 16, 2023.

Exhibit Number	Description
101*	Financial statements from the annual report on Form 10-K of Registrant for the period ended December 31, 2023, formatted in Inline XBRL: (i) the Consolidated Statements of Operations, (ii) the Consolidated Statements of Comprehensive (Loss) Income, (iii) the Consolidated Balance Sheets, (iv) the Consolidated Statements of Cash Flows, (v) the Consolidated Statements of Stockholders' Equity and (vi) the Notes to Consolidated Financial Statements.
104*	Cover page formatted as Inline XBRL and contained in Exhibit 101.

* Exhibit filed herewith.

+ Indicates a management contract or compensatory plan or arrangement.

(1) This corrected version of this instrument supersedes the prior version filed with the Securities and Exchange Commission on November 20, 2023.

(2) Certain of the items in Sections 4.5, 4.6 and 4.7 (i) omit supplemental indentures or other instruments governing debt that has been retired, or (ii) refer to trustees who may have been replaced, acquired or affected by similar changes. In accordance with applicable rules of the SEC, copies of certain instruments defining the rights of holders of certain of our long-term debt are not filed herewith. Additional documentation regarding the credit agreement of Level 3 Parent, LLC and its affiliates is available in reports filed by Level 3 Parent, LLC with the Securities and Exchange Commission.

(3) Offer letters present information regarding the executive's initial compensation only.

ITEM 16. SUMMARY OF BUSINESS AND FINANCIAL INFORMATION

Not applicable.

SIGNATURES

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

Date: February 22, 2024

By:

Lumen Technologies, Inc.

/s/ Andrea Genschaw

Andrea Genschaw

Senior Vice President, Controller (*Principal Accounting Officer*)

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

<u>Signature</u>	<u>Title</u>	<u>Date</u>
/s/ Kate Johnson	President and Chief Executive Officer (Principal Executive Officer)	February 22, 2024
Kate Johnson		
/s/ Chris Stansbury	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	February 22, 2024
Chris Stansbury		
/s/ Andrea Genschaw	Senior Vice President, Controller (Principal Accounting Officer)	February 22, 2024
Andrea Genschaw		
/s/ T. Michael Glenn	Non-Executive Chairman of the Board	February 22, 2024
T. Michael Glenn		
/s/ Jim Fowler	Director	February 22, 2024
Jim Fowler		
/s/ Quincy L. Allen	Director	February 22, 2024
Quincy L. Allen		
/s/ Martha Helena Bejar	Director	February 22, 2024
Martha Helena Bejar		
/s/ Peter C. Brown	Director	February 22, 2024
Peter C. Brown		
/s/ Kevin P. Chilton	Director	February 22, 2024
Kevin P. Chilton		
/s/ Steven T. "Terry" Clontz	Director	February 22, 2024
Steven T. "Terry" Clontz		
/s/ Hal Stanley Jones	Director	February 22, 2024
Hal Stanley Jones		
/s/ Michael Roberts	Director	February 22, 2024
Michael Roberts		
/s/ Laurie Siegel	Director	February 22, 2024
Laurie Siegel		

**DESCRIPTION OF THE REGISTRANT'S SECURITIES
REGISTERED PURSUANT TO SECTION 12 OF THE
SECURITIES EXCHANGE ACT OF 1934**

December 31, 2023

Lumen Technologies, Inc. ("Lumen", the "Company", "we" or "us") has two classes of securities registered under Section 12 of the Securities Exchange Act of 1934 (as amended, the "Exchange Act"): (i) Common Stock, par value \$1.00 per share ("Common Stock"), and (ii) Series CC Junior Participating Preferred Stock Purchase Rights ("Purchase Rights"), both of which are listed on The New York Stock Exchange.

DESCRIPTION OF COMMON STOCK

The following is a summary description of the rights of the holders of the Common Stock and related provisions of the Company's Articles of Incorporation, as amended and restated (the "Articles"), and bylaws, as amended and restated (the "Bylaws"), and applicable Louisiana law. This summary is intended to provide a general description only, does not purport to be complete and is qualified in its entirety by reference to, and should be read in conjunction with, the Articles, Bylaws and applicable Louisiana law.

General

As of December 31, 2023, Lumen was authorized under its Articles to issue an aggregate 2.202 billion shares of capital stock, consisting of 2.200 billion shares of Common Stock, \$1.00 par value per share, and 2 million shares of preferred stock, \$25.00 par value per share. All of the outstanding capital stock of the Company is fully paid and non-assessable.

Dividends

Holders of our Common Stock are entitled to receive dividends when, as and if declared by our board of directors, out of funds legally available therefor, subject to the preferences applicable to any outstanding preferred stock.

No Preemptive, Redemption or Conversion Rights

The Common Stock is not redeemable, is not subject to sinking fund provisions, does not have any conversion rights and is not subject to call. Holders of shares of Common Stock have no preemptive rights to maintain their percentage of ownership in future offerings or sales of stock of Lumen.

Voting Rights

Under the Articles, each share of Common Stock entitles the holder thereof to one vote per share in all elections of directors and on all other matters duly submitted to shareholders for their vote or consent. Holders of our Common Stock do not have cumulative voting rights.

Liquidation, Dissolution or Similar Rights

In the event we liquidate, dissolve or wind up our affairs, holders of our Common Stock would be entitled to receive ratably all of our assets remaining after satisfying the preferences of our creditors and the holders of any outstanding preferred stock.

Certain Provisions Affecting Takeovers

Provisions of the Articles and Bylaws may delay or discourage transactions involving an actual or potential change of control in the Company or its management, including transactions in

which shareholders might otherwise receive a premium for their shares, or transactions that the Company's shareholders might otherwise deem to be in their best interests. Among other things:

- Our Articles provide that shareholder action may only be taken at an annual or special meeting of shareholders and may not be taken by written consent of the shareholders.
- Under our Articles, the shareholders may remove any director or the entire board of directors, only for cause, at any meeting of the shareholders called for such purpose, by the affirmative vote of (i) a majority of the total voting power of all shareholders and (ii) at any time there is a related person (as defined in the Articles), a majority of the total voting power of all shareholders other than the related person, voting as a separate group.
- Pursuant to our Articles, vacancies on our board may be filled only by the board of directors by a vote of both a majority of the directors then in office and a majority of the continuing directors (as defined in the Articles) voting as a separate group.
- Under our Articles, the number of authorized directors may not be increased or decreased without, among other things, the approval of both 80% of the directors then in office and a majority of the continuing directors voting as a separate group.
- Our Articles contain "fair price" provisions designed to provide supermajority vote and other safeguards for our shareholders when related persons attempt to effect a business combination with us, unless the business combination is approved in advance by the directors or satisfies various minimum price, consideration and procedural requirements, in each case as set forth in the Articles.
- Our board of directors is required by our Articles to consider particular factors enumerated therein when evaluating a business combination, tender or exchange offer or a proposal by another person to make a tender or exchange offer.
- Our Bylaws establish an advance notice procedure with regard to the nomination, other than by or at the direction of our board of directors, of candidates for election as directors and with regard to other matters to be brought before a meeting of our shareholders.
- Our Articles and applicable Louisiana law restrict the ability of the shareholders to call special shareholder's meetings.
- Various provisions of our Articles may not be amended except upon the affirmative vote of both 80% of the total voting power of all shareholders and two-thirds of the total voting power of shareholders, other than a related person, present or represented at a shareholders' meeting, voting as a separate group.
- Our Bylaws may be adopted, amended or repealed and new bylaws may be adopted by either a majority of our directors and a majority of our continuing directors, voting as a separate group; or the holders of at least 80% of the total voting power of all shareholders and two-thirds of the total voting power of shareholders, other than a related person, present or duly represented at a shareholders' meeting, voting as a separate group.
- Our board of directors is authorized, without action of the shareholders, to issue (i) additional shares of Common Stock, subject to certain limitations under the New York Stock Exchange listing standards and the Louisiana Business Corporation Act, and (ii) additional shares of preferred stock with rights and preferences designated by the board of directors, which could include terms adversely affecting the rights of holders of the Common Stock.

In addition, certain federal foreign ownership limitations and provisions in our debt instruments could potentially discourage certain change of control transactions.

Additional Information

As of December 31, 2023, Lumen had outstanding 7,018 shares of 5% Cumulative Convertible Series L Preferred Stock that entitles the holders to certain preferential liquidation and other rights and to cast one vote per share, together with holders of the Common Stock, on all matters duly submitted to a vote of shareholders. For additional information on the matters summarized above, see our Registration Statement on Form 8-A/A filed with the U.S. Securities and Exchange Commission (the “SEC”) on March 2, 2015. Our Articles and Bylaws are filed as exhibits to our accompanying Annual Report on Form 10-K.

DESCRIPTION OF SERIES CC JUNIOR PARTICIPATING PREFERRED STOCK PURCHASE RIGHTS

General

On February 13, 2019, we entered into a Section 382 Rights Agreement (as amended and restated through the date hereof, the “NOL Rights Plan”) by and between the Company and Computershare, Inc., as rights agent (the “Rights Agent”). As previously disclosed, the Company and the Rights Agent amended this agreement on May 9, 2019 and November 20, 2020. On November 15, 2023, the Company and the Rights Agent entered into a Second Amended and Restated Section 382 Rights Agreement effective as of December 1, 2023 (the “2023 Amendment”).

We adopted the NOL Rights Plan to diminish the risk that we could experience an “ownership change” as defined under Section 382 of the Internal Revenue Code of 1986 (as amended, the “Code”), which could substantially limit our ability to use our net operating loss carryover (collectively, the “NOLs”) to reduce anticipated future tax liabilities. The 2023 Amendment, among other things, (i) extended the NOL Rights Plan’s expiration date through December 1, 2026 to protect the Company’s NOLs, (ii) provided for the early termination of the NOL Rights Plan if the Company fails to obtain shareholder approval thereof by December 1, 2024 and (iii) reduced the purchase price from \$28 to \$9 per one ten-thousandth of a Preferred Share (as defined below).

Pursuant to the NOL Rights Plan, the Company’s board of directors (the “Board”) declared a dividend of one preferred share purchase right (each, a “Right”) for each outstanding share of Common Stock. The dividend was distributed to shareholders of record as of the close of business on February 25, 2019.

On May 22, 2019, Lumen’s shareholders ratified the NOL Rights Plan. On May 19, 2021, Lumen’s shareholders ratified an amendment that extended its term. The Company plans to re-submit the NOL Rights Plan to its shareholders for ratification of its 2024 annual shareholder meeting.

The following is a summary description of the Rights and the other material terms and conditions of the NOL Rights Plan. This summary is intended to provide a general description only, does not purport to be complete and is qualified in its entirety by reference to, and should be read in conjunction with, the complete text of the NOL Rights Plan. All capitalized terms used herein but not defined herein shall have the meanings ascribed to such terms in the NOL Rights Plan.

Applicability of NOL Rights Plan

Under the NOL Rights Plan, since February 25, 2019, each share of our Common Stock has carried with it one Right until the Distribution Date (as defined below) or the earlier expiration of the Rights, as described below. Shareholders who owned 5.0% or more of the outstanding

Common Stock as of the close of business on February 13, 2019, will not trigger the Rights so long as they do not (i) acquire additional shares of Common Stock representing one-half of one percent (0.5%) or more of the shares of Common Stock outstanding at the time of such acquisition or (ii) fall under 4.9% ownership of Common Stock and then re-acquire shares that in the aggregate equal 4.9% or more of the Common Stock. A person will not trigger the Rights solely as a result of any transaction that the Board determines, in its sole discretion, is an exempt transaction for purposes of triggering the Rights. To the Company's knowledge, only one company held 5.0% or more of the Company's outstanding shares of Common Stock on February 13, 2019, for purposes of Section 382 of the Code, and it has subsequently sold those shares.

The Board may, in its sole discretion prior to the Distribution Date, exempt any person or group for purposes of the NOL Rights Plan if it determines the acquisition by such person or group will not jeopardize tax benefits or is otherwise in the Company's best interests. Any person that acquires shares of Common Stock in violation of these limitations is known as an "Acquiring Person." Notwithstanding the foregoing, a Person shall not be an "Acquiring Person" if the Board determines at any time that a Person who would otherwise be an "Acquiring Person" has become such without intending to become an "Acquiring Person," and such Person divests as promptly as practicable (or within such period of time as the Board determines is reasonable) a sufficient number of shares of Common Stock of the Company so that such Person would no longer be an "Acquiring Person," as defined pursuant to the NOL Rights Plan.

The Rights

From the record date of February 25, 2019 until the Distribution Date or earlier expiration of the Rights, the Rights will trade with, and be inseparable from, the Common Stock. New Rights will also accompany any new shares of Common Stock that are issued after February 13, 2019, until the Distribution Date or earlier expiration of the Rights.

Exercise Price

Each Right will allow its holder to purchase from the Company one ten-thousandth of a share of Series CC Junior Participating Preferred Stock ("Preferred Share") for \$9, subject to adjustment (the "Exercise Price"), once the Rights become exercisable. This fraction of a Preferred Share will give the shareholder approximately the same dividend, voting and liquidation rights as would one share of Common Stock. Prior to exercise, each Right does not give its holder any dividend, voting or liquidation rights.

Exercisability

The Rights will not be exercisable until 10 business days (as may be extended in the discretion of the Board) after the public announcement that a person or group has become an Acquiring Person unless the NOL rights Plan is theretofore terminated or the Rights are theretofore redeemed (as described below).

We refer to the date when the Rights become exercisable as the "Distribution Date." Until that date or earlier expiration of the Rights, the Common Stock certificates will also evidence the Rights, and any transfer of shares of Common Stock will constitute a transfer of Rights. After that date, the Rights will separate from the Common Stock and be evidenced by book-entry credits or by Rights certificates that we will mail to all eligible holders of Common Stock. Any Rights held by an Acquiring Person, or any Affiliates or Associates of the Acquiring Person, are void and may not be exercised.

Consequences of a Person or Group Becoming an Acquiring Person

If a person or group becomes an Acquiring Person, all holders of Rights except the Acquiring Person, or any Affiliates or Associates of the Acquiring Person, may, upon payment of the Exercise Price, purchase shares of our Common Stock with a market value of twice the Exercise Price, based on the “current per share market price” of the Common Stock (as defined in the NOL Rights Plan) on the date of the acquisition that resulted in such person or group becoming an Acquiring Person.

Exchange

After a person or group becomes an Acquiring Person, the Board in its sole discretion may extinguish the Rights by exchanging one share of Common Stock or an equivalent security for each Right, other than Rights held by the Acquiring Person or any Affiliates or Associates of the Acquiring Person.

Preferred Share Provisions

Each one ten-thousandth of a Preferred Share, if issued:

- would not be redeemable;
- would entitle holders to dividends equal to the dividends, if any, paid on one share of Common Stock;
- would entitle holders upon liquidation either to receive \$1.00 per share or an amount equal to the payment made on one share of Common Stock, whichever is greater;
- would vote together with the Common Stock as one class on all matters submitted to a vote of shareholders of the Company and will have the same voting power as one share of Common Stock, except as otherwise provided by law; and
- would entitle holders to a per share payment equal to the payment made on one share of Common Stock, if shares of our Common Stock are exchanged via merger, consolidation, or a similar transaction.

The value of each one ten-thousandth interest in a Preferred Share, upon issuance, is expected to approximate the value of one share of Common Stock.

Expiration

The Rights will expire on the earliest of (i) December 1, 2026 (or December 1, 2024 if the NOL Rights Plan is not ratified by shareholders prior to such date), (ii) the time at which the Rights are redeemed, (iii) the time at which the Rights are exchanged, or (iv) the time at which the Board makes certain specified determinations that the NOLs are no longer necessary or in the best interests of the Company and its shareholders.

Redemption

The Board may redeem the Rights for \$0.0001 per Right at any time before the Distribution Date. If the Board redeems any Rights, it must redeem all of the Rights. Once the Rights are redeemed, the only right of the holders of Rights will be to receive the redemption price of \$0.0001 per Right (the “Redemption Price”), subject to adjustment as noted below.

Adjustment Provisions

Upon the terms and conditions specified in the NOL Rights Plan, one or more of the Exercise Price, the number of Preferred Shares issuable per Right, the number of outstanding Rights and the Redemption Price are subject to adjustment in connection with a stock dividend, a subdivision, a combination or consolidation of Common Shares or Preferred Shares (by

reclassification or otherwise) or any similar transaction in order to preserve equivalent rights of the holders of Rights.

Amendments

The terms of the NOL Rights Plan may be amended by the Board without the consent of the holders of the Rights, including to effect additional extensions of the expiration date of the Rights in the future. After any Distribution Date, the Board may not amend the agreement in a way that adversely affects holders of the Rights (other than an Acquiring Person, or an Affiliate or Associate of an Acquiring Person).

Additional Information

For additional information on the NOL Rights Plan, see our Registration Statement on Form 8-A filed with the SEC on March 11, 2019, as amended by the Form 8-A/A reports filed with the SEC on November 27, 2020 and November 20, 2023. The NOL Rights Plan is filed as an exhibit to our accompanying Annual Report on Form 10-K.

Second Amended and Restated Section 382 Rights Agreement

by and between

Lumen Technologies, Inc.

and

Computershare Trust Company, N.A.

(amended and restated on November 15, 2023 and effective as of December 1, 2023)

TABLE OF CONTENTS

Page

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- Exhibit A - [Reserved]
 - Exhibit B - Form of Right Certificate
 - Exhibit C - Summary of Rights to Purchase Preferred Shares
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This Second Amended and Restated Section 382 Rights Agreement (this "Agreement"), by and between Lumen Technologies, Inc., a Louisiana corporation (the "Company"), and Computershare Trust Company, N.A., as rights agent (the "Rights Agent"), is entered into on November 15, 2023, effective as of December 1, 2023.

RECITALS

WHEREAS, the Company and the Rights Agent entered into that certain Section 382 Rights Agreement, dated as of February 13, 2019, which was amended and restated by that certain Amended and Restated Section 382 Rights Agreement, dated as of May 9, 2019, and further amended by that certain First Amendment to Amended and Restated Rights Agreement, effective as of December 1, 2020 (collectively referred to as the "Original Agreement");

WHEREAS, the Company has generated net operating loss carryovers and tax credit carryovers for United States federal income tax purposes ("NOLs"), which are expected to provide valuable tax benefits to the Company. The ability to use the NOLs may be impaired or destroyed by an "ownership change" within the meaning of Section 382 (as such term is hereinafter defined). The Company desires to avoid such an "ownership change" and thereby preserve the ability to use the NOLs without limitation.

WHEREAS, in connection with the adoption of the Original Agreement, the Board of Directors of the Company (the "Board") authorized and declared a dividend of one preferred share purchase right (a "Right") for each Common Share (as hereinafter defined) of the Company outstanding on February 25, 2019 (the "Record Date"), each Right representing the right to purchase one ten-thousandth of a Preferred Share (as hereinafter defined), upon the terms and subject to the conditions herein set forth, and authorized and directed the issuance of one Right with respect to each Common Share that become outstanding between the Record Date and the earliest of the Distribution Date, the Redemption Date, the Early Expiration Date and the Final Expiration Date (as such terms are hereinafter defined);

WHEREAS, Section 27 of the Original Agreement provides that prior to the Distribution Date, the Company may supplement or amend any provision of the Original Agreement without the approval of any holders of Rights;

WHEREAS, no Distribution Date has occurred on or prior to the date hereof;

WHEREAS, the Board deems it advisable and in the best interests of the Company and its shareholders to amend the terms of the Original Agreement as set forth herein; and

WHEREAS, on November 15, 2023, the Board authorized and approved this Agreement.

Accordingly, in consideration of the premises and the mutual agreements herein set forth, the parties hereby agree to amend, restate and supersede the Original Agreement in its entirety as follows:

Section I. Definitions. For purposes of this Agreement, the following terms have the meanings indicated:

- (1) "5 Percent Shareholder" shall mean a "5% shareholder" of the Company within the meaning of Section 382(k)(7) of the Internal Revenue Code of 1986, as amended.
 - (2) "Acquiring Person" shall mean any Person (other than any Exempt Person) who or which, together with all Affiliates and Associates of such Person, shall be the Beneficial Owner of 4.9% or more of the Common Shares of the Company then outstanding, but shall not include
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the Company, any Subsidiary of the Company, any employee benefit plan of the Company or any Subsidiary of the Company, or any entity holding Common Shares for or pursuant to the terms of any such plan; provided, however, that (i) any Person who or which would otherwise be an Acquiring Person as of February 13, 2019 by virtue of being a 5 Percent Shareholder will not be deemed to be an Acquiring Person for any purpose of this Agreement prior to or after February 13, 2019 unless and until such time as (A) such Person or any Affiliate or Associate of such Person thereafter becomes, individually or in the aggregate, by reason of a transaction or transactions after February 13, 2019 the Beneficial Owner of additional Common Shares representing one-half of one percent (0.5%) or more of the Common Shares outstanding at the time of such acquisition, other than (1) pursuant to any agreement or regular-way purchase order for Common Shares that is in effect on or prior to February 13, 2019 and consummated in accordance with its terms after February 13, 2019, or (2) as a result of a stock dividend, rights dividend, subdivision of the Common Shares (such as a forward stock split) or similar transaction effected by the Company in which all holders of Common Shares are treated equally, or (B) any other Person who is the Beneficial Owner of Common Shares becomes an Affiliate or Associate of such Person after February 13, 2019; provided, further, that the foregoing exclusion in this clause (i) shall cease to apply with respect to any Person at such time as such Person, together with all Affiliates and Associates of such Person, Beneficially Owns less than 4.9% of the then-outstanding Common Shares; (ii) a Person will not be deemed to have become an Acquiring Person solely as a result of a reduction in the number of Common Shares outstanding unless and until such time as (A) such Person or any Affiliate or Associate of such Person thereafter becomes the Beneficial Owner of any additional Common Shares, other than as a result of a stock dividend, subdivision, consolidation or combination of the Common Shares (by reclassification or otherwise) or similar transaction effected by the Company in which all holders of Common Shares are treated equally, or (B) any other Person who is the Beneficial Owner of Common Shares becomes an Affiliate or Associate of such Person after February 13, 2019; and (iii) a Person will not be deemed to have become an Acquiring Person solely as a result of an Exempted Transaction, provided, however, that the foregoing exclusion in this clause (iii) shall cease to apply with respect to any Person at such time as such Person (or any Affiliates or Associates of such Person) acquires any additional Common Shares.

In addition, notwithstanding the foregoing, and notwithstanding anything to the contrary provided in this Agreement, a Person shall not be an "Acquiring Person" if the Board determines at any time prior to the Distribution Date that a Person who would otherwise be an "Acquiring Person," has become such inadvertently or without intending to become an "Acquiring Person," and such Person divests as promptly as practicable (or within such period of time as the Board determines is reasonable) a sufficient number of Common Shares so that such Person would no longer be an "Acquiring Person," as defined pursuant to the foregoing.

(3) "Affiliate" shall have the meaning ascribed to such term in Rule 12b-2 of the General Rules and Regulations under the Exchange Act, as in effect on December 1, 2023 and, to the extent not included within the foregoing, will also include, with respect to any Person, any other Person (other than an Exempt Person) whose Common Shares would be deemed constructively owned by such first Person pursuant to the provisions of Section 382; provided, however, that a Person will not be deemed to be the Affiliate or Associate of another Person solely because either or both Persons are or were directors or officers of the Company.

(4) "Associate" shall have the meaning ascribed to such term in Rule 12b-2 of the General Rules and Regulations under the Exchange Act as in effect on December 1, 2023.

(5) A Person shall be deemed the "Beneficial Owner" of and shall be deemed to "beneficially own" any securities:

- (a) which such Person or any of such Person's Affiliates or Associates beneficially owns, directly or indirectly;
- (b) which such Person or any of such Person's Affiliates or Associates has the right to acquire (whether such right is exercisable immediately or only after the passage of time) pursuant to any agreement, arrangement or understanding (other than customary agreements with and between underwriters and selling group members with respect to a bona fide public offering of securities), or upon the exercise of conversion rights, exchange rights, rights (other than these Rights), warrants or options, or otherwise; provided, however, that a Person shall not be deemed the Beneficial Owner of, or to beneficially own, securities tendered pursuant to a tender or exchange offer made by or on behalf of such Person or any of such Person's Affiliates or Associates until such tendered securities are accepted for purchase or exchange; or
- (c) which such Person or any of such Person's Affiliates or Associates has the right to vote pursuant to any agreement, arrangement or understanding; provided, however, that a Person shall not be deemed the Beneficial Owner of, or to beneficially own, any securities if the agreement, arrangement or understanding to vote such securities (1) arises solely from a revocable proxy or consent given to such Person in response to a public proxy or consent solicitation made pursuant to, and in accordance with, the applicable rules and regulations promulgated under the Exchange Act and (2) is not also then reportable on Schedule 13D under the Exchange Act (or any comparable or successor report); or
- (d) which are beneficially owned, directly or indirectly, by any other Person with which such Person or any of such Person's Affiliates or Associates has any agreement, arrangement or understanding (other than customary agreements with and between underwriters and selling group members with respect to a bona fide public offering of securities) for the purpose of acquiring, holding, voting (except to the extent contemplated by the proviso to Section 1(e)(iii) hereof) or disposing of any securities of the Company; or
- (e) which such Person would be deemed to own (whether constructively, indirectly or otherwise) or which otherwise would be aggregated with shares owned by such Person pursuant to Section 382.

Notwithstanding anything in this definition of Beneficial Ownership to the contrary, the phrase "then outstanding," when used with reference to a Person's Beneficial Ownership of securities of the Company, shall mean the number of such securities then issued and outstanding together with the number of such securities not then actually issued and outstanding which such Person would be deemed to beneficially own hereunder.

(6) "Business Day" shall mean any day other than a Saturday, a Sunday, or a day on which banking institutions in New York are authorized or obligated by law or executive order to close.

(7) "Close of Business" on any given date shall mean 5:00 P.M., New York time, on such date; provided, however, that, if such date is not a Business Day, it shall mean 5:00 P.M., New York time, on the next succeeding Business Day.

(8) "Common Shares" when used with reference to the Company shall mean the shares of common stock of the Company, which currently have a par value of \$1.00 per share, but also shall mean such shares if such par value is hereafter reduced or eliminated in accordance with applicable law. "Common Shares" when used with reference to any Person other than the Company shall mean the capital stock (or equity interest) with the greatest voting power of such

other Person or, if such other Person is a Subsidiary of another Person, the Person or Persons which ultimately control such first-mentioned Person.

- (9) “Common Share Equivalents” shall have the meaning set forth in Section 11(a)(iii) hereof.
- (10) [Reserved]
- (11) “Distribution Date” shall have the meaning set forth in Section 3(a) hereof.
- (12) “Early Expiration Date” shall have the meaning set forth in Section 7(a) hereof.
- (13) “Exchange Act” shall mean the Securities Exchange Act of 1934, as amended.
- (14) “Exchange Ratio” shall have the meaning set forth in Section 24(a) hereof.
- (15) “Exempt Person” shall mean any Person whose Beneficial Ownership (together with all Affiliates and Associates of such Person) of 4.9% or more of the then-outstanding Common Shares (1) will not jeopardize or endanger the availability to the Company of any income tax benefit or (2) is otherwise in the best interests of the Company, in each case as determined by the Board in its sole discretion prior to the Distribution Date; provided, however, that such a Person will cease to be an Exempt Person if the Board makes a contrary determination with respect to the effect of such Person’s Beneficial Ownership (together with all Affiliates and Associates of such Person) in its sole discretion prior to the Distribution Date regardless of the reason therefor.
- (16) “Exempted Transaction” means any transaction that the Board, in its sole discretion, has declared exempt pursuant to Section 35, which determination shall be irrevocable with respect to such transaction.
- (17) “Final Expiration Date” shall have the meaning set forth in Section 7(a) hereof.
- (18) [Reserved]
- (19) [Reserved]
- (20) “NOLs” shall have the meaning set forth in the second recital hereof.
- (21) “NYSE” shall mean the New York Stock Exchange.
- (22) “Person” shall mean any individual, firm, corporation, partnership, limited liability company, limited liability partnership, trust or other entity, or a group of Persons making a “coordinated acquisition” of shares or otherwise treated as an entity within the meaning of Section 1.382-3(a)(1) of the Treasury Regulations, and any successor (by merger or otherwise) of such individual or entity, but shall not include a Public Group (as such term is defined in Section 1.382-2T(f)(13) of the Treasury Regulations).
- (23) “Preferred Shares” shall mean shares of Series CC Junior Participating Preferred Shares, par value \$25.00 per share, of the Company.
- (24) “Purchase Price” shall have the meaning set forth in Section 4 hereof.
- (25) “Record Date” shall have the meaning set forth in the third recital hereof.
- (26) “Redemption Date” shall have the meaning set forth in Section 7(a) hereof.

- (27) “Redemption Price” shall have the meaning set forth in Section 23(a) hereof.
- (28) “Right” shall have the meaning set forth in the third recital hereof.
- (29) “Right Certificate” shall have the meaning set forth in Section 3(a) hereof.
- (30) “Section 382” shall mean Section 382 of the Internal Revenue Code of 1986, as amended, and any successor provision or replacement provision.
- (31) [Reserved]
- (32) [Reserved]
- (33) “Shares Acquisition Date” shall mean the date of the first public announcement by the Company that an Acquiring Person has become such, which announcement shall follow a determination by the Board to such effect, which is made and reflected in a Board resolution prior to the earliest of the Redemption Date, the Early Expiration Date and the Final Expiration Date.
- (34) [Reserved]
- (35) “Shareholder Approval” shall mean the approval of this Second Amended and Restated Rights Agreement, effective as of December 1, 2023, between the Company and the Rights Agent, by the affirmative vote of a majority of the votes cast at the meeting of shareholders of the Company duly held in accordance with the Company’s articles of incorporation (as amended) and applicable law.
- (36) [Reserved]
- (37) [Reserved]
- (38) “Subsidiary” of any Person shall mean any corporation or other entity of which a majority of the voting power of the voting equity securities or equity interest is owned, directly or indirectly, by such Person.
- (39) “Summary of Rights” shall have the meaning set forth in Section 3(b) hereof.
- (40) [Reserved]
- (41) “Trading Day” shall have the meaning set forth in Section 11(d)(i) hereof.
- (42) “Treasury Regulations” shall mean final, temporary and proposed income tax regulations promulgated under the Internal Revenue Code of 1986, as amended, including any amendments thereto.

Section II. Appointment of Rights Agent. The Company hereby appoints the Rights Agent to act as rights agent for the Company in accordance with the express terms and conditions hereof (and no implied terms or conditions), and the Rights Agent hereby accepts such appointment. The Company may from time to time appoint such co-Rights Agents as it may deem necessary or desirable; provided that the Company shall notify the Rights Agent in writing ten (10) Business Days prior to such appointment. In the event the Company appoints one or more co-Rights Agents, the respective duties of the Rights Agent and any co-Rights Agents under the provisions of this Agreement shall be as the Company reasonably determines; provided that such duties are consistent with the terms and conditions of this Agreement and that contemporaneously with

such appointment the Company shall notify, in writing, the Rights Agent and any co-Rights Agents of such duties. The Rights Agent shall have no duty to supervise, and shall in no event be liable for, the acts or omissions of any such co-Rights Agents.

Section III. Issue of Right Certificates

(1) Until the tenth Business Day after the Shares Acquisition Date (including any such Shares Acquisition Date which is after February 13, 2019 and prior to the issuance of the Rights) (or such later day, if any, as the Board determines in its sole discretion to be no longer than a fifteen (15) Business Day extension) (as may be extended, the "Distribution Date"), (i) the Rights will be evidenced (subject to the provisions of Section 3(b) and 3(c) hereof) by the certificates for Common Shares of the Company or book entry Common Shares of the Company registered in the names of the holders thereof (which certificates or book entry shares shall also be deemed to be Right Certificates) and not by separate Right Certificates, and (ii) the Rights will be transferable only in connection with the transfer of Common Shares of the Company. As soon as practicable after the Distribution Date, the Company will prepare and execute, the Rights Agent will countersign, and the Company will send or cause to be sent (and the Rights Agent will, if requested to do so by the Company and provided with all necessary information and documentation, in form and substance reasonably satisfactory to the Rights Agent, send) to each record holder of Common Shares of the Company as of the Close of Business on the Distribution Date (other than any Acquiring Person or any Associate or Affiliate of any Acquiring Person), at the address of such holder shown on the records of the Company or transfer agent or registrar for Common Shares, a Right Certificate, in substantially the form of Exhibit B hereto (a "Right Certificate"), evidencing one Right for each Common Share so held (other than with respect to Rights that have become void pursuant to Section 11(a)(ii) hereof or that have been exchanged pursuant to Section 24 hereof). As of the Distribution Date, the Rights will be evidenced solely by such Right Certificates, and the Rights Certificates and the Rights shall be transferable separately from the transfer of Common Shares. The Company shall promptly notify the Rights Agent in writing upon the occurrence of the Distribution Date and, if such notification is given orally, the Company shall confirm the same in writing on or prior to the Business Day next following. Until such written notice is received by the Rights Agent, the Rights Agent may presume conclusively for all purposes that the Distribution Date has not occurred.

(2) After the Record Date, the Company will send (directly or, at the expense of the Company, through the Rights Agent or its transfer agent if the Rights Agent or transfer agent is directed by the Company and provided with all necessary information and documents) a copy of a Summary of Rights to Purchase Preferred Shares, in substantially the form of Exhibit C hereto (the "Summary of Rights"), to each record holder of Common Shares as of the Close of Business on the Record Date (other than any Acquiring Person or any Associate or Affiliate of any Acquiring Person), at the address of such holder shown on the records of the Company or transfer agent or registrar for Common Shares.

(3) Certificates for Common Shares (or confirmation or account statements sent to holders of Common Shares in book-entry form) which become outstanding (including, without limitation, reacquired Common Shares referred to in this paragraph (c)) after the Record Date but prior to the earliest of the Distribution Date, the Redemption Date, the Early Expiration Date or the Final Expiration Date shall bear the following legend:

This certificate also evidences and entitles the holder hereof to certain rights as set forth in the Second Amended and Restated Section 382 Rights Agreement between Lumen Technologies, Inc. (the "Company") and Computershare Trust Company, N.A., or any successor rights agent, effective as of December 1, 2023, as it may be amended from time to time (the "Agreement"), the terms of which are hereby incorporated herein by reference and a copy of which is on file at the principal executive offices of the

Company. Under certain circumstances, as set forth in the Agreement, such Rights (as defined in the Agreement) will be evidenced by separate certificates and will no longer be evidenced by this certificate. The Company will mail to the holder of this certificate a copy of the Agreement without charge after receipt of a written request therefor. As set forth in the Agreement, Rights beneficially owned by any Person (as defined in the Agreement) who becomes an Acquiring Person (as defined in the Agreement) become null and void and are no longer transferable.

With respect to such certificates bearing the foregoing legend, until the earliest of the Distribution Date, the Redemption Date, the Early Expiration Date or the Final Expiration Date, the Rights associated with the Common Shares of the Company represented by such certificates shall be evidenced by such certificates alone, and the surrender for transfer of any such certificate shall also constitute the transfer of the Rights associated with the Common Shares of the Company represented thereby.

With respect to Common Shares in book-entry form for which there has been sent a confirmation or account statement containing the foregoing legend in substantially similar form, until the earliest of the Distribution Date, the Redemption Date, the Early Expiration Date or the Final Expiration Date, the Rights associated with the Common Shares shall be evidenced by such Common Shares alone and registered holders of Common Shares shall also be the registered holders of the associated Rights, and the transfer of any such Common Shares shall also constitute the transfer of the Rights associated with such Common Shares.

In the event that the Company purchases or acquires any Common Shares of the Company after the Record Date but prior to the Distribution Date, any Rights associated with such Common Shares of the Company shall be deemed cancelled and retired so that the Company shall not be entitled to exercise any Rights associated with the Common Shares of the Company which are no longer outstanding.

Notwithstanding this paragraph (c), the omission of the legend or the failure to send, deliver or provide the registered owner of Common Shares a copy of the Summary of Rights shall not affect the enforceability of any part of this Agreement or the rights of any holder of the Rights.

Section IV. Form of Right Certificates. The Right Certificates (and the forms of election to purchase Preferred Shares and of assignment to be printed on the reverse thereof) shall be substantially the same as Exhibit B hereto if the Company elects to issue physical certificates, and may have such changes or marks of identification or designation and such legends, summaries or endorsements printed thereon as the Company may deem appropriate (but which do not affect the rights, duties, liabilities, protections or responsibilities of the Rights Agent hereunder) and as are not inconsistent with the provisions of this Agreement, or as may be required to comply with any applicable law or with any applicable rule or regulation made pursuant thereto or with any applicable rule or regulation of any stock exchange or the Financial Industry Regulatory Authority, or to conform to usage. Subject to the provisions of Section 22 hereof, the Right Certificates shall entitle the holders thereof to purchase such number of one ten-thousandths of a Preferred Share as shall be set forth therein at the price per one ten-thousandth of a Preferred Share set forth therein (the "Purchase Price"), but the number of such one ten-thousandths of a Preferred Share and the Purchase Price shall be subject to adjustment as provided herein. Notwithstanding anything contrary provided herein, the Company may elect to maintain the Rights in book-entry form rather than issuing Rights Certificates.

Section V. Countersignature and Registration. The Right Certificates shall be executed on behalf of the Company by its Chief Executive Officer, Chief Financial Officer, President, General Counsel, Corporate Secretary, any of its Executive or Senior Vice Presidents or its

Treasurer, either manually or by electronic signature (e.g., PDF). The Right Certificates shall be countersigned manually or by facsimile or by other electronic means (e.g., PDF) by an authorized signatory of the Rights Agent and shall not be valid for any purpose unless countersigned. In case any officer of the Company who shall have signed any of the Right Certificates shall cease to be such officer of the Company before countersignature by the Rights Agent and issuance and delivery by the Company, such Right Certificates, nevertheless, may be countersigned by the Rights Agent and issued and delivered by the Company with the same force and effect as though the individual who signed such Right Certificates had not ceased to be such officer of the Company; and any Right Certificate may be signed on behalf of the Company by any individual who, at the actual date of the execution of such Right Certificate, shall be a proper officer of the Company to sign such Right Certificate, although at the date of the execution of this Agreement any such individual was not such an officer.

Following the Distribution Date, upon receipt by the Rights Agent of notice to that effect and all other relevant information and documents referred to in Section 3(a), the Rights Agent will keep or cause to be kept, at its office(s) designated for such purpose, books for registration and transfer of the Right Certificates issued hereunder. Such books shall show the names and addresses of the respective holders of the Right Certificates, the number of Rights evidenced on its face by each of the Right Certificates and the date of each of the Right Certificates.

Section VI. Transfer, Split Up, Combination and Exchange of Right Certificates; Mutilated, Destroyed, Lost or Stolen Right Certificates. Subject to the provisions of Section 14 hereof, at any time after the Close of Business on the Distribution Date, and at or prior to the Close of Business on the earliest of the Redemption Date, the Early Expiration Date or the Final Expiration Date, any Right Certificate or Right Certificates (other than Right Certificates representing Rights that have become void pursuant to Section 11(a)(ii) hereof, that have been redeemed pursuant to Section 23, or that have been exchanged pursuant to Section 24 hereof) may be transferred, split up, combined or exchanged for another Right Certificate or Right Certificates entitling the registered holder to purchase a like number of one ten-thousandths of a Preferred Share as the Right Certificate or Right Certificates surrendered then entitled such holder to purchase. Any registered holder desiring to transfer, split up, combine or exchange any Right Certificate or Right Certificates shall make such request in writing delivered to the Rights Agent, and shall surrender, together with any required form of assignment duly executed and properly completed, the Right Certificate or Right Certificates to be transferred, split up, combined or exchanged at the office(s) of the Rights Agent designated for such purpose, along with a signature guarantee from an eligible guarantor institution participating in a signature guarantee program approved by the Securities Transfer Association (a "Signature Guarantee"), and such other and further documentation as the Company or the Rights Agent may reasonably request. The Rights Certificates are transferable only on the books and records of the Rights Agent. Neither the Rights Agent nor the Company shall be obligated to take any action whatsoever with respect to the transfer, split up, combination or exchange of any such surrendered Right Certificate until the registered holder has properly completed and duly executed the certificate set forth in the form of assignment on the reverse side of such Rights Certificate accompanied by a Signature Guarantee and such additional evidence of the identity of the Beneficial Owner (or former Beneficial Owner) of the Rights represented by such Rights Certificate as the Company or the Rights Agent may reasonably request. Thereupon the Rights Agent shall countersign and deliver to the Person entitled thereto a Right Certificate or Right Certificates, as the case may be, as so requested. The Company or the Rights Agent may require payment by the holder of the Rights of a sum sufficient to cover any tax or governmental charge that may be imposed in connection with any transfer, split up, combination or exchange of Right Certificates. If and to the extent the Company does require payment of any such taxes or governmental charges, the Company shall give the Rights Agent prompt written notice thereof and the Rights Agent shall not deliver any Rights Certificate unless and until it is satisfied that all such payments have been made, and the Rights Agent shall forward any such sum collected by it

to the Company or to such Persons as the Company specifies by written notice. The Rights Agent shall have no duty or obligation to take any action under any Section of this Agreement which requires the payment of applicable taxes and/or governmental charges unless and until it is satisfied that all such taxes and/or governmental charges have been paid.

Upon receipt by the Company and the Rights Agent of evidence reasonably satisfactory to them of the loss, theft, destruction or mutilation of a Right Certificate, and, in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to them, along with such other and further documentation as the Company or the Rights Agent may reasonably request and, at the Company's request, reimbursement to the Company and the Rights Agent of all reasonable expenses incidental thereto, and upon surrender to the Rights Agent and cancellation of the Right Certificate if mutilated, the Company will execute and deliver a new Right Certificate of like tenor to the Rights Agent for countersignature and delivery to the registered holder in lieu of the Right Certificate so lost, stolen, destroyed or mutilated.

Notwithstanding any other provision hereof, the Company and the Rights Agent may (i) agree to provide for uncertificated Rights in addition to or in lieu of Rights evidenced by Right Certificates, in which case all terms and conditions set forth herein governing Rights Certificates shall be deemed to be modified as necessary or appropriate to reflect uncertificated or book-entry ownership of Rights, and (ii) amend this Agreement, to the extent they deem it necessary or appropriate, to give effect to the foregoing.

Section VII. Exercise of Rights; Purchase Price; Expiration Date of Rights

(1) The registered holder of any Right Certificate may exercise the Rights evidenced thereby (except as otherwise provided herein), in whole or in part, at any time after the Distribution Date, upon surrender of the Right Certificate, with the form of election to purchase and the certificate on the reverse side thereof properly completed and duly executed (with such signature duly guaranteed, if required), to the Rights Agent at the office or offices of the Rights Agent designated for such purpose, accompanied by a Signature Guarantee and such other documentation as the Rights Agent may reasonably request, together with payment of the Purchase Price for each one ten-thousandth of a Preferred Share as to which the Rights are exercised, at or prior to the earliest of (i) December 1, 2026 (the "Final Expiration Date"), (ii) the time at which the Rights are redeemed as provided in Section 23 hereof (the "Redemption Date"), (iii) the time at which such Rights are exchanged as provided in Section 24 hereof, (iv) the time at which the Board determines that the NOLs are utilized in all material respects or that an ownership change under Section 382 would not adversely impact in any material respect the time period in which the Company could use the NOLs, or materially impair the amount of the NOLs that could be used by the Company in any particular time period, for applicable tax purposes, (v) December 1, 2024 if Shareholder Approval has not been obtained prior to such date, or (vi) a determination by the Board, prior to the Distribution Date, that this Agreement and the Rights are no longer in the best interests of the Company and its shareholders (the earliest of the dates set forth in clauses (iv), (v) and (vi), the "Early Expiration Date").

(2) The Purchase Price for each one ten-thousandth of a Preferred Share purchasable pursuant to the exercise of a Right shall be \$9.00, and shall be subject to adjustment from time to time as provided in Section 11 hereof, and shall be payable in lawful money of the United States of America in accordance with paragraph (c) below.

(3) Upon receipt of a Right Certificate representing exercisable Rights, with the form of election to purchase properly completed and duly executed, accompanied by payment of the Purchase Price for the shares to be purchased and an amount equal to any applicable transfer tax required to be paid by the holder of such Right Certificate in accordance with Section 9 hereof in cash or by certified check, cashier's check or money order payable to the order of the Rights

Agent, the Rights Agent shall thereupon promptly (i) (A) requisition from any transfer agent of the Preferred Shares certificates for the number of Preferred Shares to be purchased and the Company hereby irrevocably authorizes any such transfer agent to comply with all such requests, or (B) requisition from the depositary agent depositary receipts representing such number of one ten-thousandths of a Preferred Share as are to be purchased (in which case certificates for the Preferred Shares represented by such receipts shall be deposited by the transfer agent of the Preferred Shares with such depositary agent) and the Company shall direct such depositary agent to comply with such request; (ii) when necessary to comply with this Agreement, requisition from the Company the amount of cash to be paid in lieu of issuance of fractional shares in accordance with Section 14 hereof; (iii) promptly after receipt of such certificates or depositary receipts, cause the same to be delivered to or upon the order of the registered holder of such Right Certificate, registered in such name or names as may be designated by such holder; and (iv) when necessary to comply with this Agreement, after receipt, promptly deliver such cash to or upon the order of the registered holder of such Right Certificate.

(4) In case the registered holder of any Right Certificate shall properly exercise less than all the Rights evidenced thereby, a new Right Certificate evidencing Rights equivalent to the Rights remaining unexercised shall be issued by the Rights Agent to registered holder of such Right Certificate or to such holder's duly authorized assigns, subject to the provisions of Section 14 hereof.

(5) Notwithstanding anything in this Agreement or any Right Certificate to the contrary, neither the Rights Agent nor the Company shall be obligated to take any action with respect to a registered holder upon the occurrence of any purported transfer or exercise as set forth in this Section 7 by such registered holder unless such registered holder has (i) properly completed and duly executed the certificate following the form of election to purchase set forth on the reverse side of the Right Certificate surrendered for such exercise, and (ii) provided such additional evidence of the identity of the Beneficial Owner (or former Beneficial Owner) of the Rights represented by such Rights Certificate as the Company or the Rights Agent reasonably requests.

(6) Except for those provisions herein that expressly survive the termination of this Agreement, this Agreement shall terminate upon the earlier of the Redemption Date, Early Expiration Date or Final Expiration Date and such time as all outstanding Rights have been exercised, redeemed or exchanged hereunder.

Section VIII. Cancellation and Destruction of Right Certificates. All Right Certificates surrendered for the purpose of exercise, transfer, split up, combination or exchange shall, if surrendered to the Company or to any of its agents, be delivered to the Rights Agent for cancellation or in cancelled form, or, if surrendered to the Rights Agent, shall be cancelled by it, and no Right Certificates shall be issued in lieu thereof except as expressly permitted by any of the provisions of this Agreement. The Company shall deliver to the Rights Agent for cancellation and retirement, and the Rights Agent shall so cancel and retire, any other Right Certificate purchased or acquired by the Company otherwise than upon the exercise thereof. Subject to applicable law and regulation, the Rights Agent shall maintain in a retrievable database electronic records of all cancelled or destroyed Rights Certificates which have been canceled or destroyed by the Rights Agent. At the expense of the Company, the Rights Agent shall deliver all cancelled Rights Certificates to the Company, or shall, at the written request of the Company, destroy or cause to be destroyed such cancelled Rights Certificates, and in such case shall deliver a certificate of destruction thereof, executed by the Rights Agent, to the Company.

Section IX. Availability of Preferred Shares. The Company covenants and agrees that it will cause to be reserved and kept available out of its authorized and unissued Preferred Shares or any Preferred Shares held in its treasury the number of Preferred Shares that will be sufficient to permit the exercise in full of all outstanding Rights in accordance with Section 7 hereof. The

Company covenants and agrees that it will take all such action as may be necessary to ensure that all Preferred Shares delivered upon exercise of Rights shall, at the time of delivery of the certificates for such Preferred Shares (subject to payment of the Purchase Price), be duly and validly authorized and issued and fully paid and nonassessable shares.

The Company further covenants and agrees that it will pay when due and payable any and all federal and state transfer taxes and charges which may be payable in respect of the issuance or delivery of the Right Certificates or of any Preferred Shares upon the exercise of Rights. The Company shall not, however, be required to pay any transfer tax which may be payable in respect of any transfer or delivery of Right Certificates to a Person other than, or the issuance or delivery of certificates or depositary receipts for the Preferred Shares in a name other than that of, the registered holder of the Right Certificate evidencing Rights surrendered for exercise or to issue or to deliver any certificates or depositary receipts for Preferred Shares upon the exercise of any Rights until any such tax shall have been paid (any such tax being payable by the holder of such Right Certificate at the time of surrender) or until it has been established to the Company's reasonable satisfaction that no such tax is due.

Section X. Preferred Shares Record Date. Each Person in whose name any certificate for Preferred Shares is issued upon the exercise of Rights shall for all purposes be deemed to have become the holder of record of the Preferred Shares represented thereby on, and such certificate shall be dated, the date upon which the Right Certificate evidencing such Rights was duly surrendered and payment of the Purchase Price (and any applicable transfer taxes) was made; provided, however, that, if the date of such surrender and payment is a date upon which the Preferred Shares transfer books of the Company are closed, such Person shall be deemed to have become the record holder of such shares on, and such certificate shall be dated, the next succeeding Business Day on which the Preferred Shares transfer books of the Company are open. Prior to the exercise of the Rights evidenced thereby, the holder of a Right Certificate shall not be entitled to any rights of a holder of Preferred Shares for which the Rights shall be exercisable, including, without limitation, the right to vote, to receive dividends or other distributions or to exercise any preemptive rights, and shall not be entitled to receive any notice of any proceedings of the Company, except as provided herein.

Section XI. Adjustment of Purchase Price, Number of Shares or Number of Rights The Purchase Price, the number of Preferred Shares covered by each Right and the number of Rights outstanding are subject to adjustment from time to time as provided in this Section 11.

(1) (i) In the event the Company shall at any time after February 13, 2019 (A) declare a dividend on the Preferred Shares payable in Preferred Shares, (B) subdivide the outstanding Preferred Shares, (C) combine or consolidate the outstanding Preferred Shares into a smaller number of Preferred Shares or (D) issue any shares of its capital stock in a reclassification of the Preferred Shares (including any such reclassification in connection with a consolidation or merger in which the Company is the continuing or surviving corporation), except as otherwise provided in this Section 11(a), the Purchase Price in effect at the time of the record date for such dividend or of the effective date of such subdivision, combination, consolidation or reclassification, and the number and kind of shares of capital stock issuable on such date, shall be proportionately adjusted so that the holder of any Right exercised after such time shall be entitled to receive the aggregate number and kind of shares of capital stock which, if such Right had been exercised immediately prior to such date and at a time when the Preferred Shares transfer books of the Company were open, such holder would have owned upon such exercise and been entitled to receive by virtue of such dividend, subdivision, combination, consolidation or reclassification; provided, however, that in no event shall the consideration to be paid upon the exercise of one Right be less than the aggregate par value of the shares of capital stock of the Company issuable upon exercise of one Right.

- (a) Subject to Section 24 hereof, in the event any Person becomes an Acquiring Person after February 13, 2019 (including becoming such prior to the Record Date), each holder of a Right (other than an Acquiring Person or an Affiliate or Associate of an Acquiring Person) shall thereafter have a right to receive, upon exercise thereof at a price equal to the then current Purchase Price multiplied by the number of one ten-thousandths of a Preferred Share for which a Right is then exercisable, in accordance with the terms of this Agreement and in lieu of Preferred Shares, such number of Common Shares of the Company as shall equal the result obtained by (A) multiplying the then current Purchase Price by the number of one ten-thousandths of a Preferred Share for which a Right is then exercisable and dividing that product by (B) 50% of the then current per share market price of the Common Shares of the Company (determined pursuant to Section 11(d) hereof) on the date of the occurrence of such event. In the event that any Person shall become an Acquiring Person and the Rights shall then be outstanding, the Company shall not take any action which would eliminate or diminish the benefits intended to be afforded by the Rights, other than those expressly permitted hereunder.

From and after the occurrence of such event, any Rights that are or were acquired or beneficially owned by any Acquiring Person (or any Associate or Affiliate of such Acquiring Person) shall be void, and any holder of such Rights shall thereafter have no right to exercise such Rights under any provision of this Agreement. No Right Certificate shall be issued pursuant to Section 3 hereof that represents Rights beneficially owned by an Acquiring Person whose Rights would be void pursuant to the preceding sentence or any Associate or Affiliate thereof; no Right Certificate shall be issued at any time upon the transfer of any Rights to an Acquiring Person whose Rights would be void pursuant to the preceding sentence or any Associate or Affiliate thereof or to any nominee of such Acquiring Person, Associate or Affiliate; and any Right Certificate delivered to the Rights Agent for transfer to an Acquiring Person whose Rights would be void pursuant to the preceding sentence shall be cancelled.

- (b) In the event that there shall not be sufficient Common Shares issued but not outstanding or authorized but unissued to permit the exercise in full of the Rights in accordance with subparagraph (ii) above, the Company shall take all such action as may be necessary to authorize additional Common Shares for issuance upon exercise of the Rights. In the event the Company shall, after good faith effort, be unable to take all such action as may be necessary to authorize such additional Common Shares, the Company shall, to the extent permitted by applicable law and any agreements or instruments then in effect to which the Company is a party, make adequate provision to substitute, for each Common Share that would otherwise be issuable upon exercise of a Right, upon exercise of a Right and payment of the applicable Purchase Price, (1) cash; (2) Preferred Shares or fractions of Preferred Shares or other equity securities of the Company (including, without limitation, shares, or units of shares, of Preferred Shares which the Board has determined to have the same value as the Common Shares) (such shares of equity securities being herein called "Common Share Equivalents"); (3) debt securities of the Company; (4) other assets; or (5) any combination of the foregoing, in each case having an aggregate value, as determined by the Board based upon the advice of a financial advisor selected by the Board, equal to the current per share market price of the Common Shares as of the Shares Acquisition Date.
- (2) In case the Company shall fix a record date for the issuance of rights, options or warrants to all holders of Preferred Shares entitling them (for a period expiring within forty-five (45) days after such record date) to subscribe for or purchase Preferred Shares (or shares having the same rights, privileges and preferences as the Preferred Shares ("Equivalent Preferred Shares")) or securities convertible into Preferred Shares or Equivalent Preferred Shares at a price per Preferred Share or Equivalent Preferred Share (or having a conversion price per share, if a

security convertible into Preferred Shares or Equivalent Preferred Shares) less than the then current per share market price of the Preferred Shares (as defined in Section 11(d)) on such record date, the Purchase Price to be in effect after such record date shall be determined by multiplying the Purchase Price in effect immediately prior to such record date by a fraction, the numerator of which shall be the number of Preferred Shares outstanding on such record date plus the number of Preferred Shares which the aggregate offering price of the total number of Preferred Shares and/or Equivalent Preferred Shares so to be offered (and/or the aggregate initial conversion price of the convertible securities so to be offered) would purchase at such current market price and the denominator of which shall be the number of Preferred Shares outstanding on such record date plus the number of additional Preferred Shares and/or Equivalent Preferred Shares to be offered for subscription or purchase (or into which the convertible securities so to be offered are initially convertible); provided, however, that in no event shall the consideration to be paid upon the exercise of one Right be less than the aggregate par value of the shares of capital stock of the Company issuable upon exercise of one Right. In case such subscription price may be paid in a consideration part or all of which shall be in a form other than cash, the value of such consideration shall be as determined in good faith by the Board, whose determination shall be described in a statement filed with the Rights Agent and shall be binding and conclusive for all purposes on the Rights Agent and holders of the Rights. Preferred Shares owned by or held for the account of the Company shall not be deemed outstanding for the purpose of any such computation. Such adjustment shall be made successively whenever such a record date is fixed; and, in the event that such rights, options or warrants are not so issued, the Purchase Price shall be adjusted to be the Purchase Price which would then be in effect if such record date had not been fixed.

(3) In case the Company shall fix a record date for the making of a distribution to all holders of the Preferred Shares (including any such distribution made in connection with a consolidation or merger in which the Company is the continuing or surviving corporation) of evidences of indebtedness or assets (other than a regular quarterly cash dividend or a dividend payable in Preferred Shares) or subscription rights or warrants (excluding those referred to in Section 11(b) hereof), the Purchase Price to be in effect after such record date shall be determined by multiplying the Purchase Price in effect immediately prior to such record date by a fraction, the numerator of which shall be the then-current per share market price of the Preferred Shares on such record date, less the fair market value (as determined in good faith by the Board, whose determination shall be described in a statement filed with the Rights Agent and shall be binding on the Rights Agent and holders of the Rights) of the portion of the assets or evidences of indebtedness so to be distributed or of such subscription rights or warrants applicable to one Preferred Share and the denominator of which shall be such then-current per share market price of the Preferred Shares on such record date; provided, however, that in no event shall the consideration to be paid upon the exercise of one Right be less than the aggregate par value of the shares of capital stock of the Company to be issued upon exercise of one Right. Such adjustments shall be made successively whenever such a record date is fixed; and, in the event that such distribution is not so made, the Purchase Price shall again be adjusted to be the Purchase Price which would then be in effect if such record date had not been fixed.

(4) (i) For the purpose of any computation hereunder, the "current per share market price" of any security (a Security) for the purpose of this Section 11(d)(i) on any date shall be deemed to be the average of the daily closing prices per share of such Security for the thirty (30) consecutive Trading Days immediately prior to such date; provided, however, that, in the event that the current per share market price of the Security is determined during a period following the announcement by the issuer of such Security of (A) a dividend or distribution on such Security payable in shares of such Security or Securities convertible into such shares, or (B) any subdivision, combination, consolidation or reclassification of such Security and prior to the expiration of thirty (30) Trading Days after the ex-dividend date for such dividend or distribution, or the record date for such subdivision, combination, consolidation or

reclassification, then, and in each such case, the current per share market price shall be appropriately adjusted to reflect the current market price per share equivalent of such Security. The closing price for each day shall be the last sale price, regular way, reported at or prior to 4:00 P.M. Eastern time or, in case no such sale takes place on such day, the average of the bid and asked prices, regular way, reported as of 4:00 P.M. Eastern time, in either case, as reported on the NYSE or NASDAQ or, if the Security is not listed or admitted to trading on any national securities exchange, the last quoted price reported at or prior to 4:00 P.M. Eastern time or, if not so quoted, the average of the high bid and low asked prices in the over-the-counter market, as reported as of 4:00 P.M. Eastern time by the OTC Bulletin Board or such other system then in use, or, if on any such date the Security is not quoted by any such organization, the average of the closing bid and asked prices as furnished by a professional market maker making a market in the Security selected by the Board. If on any such date no such market maker is making a market in the Security, the fair value of the Security on such date as determined in good faith by the Board shall be used.

The term "Trading Day" shall mean a day on which the principal national securities exchange on which the Security is listed or admitted to trading is open for the transaction of business, or, if the Security is not listed or admitted to trading on any national securities exchange, a Business Day.

- (a) For the purpose of any computation hereunder, the "current per share market price" of the Preferred Shares shall be determined in accordance with the method set forth in Section 11(d)(i). However, if the Preferred Shares are not publicly traded, the "current per share market price" of each one ten-thousandth of a Preferred Share shall be conclusively deemed to be the current per share market price of a Common Share as determined pursuant to Section 11(d)(i) hereof (appropriately adjusted to reflect any stock dividend, subdivision, combination or consolidation of the Common Shares (by reclassification or otherwise), or similar transaction occurring after the date hereof). If neither the Common Shares nor the Preferred Shares are publicly held or so listed or traded, "current per share market price" shall mean the fair value per share as determined in good faith by the Board, whose determination shall be described in a statement filed with the Rights Agent.
- (5) No adjustment in the Purchase Price shall be required unless such adjustment would require an increase or decrease of at least 1% in the Purchase Price; provided, however, that any adjustments which by reason of this Section 11(e) are not required to be made shall be carried forward and taken into account in any subsequent adjustment. All calculations under this Section 11 shall be made to the nearest cent or to the nearest one one-millionth of a Preferred Share or one ten-thousandth of any other share or security as the case may be. Notwithstanding the first sentence of this Section 11(e), any adjustment required by this Section 11 shall be made no later than the earlier of (i) three (3) years from the date of the transaction which requires such adjustment or (ii) the date of the expiration of the right to exercise any Rights.
- (6) If, as a result of an adjustment made pursuant to Section 11(a) hereof, the holder of any Right thereafter exercised shall become entitled to receive any shares of capital stock of the Company other than Preferred Shares, thereafter the number of such other shares so receivable upon exercise of any Right shall be subject to adjustment from time to time in a manner and on terms as nearly equivalent as practicable to the provisions with respect to the Preferred Shares contained in Section 11(a) through (c) hereof, inclusive, and the provisions of Sections 7, 9 and 10 hereof with respect to the Preferred Shares shall apply on like terms to any such other shares.
- (7) All Rights originally issued by the Company subsequent to any adjustment made to the Purchase Price hereunder shall evidence the right to purchase, at the adjusted Purchase Price, the number of one ten-thousandths of a Preferred Share purchasable from time to time hereunder upon exercise of the Rights, all subject to further adjustment as provided herein.

(8) Unless the Company shall have exercised its election as provided in Section 11(i) hereof, upon each adjustment of the Purchase Price as a result of the calculations made in Sections 11(b) and (c) hereof, each Right outstanding immediately prior to the making of such adjustment shall thereafter evidence the right to purchase, at the adjusted Purchase Price, that number of one ten-thousandths of a Preferred Share (calculated to the nearest one one-millionth of a Preferred Share) obtained by (A) multiplying (x) the number of one ten-thousandths of a Preferred Share covered by a Right immediately prior to this adjustment by (y) the Purchase Price in effect immediately prior to such adjustment of the Purchase Price and (B) dividing the product so obtained by the Purchase Price in effect immediately after such adjustment of the Purchase Price.

(9) The Company may elect, on or after the date of any adjustment of the Purchase Price, to adjust the number of Rights in substitution for any adjustment in the number of one ten-thousandths of a Preferred Share purchasable upon the exercise of a Right. Each of the Rights outstanding after such adjustment of the number of Rights shall be exercisable for the number of one ten-thousandths of a Preferred Share for which a Right was exercisable immediately prior to such adjustment. Each Right held of record prior to such adjustment of the number of Rights shall become that number of Rights (calculated to the nearest one ten-thousandth) obtained by dividing the Purchase Price in effect immediately prior to adjustment of the Purchase Price by the Purchase Price in effect immediately after adjustment of the Purchase Price. The Company shall make a public announcement (with simultaneous written notice to the Rights Agent) of its election to adjust the number of Rights, indicating the record date for the adjustment, and, if known at the time, the amount of the adjustment to be made. This record date may be the date on which the Purchase Price is adjusted or any day thereafter, but, if the Right Certificates have been issued, shall be at least ten (10) days later than the date of the public announcement. If Right Certificates have been issued, upon each adjustment of the number of Rights pursuant to this Section 11(i), the Company shall, as promptly as practicable, cause to be distributed to holders of record of Right Certificates on such record date Right Certificates evidencing, subject to Section 14 hereof, the additional Rights to which such holders shall be entitled as a result of such adjustment, or, at the option of the Company, shall cause to be distributed to such holders of record in substitution and replacement for the Right Certificates held by such holders prior to the date of adjustment, and upon surrender thereof, if required by the Company, new Right Certificates evidencing all the Rights to which such holders shall be entitled after such adjustment. Right Certificates so to be distributed shall be issued, executed and countersigned in the manner provided for herein, and shall be registered in the names of the holders of record of Right Certificates on the record date specified in the public announcement.

(10) Irrespective of any adjustment or change in the Purchase Price or in the number of one ten-thousandths of a Preferred Share issuable upon the exercise of the Rights, the Right Certificates theretofore and thereafter issued may continue to express the Purchase Price and the number of one ten-thousandths of a Preferred Share which were expressed in the initial Right Certificates issued hereunder.

(11) Before taking any action that would cause an adjustment reducing the Purchase Price below one ten-thousandth of the then par value, if any, of the Preferred Shares issuable upon exercise of the Rights, the Company shall take any corporate action which may, in the opinion of its counsel, be necessary in order that the Company may validly and legally issue fully paid and nonassessable Preferred Shares at such adjusted Purchase Price.

(12) In any case in which this Section 11 shall require that an adjustment in the Purchase Price be made effective as of a record date for a specified event, the Company may elect to defer (with prompt written notice thereof to the Rights Agent; and until such written notice is received by the Rights Agent, the Rights Agent may presume conclusively that no such election has occurred) until the occurrence of such event issuing to the holder of any Right exercised after such record date of the Preferred Shares and other capital stock or securities of the Company, if any, issuable

upon such exercise over and above the Preferred Shares and other capital stock or securities of the Company, if any, issuable upon such exercise on the basis of the Purchase Price in effect prior to such adjustment; provided, however, that the Company shall deliver to such holder a due bill or other appropriate instrument evidencing such holder's right to receive such additional shares upon the occurrence of the event requiring such adjustment.

(13) Anything in this Section 11 to the contrary notwithstanding, the Company shall be entitled to make such reductions in the Purchase Price, in addition to those adjustments expressly required by this Section 11, as and to the extent that it, in its sole discretion, shall determine to be advisable in order that any consolidation or subdivision of the Preferred Shares, issuance wholly for cash of any Preferred Shares at less than the current market price, issuance wholly for cash of Preferred Shares or securities which by their terms are convertible into or exchangeable for Preferred Shares, dividends on Preferred Shares payable in Preferred Shares or issuance of rights, options or warrants referred to in Section 11(b) hereof, hereafter made by the Company to holders of the Preferred Shares shall not be taxable to such shareholders.

(14) In the event that, at any time after February 13, 2019 and prior to the Distribution Date, the Company shall (i) declare or pay any dividend on the Common Shares payable in Common Shares, or (ii) effect a subdivision, combination or consolidation of the Common Shares (by reclassification or otherwise) into a greater or lesser number of Common Shares, then, in any such case, (A) the number of one ten-thousandths of a Preferred Share purchasable after such event upon proper exercise of each Right shall be determined by multiplying the number of one ten-thousandths of a Preferred Share so purchasable immediately prior to such event by a fraction, the numerator of which is the number of Common Shares outstanding immediately before such event and the denominator of which is the number of Common Shares outstanding immediately after such event, and (B) each Common Share outstanding immediately after such event shall have issued with respect to it that number of Rights which each Common Share outstanding immediately prior to such event had issued with respect to it. The adjustments provided for in this Section 11(n) shall be made successively whenever such a dividend is declared or paid or such a subdivision, combination or consolidation is effected.

Section XII. Certificate of Adjusted Purchase Price or Number of Shares Whenever an adjustment is made as provided in Section 11 hereof, the Company shall promptly (a) prepare a certificate setting forth such adjustment and a brief, reasonably detailed statement of the facts and computations accounting for such adjustment, (b) promptly file with the Rights Agent and with each transfer agent for the Common Shares or the Preferred Shares and the Securities and Exchange Commission a copy of such certificate and (c) if such adjustment occurs at any time after the Distribution Date, mail a brief summary thereof to each holder of a Right Certificate in accordance with Section 25 hereof. The Rights Agent shall be fully protected in relying on any such certificate and on any adjustments or statements therein contained and shall have no duty or liability with respect to, and shall not be deemed to have knowledge of, any such adjustment or event unless and until it shall have received such certificate.

Section XIII. [Reserved].

Section XIV. Fractional Rights and Fractional Shares.

(1) The Company shall not be required to issue fractions of Rights or to distribute Right Certificates which evidence fractional Rights. In lieu of such fractional Rights, there shall be paid to the registered holders of the Right Certificates with regard to which such fractional Rights would otherwise be issuable, an amount in cash equal to the same fraction of the current market value of a whole Right. For the purposes of this Section 14(a), the current market value of a whole Right shall be the closing price of the Rights (as determined pursuant to the second

sentence of Section 11(d)(i) hereof) for the Trading Day immediately prior to the date on which such fractional Rights would have been otherwise issuable.

(2) The Company shall not be required to issue fractions of Preferred Shares (other than fractions which are integral multiples of one ten-thousandth of a Preferred Share) upon exercise of the Rights or to distribute certificates which evidence fractional Preferred Shares (other than fractions which are integral multiples of one ten-thousandth of a Preferred Share). Fractions of Preferred Shares in integral multiples of one ten-thousandth of a Preferred Share may, at the election of the Company, be evidenced by depositary receipts, pursuant to an appropriate agreement between the Company and a depositary selected by it; provided that such agreement shall provide that the holders of such depositary receipts shall have all the rights, privileges and preferences to which they are entitled as beneficial owners of the Preferred Shares represented by such depositary receipts. In lieu of fractional Preferred Shares that are not integral multiples of one ten-thousandth of a Preferred Share, the Company shall pay to the registered holders of Right Certificates at the time such Rights are exercised as herein provided an amount in cash equal to the same fraction of the current market value of one Preferred Share. For the purposes of this Section 14(b), the current market value of a Preferred Share shall be the closing price of a Preferred Share (as determined pursuant to the second sentence of Section 11(d)(i) hereof) for the Trading Day immediately prior to the date of such exercise.

(3) Following the occurrence of one of the events specified in Section 11 hereof giving rise to the right to receive Common Shares or other securities upon the exercise of a Right, the Company will not be required to issue fractions of Common Shares or other securities upon exercise of the Rights or to distribute certificates which evidence fractional Common Shares or other securities. In lieu of fractional Common Shares or other securities, the Company may pay to the registered holders of Rights Certificates at the time such Rights are exercised as herein provided an amount in cash equal to the same fraction of the current market value of one share of Common Shares or other securities. For purposes of this Section 14(c), the current market value of one share of Common Shares is the closing price of one share of a Common Share for the Trading Day immediately prior to the date of such exercise.

(4) The holder of a Right, by the acceptance of the Right, expressly waives such holder's right to receive any fractional Rights or any fractional shares upon exercise of a Right (except as provided above).

(5) Whenever a payment for fractional Rights or fractional shares is to be made by the Rights Agent under this Agreement, the Company shall (i) promptly prepare and deliver to the Rights Agent a certificate setting forth in reasonable detail the facts related to such payments and the prices and formulas utilized in calculating such payments; and (ii) provide sufficient monies to the Rights Agent in the form of fully collected funds to make such payments. The Rights Agent shall be fully protected in relying upon such a certificate and has no duty with respect to, and will not be deemed to have knowledge of, any payment for fractional Rights or fractional shares under any Section of this Agreement relating to the payment of fractional Rights or fractional shares unless and until the Rights Agent has received such a certificate and sufficient monies.

Section XV. Rights of Action. All rights of action in respect of this Agreement, excepting the rights of action given to the Rights Agent hereunder, are vested in the respective registered holders of the Right Certificates (and, prior to the Distribution Date, the registered holders of the Common Shares); and any registered holder of any Right Certificate (or, prior to the Distribution Date, of the Common Shares), without the consent of the Rights Agent or of the holder of any other Right Certificate (or, prior to the Distribution Date, of the Common Shares), may, on such holder's own behalf and for such holder's own benefit, enforce, and may institute and maintain any suit, action or proceeding against the Company to enforce, or otherwise act in respect of, such holder's right to exercise the Rights evidenced by such Right Certificate in the manner

provided in such Right Certificate and in this Agreement. Without limiting the foregoing or any remedies available to the holders of Rights, it is specifically acknowledged that the holders of Rights would not have an adequate remedy at law for any breach of this Agreement by the Company, and will be entitled to specific performance of the obligations hereunder, and injunctive relief against actual or threatened violations by the Company of its obligations hereunder.

Section XVI. Agreement of Right Holders Every holder of a Right, by accepting the same, consents and agrees with the Company and the Rights Agent and with every other holder of a Right that:

- (1) prior to the Distribution Date, the Rights shall be evidenced by the balances indicated in the book-entry account system of the transfer agent for the Common Shares registered in the names of the holders of Common Shares (which Common Shares shall also be deemed to represent certificates for Rights) or, in the case of certificated shares, the certificates for the Common Shares registered in the names of the holders of the Common Shares (which certificates for Common Shares also constitute certificates for Rights) and each Right is transferable only in connection with the transfer of the Common Shares;
- (2) after the Distribution Date, the Right Certificates are transferable only on the registry books of the Rights Agent if surrendered at the office(s) of the Rights Agent designated for such purpose, duly endorsed or accompanied by a proper instrument of transfer and with the appropriate forms and certificates properly completed and duly executed, accompanied by a Signature Guarantee and such other documentation as the Rights Agent may reasonably request;
- (3) the Company and the Rights Agent may deem and treat the person in whose name the Right Certificate (or, prior to the Distribution Date, the associated balance indicated in the book-entry account system of the transfer agent for the Common Shares, or in the case of certificated shares, by the associated Common Shares certificate) is registered as the absolute owner thereof and of the Rights evidenced thereby (notwithstanding any notations of ownership or writing on the Right Certificate or the associated balance indicated in the book-entry account system of the transfer agent for the Common Shares. or in the case of certificated shares, by the associated Common Shares certificate made by anyone other than the Company or the Rights Agent) for all purposes whatsoever, and neither the Company nor the Rights Agent shall be affected by any notice to the contrary; and
- (4) notwithstanding anything in this Agreement to the contrary, neither the Company nor the Rights Agent has any liability to any holder of a Right or any other Person (without limiting any of the rights of the Rights Agent under Section 18) as a result of the inability of the Company or the Rights Agent to perform any of its or their obligations under this Agreement by reason of any preliminary or permanent injunction or other order, decree, judgment or ruling (whether interlocutory or final) issued by a court of competent jurisdiction or by a governmental, regulatory, self-regulatory or administrative agency or commission, or any statute, rule, regulation or executive order promulgated or enacted by any governmental authority, prohibiting or otherwise restraining performance of such obligation; provided, however, the Company shall use its commercially reasonable efforts to have any such injunction, order, decree, judgment or ruling lifted or otherwise overturned as promptly as practicable.

Section XVII. Right Certificate Holder Not Deemed a Shareholder No holder, as such, of any Right Certificate shall be entitled to vote, receive dividends or be deemed for any purpose the holder of the Preferred Shares or any other securities of the Company which may at any time be issuable on the exercise of the Rights represented thereby, nor shall anything contained herein or in any Right Certificate be construed to confer upon the holder of any Right Certificate, as such, any of the rights of a shareholder of the Company or any right to vote for the election of directors

or upon any matter submitted to shareholders at any meeting thereof, or to give or withhold consent to any corporate action, or to receive notice of meetings or other actions affecting shareholders (except as provided in Section 25 hereof), or to receive dividends or subscription rights, or otherwise, until the Right or Rights evidenced by such Right Certificate shall have been exercised in accordance with the provisions hereof.

Section XVIII. Concerning the Rights Agent

(1) The Company agrees to pay to the Rights Agent reasonable compensation for all services rendered by it hereunder in accordance with a fee schedule to be mutually agreed upon and from time to time, on demand of the Rights Agent, to reimburse the Rights Agent for all of its reasonable and documented expenses and counsel fees and other disbursements incurred in the preparation, negotiation, delivery, amendment, administration and execution of this Agreement and the exercise and performance of its duties hereunder. The Company also agrees to indemnify the Rights Agent and its Affiliates, employees, officers, directors, representatives and advisors for, and to hold it harmless against, any loss, liability, damage, demand, judgment, fine, penalty, claim, settlement, cost or expense (including the reasonable and documented fees and expenses of legal counsel) for any action taken, suffered or omitted to be taken by the Rights Agent pursuant to or arising from this Agreement or in connection with the execution, acceptance, administration, exercise and performance of its duties under this Agreement, including the reasonable and documented costs and expenses of defending against any claim of liability arising therefrom, directly or indirectly. The reasonable costs and expenses incurred in enforcing this right of indemnification shall also be paid by the Company.

(2) The Rights Agent shall be authorized and protected and shall incur no liability for or in respect of any action taken, suffered or omitted to be taken by it in connection with its acceptance and administration of this Agreement and the exercise and performance of its duties hereunder in reliance upon any Rights Certificate or book-entry for Common Shares or other securities of the Company, instrument of assignment or transfer, power of attorney, endorsement, affidavit, letter, notice, instruction, direction, consent, certificate, statements or other paper or document believed by it to be genuine and to be executed and shall not be obligated to verify the accuracy or completeness of such instrument, power of attorney, endorsement, affidavit, letter, notice, direction, consent, certificate, statements or other paper or document and, where necessary, guaranteed, verified or acknowledged, by the proper Person or Persons, or upon any written instructions or statements from the Company with respect to any matter relating to its acting as Rights Agent hereunder without further inquiry or examination on its part, or otherwise upon the advice or opinion of counsel as set forth in Section 20(a) hereof. The Rights Agent shall not be deemed to have knowledge of any event of which it was supposed to receive notice thereof hereunder, and the Rights Agent shall be fully protected and shall incur no liability for failing to take action in connection therewith unless and until it has received such notice in writing.

(3) Notwithstanding anything in this Agreement to the contrary, in no case shall the Company be liable with respect to any action, proceeding, suit or claim against the Rights Agent unless the Rights Agent shall have notified the Company hereof of the assertion of such action, proceeding, suit or claim against the Rights Agent, promptly after the Rights Agent shall have notice of such assertion of an action, proceeding, suit or claim or have been served with the summons or other first legal process giving information as to the nature and basis of the action, proceeding, suit or claim; provided that the failure to provide such notice promptly shall not affect the rights of the Rights Agent hereunder and shall not relieve the Company of any liability to the Rights Agent, except to the extent that such failure actually prejudices the Company. The Company shall be entitled to participate at its own expense in the defense of any such action, proceeding, suit or claim. The Rights Agent agrees not to settle any litigation in connection with any action, proceeding, suit or claim with respect to which it may seek indemnification from the

Company without the prior written consent of the Company, which shall not be unreasonably withheld, conditioned or delayed.

(4) The provisions of this Section 18 and Section 20 hereof shall survive the termination or expiration of this Agreement, the resignation, replacement or removal of the Rights Agent and the exercise, termination or expiration of the Rights. Notwithstanding anything in this Agreement to the contrary, in no event shall the Rights Agent be liable for special, punitive, incidental, indirect or consequential loss or damage of any kind whatsoever (including but not limited to lost profits), even if the Rights Agent has been advised of the likelihood of such loss or damage and regardless of the form of the action; and the Company agrees to indemnify the Rights Agent and its affiliates, directors, employees, representatives and advisors and hold them harmless to the fullest extent permitted by law against any loss, liability or expense incurred as a result of claims for special, punitive, incidental, indirect or consequential loss or damages of any kind whatsoever. Any liability of the Rights Agent under this Agreement shall be limited to the amount of annual fees (but not including any reimbursed costs) paid by the Company to the Rights Agent during the twelve (12) months immediately preceding the event for which recovery from the Rights Agent is being sought.

Section XIX. Merger or Consolidation or Change of Name of Rights Agent

(1) Any Person into which the Rights Agent or any successor Rights Agent is merged or with which the Rights Agent or any successor Rights Agent is consolidated, or any Person resulting from any merger or consolidation to which the Rights Agent or any successor Rights Agent is a party, or any Person succeeding to the corporate trust, stock transfer or other shareholder services business of the Rights Agent or any successor Rights Agent, shall be the successor to the Rights Agent under this Agreement without the execution or filing of any paper or any further act on the part of any of the parties hereto; but only if such Person would be eligible for appointment as a successor Rights Agent under the provisions of Section 21 hereof. The purchase of all or substantially all of the Rights Agent's assets employed in the performance of transfer agent activities shall be deemed a merger or consolidation for purposes of this Section 19. In case at the time such successor Rights Agent shall succeed to the agency created by this Agreement, any of the Rights Certificates have been countersigned but not delivered, any such successor Rights Agent may adopt the countersignature of a predecessor Rights Agent and deliver such Rights Certificates so countersigned; and in case at that time any of the Rights Certificates have not been countersigned, any successor Rights Agent may countersign such Rights Certificates either in the name of the predecessor or in the name of the successor Rights Agent; and in all such cases such Rights Certificates shall have the full force provided in the Rights Certificates and in this Agreement.

(2) In case at any time the name of the Rights Agent shall be changed and at such time any of the Rights Certificates shall have been countersigned but not delivered, the Rights Agent may adopt the countersignature under its prior name and deliver Rights Certificates so countersigned; and in case at that time any of the Rights Certificates shall not have been countersigned, the Rights Agent may countersign such Rights Certificates either in its prior name or in its changed name; and in all such cases such Rights Certificates shall have the full force provided in the Rights Certificates and in this Agreement.

Section XX. Duties of Rights Agent The Rights Agent undertakes the duties and obligations expressly imposed by this Agreement (and no implied duties or obligations) upon the following terms and conditions, by all of which the Company and the holders of Right Certificates, by their acceptance thereof, shall be bound:

(1) The Rights Agent may consult with legal counsel (who may be legal counsel for the Company or an employee of the Rights Agent), and the advice or opinion of such counsel shall

be full and complete authorization and protection to the Rights Agent, and the Rights Agent will have no liability for or in respect of, any action taken or omitted by it in the absence of bad faith and in accordance with such advice or opinion.

(2) Whenever in the performance of its duties under this Agreement the Rights Agent shall deem it necessary or desirable that any fact or matter be proved or established by the Company prior to taking or suffering any action hereunder, such fact or matter (unless other evidence in respect thereof be herein specifically prescribed) may be deemed to be conclusively proved and established by a certificate signed by any one of the Chief Executive Officer, Chief Financial Officer, the President, General Counsel, any Senior Vice President, the Treasurer or the Secretary of the Company and delivered to the Rights Agent; and such certificate shall be full and complete authorization and protection to the Rights Agent for any action taken or suffered or omitted to be taken by it in the absence of bad faith under the provisions of this Agreement in reliance upon such certificate. The Rights Agent shall have no duty to act without such a certificate from an officer of the Company as set forth in the preceding sentence.

(3) The Rights Agent shall be liable hereunder to the Company and any other Person only for its own gross negligence, bad faith, or willful misconduct (which gross negligence, bad faith or willful misconduct must be determined by a court of competent jurisdiction in a final non-appealable order, judgment, decree or ruling). Anything to the contrary notwithstanding, in no event shall the Rights Agent be liable for special, punitive, indirect, consequential or incidental loss or damage of any kind whatsoever (including but not limited to lost profits), even if the Rights Agent has been advised of the likelihood of such loss or damage and regardless of the form of the action; and the Company agrees to indemnify the Rights Agent and its Affiliates, directors, employees, representatives and advisors and to hold them harmless to the fullest extent permitted by law against any loss, liability or expense incurred as a result of claims for special, punitive, incidental, indirect or consequential loss or damage of any kind whatsoever.

(4) The Rights Agent shall not be liable for or by reason of any of the statements of fact or recitals contained in this Agreement or in the Right Certificates (except its countersignature thereof) or be required to verify the same, but all such statements and recitals are and shall be deemed to have been made by the Company only.

(5) The Rights Agent shall not have any liability nor be under any responsibility in respect of the legality or validity of this Agreement or the execution and delivery hereof (except the due execution hereof by the Rights Agent) or in respect of the validity or execution of any Right Certificate (except its countersignature thereof); nor shall it be responsible for any breach by the Company of any covenant or condition contained in this Agreement or in any Right Certificate; nor shall it be responsible for any change in the exercisability of the Rights (including the Rights becoming void pursuant to Section 11(a)(ii) hereof) or any adjustment in the terms of the Rights (including the manner, method or amount thereof) provided for in Section 3, 11, 23 or 24 hereof, or the ascertaining of the existence of facts that would require any such change or adjustment (except with respect to the exercise of Rights evidenced by Right Certificates subject to the terms and conditions hereof after actual notice that such change or adjustment is required); nor shall it by any act hereunder be deemed to make any representation or warranty as to the authorization or reservation of any Preferred Shares to be issued pursuant to this Agreement or any Right Certificate or as to whether any Preferred Shares will, when issued, be validly authorized and issued, fully paid and nonassessable.

(6) The Rights Agent shall not be liable or responsible for any failure of the Company to comply with any of its obligations relating to any registration statement filed with the Securities and Exchange Commission or this Agreement, including obligations under application regulation or law.

(7) The Rights Agent shall not have any duty or responsibility in the case of the receipt of any written demand from any holder of Rights with respect to any action or default by the Company, including, without limiting the generality of the foregoing, any duty or responsibility to initiate or attempt to initiate any proceedings at law or otherwise or to make any demand upon the Company.

(8) The Company agrees that it will perform, execute, acknowledge and deliver or cause to be performed, executed, acknowledged and delivered all such further and other acts, instruments and assurances as may reasonably be required by the Rights Agent for the carrying out or performing by the Rights Agent of the provisions of this Agreement.

(9) The Rights Agent is hereby authorized and directed to accept verbal or written instructions with respect to the performance of its duties hereunder from any person reasonably believed by the Rights Agent to be one of the Chief Executive Officer, Chief Financial Officer, the President, General Counsel, any Senior Vice President, the Secretary or the Treasurer of the Company, and to apply to such officers for advice or instructions in connection with its duties under this Agreement, and such advice or instruction shall be full authorization and protection to the Rights Agent and the Rights Agent shall have no duty to independently verify the accuracy or completeness of such advice or such instructions and it shall not be liable for any action taken or suffered by it in the absence of bad faith in accordance with instructions of any such officer or for any delay in acting while waiting for those instructions. The Rights Agent will not be held to have notice of any change of authority of any person until its receipt of written notice thereof from the Company in accordance with this Agreement. Any application by the Rights Agent for written instructions from the Company may, at the option of the Rights Agent, set forth in writing any action proposed to be taken, suffered or omitted to be taken by the Rights Agent under this Agreement and the date on and/or after which such action shall be taken or such omission shall be effective. The Rights Agent shall be fully authorized and protected in relying upon the most recent verbal or written instructions received from any such officer, and shall not be liable for any action taken, suffered or omitted to be taken by the Rights Agent in accordance with a proposal included in any such application on or after the date specified in such application (which date shall not be less than five (5) Business Days after the date any officer of the Company actually receives such application unless any such officer shall have consented in writing to an earlier date) unless, prior to taking any such action (or the effective date in the case of an omission), the Rights Agent shall have received written instructions in response to such application specifying the action to be taken, suffered or omitted to be taken.

(10) The Rights Agent and any shareholder, director, officer or employee of the Rights Agent may buy, sell or deal in any of the Rights or other securities of the Company or become pecuniarily interested in any transaction in which the Company may be interested, or contract with or lend money to the Company or otherwise act as fully and freely as though it were not Rights Agent under this Agreement. Nothing herein shall preclude the Rights Agent from acting in any other capacity for the Company or for any other legal entity.

(11) The Rights Agent may execute and exercise any of the rights or powers hereby vested in it or perform any duty hereunder either itself (through its directors, officers and/or employees) or by or through its attorneys or agents, and the Rights Agent shall not be answerable or accountable for any act, omission, default, neglect or misconduct of any such attorneys or agents or for any loss to the Company, any holder of Rights or any other Person resulting from any such act, omission, default, neglect or misconduct, absent gross negligence, bad faith or willful misconduct (which gross negligence, bad faith or willful misconduct must be determined by a final, non-appealable order, judgment, decree or ruling of a court of competent jurisdiction) in the selection and continued employment thereof.

(12) No provision of this Agreement shall require the Rights Agent to expend or risk its own funds or otherwise incur any financial liability in the performance of any of its duties hereunder or in the exercise of any of its rights or powers if the Rights Agent has reasonable grounds for believing that repayment of such funds or adequate indemnification against such risk or liability is not reasonably assured to it.

(13) If, with respect to any Rights Certificate surrendered to the Rights Agent for exercise or transfer, either (i) the certificate attached to the form of assignment or form of election to purchase, as the case may be, has either not been properly completed or indicates an affirmative response to clause 1 and/or 2 thereof, or (ii) any other actual or suspected irregularity exists, the Rights Agent shall not take any further action with respect to such requested exercise or transfer without first consulting with the Company, and the Rights Agent shall not be liable for any delays arising from the duties under this Section 20(m).

(14) In the event that the Rights Agent reasonably believes any ambiguity or uncertainty exists hereunder or in any notice, instruction, direction, request or other communication, paper or document received by the Rights Agent hereunder, the Rights Agent may (upon notice to the Company of such ambiguity or uncertainty), in its sole discretion, refrain from taking any action, and will be fully protected and will not be liable or responsible in any way to the Company or other Person or entity for refraining from taking such action, unless the Rights Agent receives written instructions signed by the Company which eliminates such ambiguity or uncertainty to the reasonable satisfaction of the Rights Agent.

(15) The Rights Agent shall have no responsibility to the Company, any holders of Rights or any holders of Common Shares for interest or earnings on any moneys held by the Rights Agent pursuant to this Agreement.

(16) The Rights Agent shall not be required to take notice or be deemed to have notice of any event or condition hereunder, including any event or condition that may require action by the Rights Agent, unless the Rights Agent shall be specifically notified in writing of such event or condition by the Company, and all notices or other instruments required by this Agreement to be delivered to the Rights Agent must, in order to be effective, be received by the Rights Agent, and in the absence of such notice so delivered, the Rights Agent may conclusively assume no such event or condition exists.

(17) The Rights Agent may rely on and be fully authorized and protected in acting or failing to act upon (a) any guaranty of signature by an "eligible guarantor institution" that is a member or participant in the Securities Transfer Agents Medallion Program or other comparable "signature guarantee program" or insurance program in addition to, or in substitution for, the foregoing; or (b) any law, act or regulation of the same.

Section XXI. Change of Rights Agent. The Rights Agent or any successor Rights Agent may resign and be discharged from its duties under this Agreement upon at least thirty (30) days' notice in writing to the Company in accordance with Section 26 hereof, and in the event that the Rights Agent or one of its Affiliates is not also the transfer agent for the Company, to each transfer agent of the Common Shares or Preferred Shares in which case the Company will give or cause to be given written notice to the holders of the Right Certificates by first-class mail. In the event the transfer agency relationship in effect between the Company and the Rights Agent terminates, the Rights Agent will be deemed to have resigned automatically and be discharged from its duties under this Agreement as of the effective date of such termination, and the Company shall be responsible for sending any required notice. The Company may remove the Rights Agent or any successor Rights Agent upon at least thirty (30) days' notice in writing, mailed to the Rights Agent or successor Rights Agent, as the case may be, and to each transfer agent of the Common Shares or Preferred Shares by registered or certified mail, and, if such

removal occurs after the Distribution Date, to the holders of the Right Certificates by first-class mail. If the Rights Agent resigns or is removed or otherwise becomes incapable of acting, the Company shall appoint a successor to the Rights Agent. If the Company fails to make such appointment within a period of thirty (30) days after giving notice of such removal or after it has been notified in writing of such resignation or incapacity by the resigning or incapacitated Rights Agent or by the holder of a Right Certificate (which holder shall, with such notice, submit such holder's Right Certificate for inspection by the Company), then the registered holder of any Right Certificate may apply to any court of competent jurisdiction for the appointment of a new Rights Agent. Any successor Rights Agent, whether appointed by the Company or by such a court, shall be (a) a Person organized and doing business under the laws of the United States or of any State, in good standing, which is authorized under such laws to exercise corporate trust, stock transfer, or shareholder services powers and is subject to supervision or examination by federal or state authority and which at the time of its appointment as Rights Agent has, along with its Affiliates, a combined capital and surplus of at least \$50 million, or (b) an Affiliate of a Person described in clause (a) of this sentence. After appointment, the successor Rights Agent shall be vested with the same powers, rights, duties and responsibilities as if it had been originally named as Rights Agent under this Agreement without further act or deed; but the predecessor Rights Agent shall deliver and transfer to the successor Rights Agent any property at the time held by it hereunder, and execute and deliver any conveyance, act or deed necessary for the purpose (but such predecessor Rights Agent shall not be required to make any additional expenditure or assume any additional liability in connection with the foregoing), in each case at the sole expense of the Company. Not later than the effective date of any such appointment, the Company shall file notice thereof in writing with the predecessor Rights Agent and each transfer agent of the Common Shares or Preferred Shares, and mail a notice thereof in writing to the registered holders of the Right Certificates. Failure to give any notice provided for in this Section 21, however, or any defect therein, shall not affect the legality or validity of the resignation or removal of the Rights Agent or the appointment of the successor Rights Agent, as the case may be.

Section XXII. Issuance of New Right Certificates. Notwithstanding any of the provisions of this Agreement or of the Rights to the contrary, the Company may, at its option, issue new Right Certificates evidencing Rights in such form as may be approved by the Board to reflect any adjustment or change made in accordance with the provisions of this Agreement in the Purchase Price and the number or kind or class of shares or other securities or property purchasable under the Right Certificates made in accordance with the provisions of this Agreement. In addition, in connection with the issuance or sale of Common Shares following the Distribution Date (other than upon exercise of a Right) and prior to the earlier of the Redemption Date, Early Expiration Date or Final Expiration Date, the Company (a) shall, with respect to Common Shares so issued or sold pursuant to the exercise of stock options or under any employee plan or arrangement, or upon the exercise, conversion or exchange of securities hereinafter issued by the Company, and (b) may, in any other case, if deemed necessary or appropriate by the Board, issue Rights Certificates representing the appropriate number of Rights in connection with such issuance or sale; provided, however, that (i) no such Rights Certificate may be issued if, and to the extent that, the Company, in its sole discretion, determines that such issuance would jeopardize or endanger the value or availability to the Company of the NOLs or otherwise create a significant risk of material adverse tax consequences to the Company or the Person to whom such Rights Certificate would be issued, and (ii) no such Rights Certificate may be issued if, and to the extent that, appropriate adjustment shall otherwise have been made in lieu of the issuance thereof.

Section XXIII. Redemption.

(1) The Board may, at its option, at any time prior to the Distribution Date, redeem all but not less than all of the then outstanding Rights at a redemption price of \$0.0001 per Right, appropriately adjusted to reflect any stock dividend, subdivision, combination or consolidation of

the Common Shares (by reclassification or otherwise) or similar transaction occurring after the date hereof (such redemption price being hereinafter referred to as the "Redemption Price"). The redemption of the Rights by the Board may be made effective at such time, on such basis and with such conditions as the Board, in its sole discretion, may establish.

(2) Immediately upon the action of the Board ordering the redemption of the Rights pursuant to paragraph (a) of this Section 23, and without any further action and without any notice, the right to exercise the Rights will terminate and the only right thereafter of the holders of Rights shall be to receive the Redemption Price. The Company shall promptly give (i) written notice to the Rights Agent of any such redemption (and until such written notice is received by the Rights Agent, the Rights Agent may presume conclusively that no such redemptions have occurred); and (ii) public notice of any such redemption; provided, however, that the failure to give, or any defect in, any such notice shall not affect the validity of such redemption. Within ten (10) days after such action of the Board ordering the redemption of the Rights, the Company shall mail a notice of redemption to all the holders of the then outstanding Rights at their last addresses as they appear upon the registry books of the Rights Agent or, prior to the Distribution Date, on the registry books of the transfer agent for the Common Shares. Any notice which is mailed in the manner herein provided shall be deemed given, whether or not the holder receives the notice. Each such notice of redemption will state the method by which the payment of the Redemption Price will be made. Neither the Company nor any of its Affiliates or Associates may redeem, acquire or purchase for value any Rights at any time in any manner other than that specifically set forth in this Section 23 or in Section 24 hereof, and other than in connection with the purchase of Common Shares prior to the Distribution Date.

Section XXIV. Exchange.

(1) The Board may, at its option, at any time after any Person becomes an Acquiring Person, exchange all or part of the then outstanding and exercisable Rights (which shall not include Rights that have become void pursuant to the provisions of Section 11(a)(ii) hereof) for Common Shares at an exchange ratio of one Common Share per Right, appropriately adjusted to reflect any adjustment in the number of Rights pursuant to Section 11(a)(i) (such exchange ratio being hereinafter referred to as the "Exchange Ratio").

(2) Immediately upon the action of the Board ordering the exchange of any Rights pursuant to paragraph (a) of this Section 24 and without any further action and without any notice, the right to exercise such Rights shall terminate and the only right thereafter of a holder of such Rights shall be to receive that number of Common Shares equal to the number of such Rights held by such holder multiplied by the Exchange Ratio. The Company shall promptly give (i) written notice to the Rights Agent of any such exchange, and (ii) public notice of any such exchange; provided, however, that the failure to give, or any defect in, such notice shall not affect the validity of such exchange (and until such written notice is received by the Rights Agent, the Rights Agent may presume conclusively that no such exchange has occurred). The Company shall promptly mail a notice of any such exchange to all of the holders of such Rights at their last addresses as they appear upon the registry books of the Rights Agent. Any notice which is mailed in the manner herein provided shall be deemed given, whether or not the holder receives the notice. Each such notice of exchange will state the method by which the exchange of the Common Shares for Rights will be effected, and, in the event of any partial exchange, the number of Rights which will be exchanged. Any partial exchange shall be effected pro rata based on the number of Rights (other than Rights which have become void pursuant to the provisions of Section 11(a)(ii) hereof) held by each holder of Rights.

(3) In the event that there shall not be sufficient Common Shares issued but not outstanding or authorized but unissued to permit any exchange of Rights as contemplated in accordance with this Section 24, the Company shall take all such action as may be necessary to authorize

additional Common Shares for issuance upon exchange of the Rights. In the event the Company shall, after good faith effort, be unable to take all such action as may be necessary to authorize such additional Common Shares, the Company shall substitute, for each Common Share that would otherwise be issuable upon exchange of a Right, a number of one ten-thousandths of a Preferred Share that would have been purchasable assuming exercise of a Right immediately before the Shares Acquisition Date.

(4) The Company shall not be required to issue fractions of Common Shares or to distribute certificates which evidence fractional Common Shares. In lieu of such fractional Common Shares, the Company shall pay to the registered holders of the Right Certificates with regard to which such fractional Common Shares would otherwise be issuable an amount in cash equal to the same fraction of the current market value of a whole Common Share. For the purposes of this paragraph (d), the current market value of a whole Common Share shall be the closing price of a Common Share (as determined pursuant to the second sentence of Section 11(d)(i) hereof) for the Trading Day immediately prior to the date of exchange pursuant to this Section 24.

Section XXV. Notice of Certain Events.

(1) In case the Company shall, at any time after the Distribution Date, propose (i) to pay any dividend payable in stock of any class to the holders of the Preferred Shares or to make any other distribution to the holders of the Preferred Shares (other than a regular quarterly cash dividend), (ii) to offer to the holders of the Preferred Shares rights or warrants to subscribe for or to purchase any additional Preferred Shares or shares of stock of any class or any other securities, rights or options, (iii) to effect any reclassification of the Preferred Shares (other than a reclassification involving only the subdivision of outstanding Preferred Shares), (iv) to effect any consolidation or merger into or with, or to effect any sale or other transfer (or to permit one or more of its Subsidiaries to effect any sale or other transfer), in one or more transactions, of 50% or more of the assets or earning power of the Company and its Subsidiaries (taken as a whole) to, any other Person, (v) to effect the liquidation, dissolution or winding up of the Company, or (vi) to declare or pay any dividend on the Common Shares payable in Common Shares or to effect a subdivision, combination or consolidation of the Common Shares (by reclassification or otherwise), then, in each such case, the Company shall give to each holder of a Right Certificate, in accordance with Section 26 hereof, a notice of such proposed action, which shall specify the record date for the purposes of such stock dividend, or distribution of rights or warrants, or the date on which such subdivision, combination or consolidation (by way of reclassification or otherwise), merger, sale, transfer, liquidation, dissolution, or winding up is to take place and the date of participation therein by the holders of the Common Shares and/or Preferred Shares, if any such date is to be fixed, and such notice shall be so given in the case of any action covered by clause (i) or (ii) above at least ten (10) days prior to the record date for determining holders of the Preferred Shares for purposes of such action, and, in the case of any such other action, at least ten (10) days prior to the date of the taking of such proposed action or the date of participation therein by the holders of the Common Shares and/or Preferred Shares, whichever shall be the earlier.

(2) In case the event set forth in Section 11(a)(ii) hereof shall occur, then the Company shall, as soon as practicable thereafter, give to each holder of a Right Certificate, in accordance with Section 26 hereof, a notice of the occurrence of such event, which notice shall describe such event and the consequences of such event to holders of Rights under Section 11(a)(ii) hereof.

Section XXVI. Notices. Notices or demands authorized by this Agreement to be given or made by the Rights Agent or by the holder of any Right Certificate to or on the Company shall be sufficiently given or made if by electronic transmission or sent by first-class or express United States mail, or recognized overnight delivery, postage prepaid, addressed (until another address is filed in writing with the Rights Agent) as follows:

Lumen Technologies, Inc.
100 CenturyLink Drive
Monroe, LA 71203
Attention: Company Secretary
Email: stacey.goff@lumen.com

Subject to the provisions of Section 21 hereof, any notice or demand authorized by this Agreement to be given or made by the Company or by the holder of any Right Certificate to or on the Rights Agent shall be sufficiently given or made if in writing by or sent by first-class mail or express United States mail, or recognized overnight delivery, postage prepaid, addressed (until another address is filed in writing with the Company) or by facsimile transmission (with receipt confirmation) as follows:

Computershare Trust Company, N.A.
150 Royall Street
Canton, MA 02021
Attention: Client Services

Facsimile: (781) 575-4210

Notices or demands authorized by this Agreement to be given or made by the Company or the Rights Agent to the holder of any Right Certificate shall be sufficiently given or made if sent by first-class mail, postage prepaid, addressed to such holder at the address of such holder as shown on the registry books of the Rights Agent (or the Company's transfer agent prior to the Distribution Date); provided that prior to the Distribution Date a filing by the Company with the Securities and Exchange Commission shall constitute sufficient notice to the holders of securities of the Company, including the Rights, for purposes of this Agreement and no other notice need be given.

Section XXVII. Supplements and Amendments. The Company may from time to time supplement or amend this Agreement without the approval of any holders of Right Certificates in order to cure any ambiguity, to correct or supplement any provision contained herein which may be defective or inconsistent with any other provisions herein, to shorten or lengthen any time period hereunder, or to amend or make any other provisions with respect to the Rights which the Company may deem necessary or desirable, any such supplement or amendment to be evidenced by a writing signed by the Company and the Rights Agent; provided, however, that, from and after the Distribution Date, this Agreement shall not be amended in any manner which would adversely affect the interests of the holders of Rights (other than an Acquiring Person or an Affiliate or Associate of an Acquiring Person). Upon the delivery of a certificate from any appropriate officer of the Company authorized to executed Right Certificates (or specified in Section 5 hereof) that states that the proposed supplement or amendment is in compliance with the terms of this Section 27, the Rights Agent shall execute such supplement or amendment; provided, however, that the Rights Agent may, but shall not be obligated to, enter into any supplement or amendment that affects the Rights Agent's own rights, duties, obligations or immunities under this Agreement. No supplement or amendment to this Agreement shall be effective unless duly executed by the Rights Agent and the Company.

Section XXVIII. Successors. All the covenants and provisions of this Agreement by or for the benefit of the Company or the Rights Agent shall bind and inure to the benefit of their respective successors and assigns hereunder.

Section XXIX. Benefits of this Agreement. Nothing in this Agreement shall be construed to give to any Person other than the Company, the Rights Agent and the registered holders of the Right

Certificates (and, prior to the Distribution Date, the Common Shares) any legal or equitable right, remedy or claim under this Agreement.

Section XXX. Severability. If any term, provision, covenant or restriction of this Agreement is held by a court of competent jurisdiction or other authority to be invalid, null and void or unenforceable, the remainder of the terms, provisions, covenants and restrictions of this Agreement will remain in full force and effect and will in no way be affected, impaired or invalidated; provided, however, that notwithstanding anything in this Agreement to the contrary, if any such term, provision, covenant or restriction is held by such court or authority to be invalid, null and void or unenforceable and the Board determines in good faith judgment that severing the invalid language from this Agreement would adversely affect the purpose or effect of this Agreement, the right of redemption set forth in Section 23 hereof shall be reinstated and will not expire until the Close of Business on the tenth (10th) Business Day following the date of such determination by the Board provided, further, that if any such severed term, provision, covenant or restriction shall adversely affect the rights, immunities, duties or obligations of the Rights Agent, then the Rights Agent shall be entitled to resign immediately.

Section XXXI. Governing Law. This Agreement, each Right, and each Right Certificate issued hereunder shall be deemed to be a contract made under the laws of the State of Delaware and for all purposes shall be governed by and construed in accordance with the laws of such state applicable to contracts to be made and performed entirely within such state, except that the rights, duties and obligations of the Rights Agent shall be governed by and construed in accordance with the laws of the State of New York applicable to contracts to be made and performed entirely within such state.

Section XXXII. Counterparts. This Agreement may be executed in one or more counterparts and each of such counterparts shall for all purposes be deemed to be an original, and all such counterparts shall together constitute but one and the same instrument. Delivery of an executed signature page of this Agreement by facsimile or any other customary means of electronic transmission (e.g., PDF) shall be effective as delivery of a manually executed counterpart hereof.

Section XXXIII. Descriptive Headings; Interpretation. Descriptive headings of the several Sections of this Agreement are inserted for convenience only and shall not control or affect in any way the meaning or construction of any of the provisions hereof. The words "include," "includes" and "including" shall be deemed to be followed by the phrase "without limitation." Each reference in this Agreement to a period of time following or after a specified date or event shall be calculated without including such specified date or the day on which such specified event occurs.

Section XXXIV. Determinations and Actions by the Board. For all purposes of this Agreement, any calculation of the number of Common Shares outstanding at any particular time, including for purposes of determining the particular percentage of such outstanding Common Shares of which any Person is the Beneficial Owner, will be made in accordance with, as the Board deems to be applicable, the last sentence of Rule 13d-3(d)(1)(i) of the General Rules and Regulations under the Exchange Act or the provisions of Section 382. The Board will have the exclusive power and authority to administer this Agreement and to exercise all rights and powers specifically granted to the Board or to the Company, or as may be necessary or advisable in the administration of this Agreement, including without limitation the right and power to (i) interpret the provisions of this Agreement (including without limitation Section 23, Section 24, Section 27, this Section 34, Section 35 and other provisions hereof relating to its powers or authority hereunder) and (ii) make all determinations deemed necessary or advisable for the administration of this Agreement (including without limitation any determination contemplated by Section 1(b) and 1(o) or any determination as to whether particular Rights shall have become void). All such

actions, calculations, interpretations and determinations (including, for purposes of clause (y) below, any omission with respect to any of the foregoing) which are done or made by the Board in good faith will (x) be final, conclusive and binding on the Company, the Rights Agent, the holders of the Rights and all other parties and (y) not subject any member of the Board to any liability to any Person, including without limitation the Rights Agent and the holders of the Rights.

Section XXXV. Process to Seek Exemption. Any Person who desires to effect any acquisition of Common Shares that would, if consummated, result in such Person (together with its Affiliates and Associates) beneficially own 4.9% or more of the then outstanding Common Shares (or, in the case of a Person excluded from the definition of "Acquiring Person" in clause (i) of such definition, such applicable percentage) (a "Requesting Person") may, prior to the Shares Acquisition Date, and in accordance with this Section 35, request that the Board grants an exemption with respect to such acquisition under this Agreement (an "Exemption Request"). An Exemption Request shall be in proper form and shall be delivered by registered mail, return receipt requested, to the Secretary of the Company at the principal executive office of the Company. To be in proper form, an Exemption Request shall set forth (a) the name and address of the Requesting Person, (b) the number and percentage of Common Shares then Beneficially Owned by the Requesting Person, together with all Affiliates and Associates of the Requesting Person, (c) a reasonably detailed description of the transaction or transactions by which the Requesting Person would propose to acquire Beneficial Ownership of Common Shares aggregating 4.9% or more of the then outstanding Common Shares (or, in the case of a person excluded from the definition of "Acquiring Person" in clause (i) of such definition, such applicable percentage) and the maximum number and percentage of Common Shares that the Requesting Person proposes to acquire and (d) a reasonably detailed statement of the benefits such Requesting Person expects to be received by the Company and the other shareholders of the Company were the exemption to be granted. The Board shall make a determination whether to grant an exemption in response to an Exemption Request as promptly as practicable (and, in any event, within ten (10) Business Days) after receipt thereof; provided, that the failure of the Board to make a determination within such period shall be deemed to constitute the denial by the Board of the Exemption Request. The Board may deny an Exemption Request if the Board determines, in its sole discretion, that the acquisition of Beneficial Ownership of Common Shares by the Requesting Person could jeopardize or endanger the availability to the Company of the NOLs or for whatever other reason the Board deems reasonable, desirable or appropriate. Any exemption granted hereunder may be granted in whole or in part, and may be subject to limitations or conditions (including a requirement that the Requesting Person agree that it will not acquire Beneficial Ownership of Common Shares in excess of the maximum number and percentage of shares approved by the Board or that it will not make another Exemption Request), in each case as and to the extent the Board shall determine necessary, desirable or appropriate.

Section XXXVI. Tax Compliance and Withholding. The Company hereby authorizes the Rights Agent to deduct from all payments disbursed by the Rights Agent to the holders of the Rights, if applicable, the tax required to be withheld pursuant to Sections 1441, 1442, 1445, 1471 through 1474, and 3406 of the Internal Revenue Code of 1986, as amended, or by any federal or state statutes subsequently enacted, and to make the necessary returns and payments of such tax to the relevant taxing authority. The Company will provide withholding and reporting instructions to the Rights Agent from time to time as relevant, and upon request of the Rights Agent. The Rights Agent shall have no duties with respect to tax withholding, reporting, or payment except as specifically instructed by the Company to be performed in accordance with applicable law.

Section XXXVII. Force Majeure. Notwithstanding anything to the contrary contained herein, the Rights Agent will not have any liability for not performing, or a delay in the performance of, any act, duty, obligation or responsibility by reason of any occurrence beyond the reasonable

control of the Rights Agent (including, without limitation, any act or provision of any present or future law or regulation or governmental authority, any act of God, epidemics, pandemics, war, civil or military disobedience or disorder, riot, rebellion, terrorism, insurrection, fire, earthquake, storm, flood, strike, work stoppage, interruptions or malfunctions of computer facilities, loss of data due to power failures or mechanical difficulties with information, labor dispute, accident or failure or malfunction of any utilities, communication or computer (software or hardware) services or similar occurrence).

Section XXXVIII. [Reserved].

[Remainder of this page intentionally left blank.]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed and attested, all as of the day and year first above written.

Lumen Technologies, Inc.

By /s/ Stacey W. Goff

Name: Stacey W. Goff

Title: Executive Vice President, General Counsel and Secretary

Computershare Trust Company, N.A.

By /s/ Kerri Altig

Name: Kerri Altig

Title: Manager, Client Management

[Signature Page to Second Amended and Restated Section 382 Rights Agreement]

[Reserved]

A-1

Form of Right Certificate

Certificate No. R- Rights

NOT EXERCISABLE AFTER THE FINAL EXPIRATION DATE (AS DEFINED IN THE AGREEMENT) OR EARLIER IF REDEMPTION OR EXCHANGE OCCURS OR AS OTHER-WISE SPECIFIED IN THE AGREEMENT. THE RIGHTS ARE SUBJECT TO REDEMPTION AT \$0.0001 PER RIGHT AND TO EXCHANGE ON THE TERMS SET FORTH IN THE AGREEMENT.

Right Certificate

LUMEN TECHNOLOGIES, INC.

This certifies that , or registered assigns, is the registered owner of the number of Rights set forth above, each of which entitles the owner thereof, subject to the terms, provisions and conditions of the Second Amended and Restated Section 382 Rights Agreement, effective as of December 1, 2023 (as may be amended from time to time, the "Agreement"), between Lumen Technologies, Inc., a Louisiana corporation (the "Company"), and Computershare Trust Company, N.A. (the "Rights Agent"), to purchase from the Company at any time after the Distribution Date (as such term is defined in the Agreement) and prior to the Final Expiration Date (as such term is defined in the Agreement) or earlier as specified in the Agreement, at the office or offices of the Rights Agent designated for such purpose, or at the office of its successor as Rights Agent, one ten-thousandth of a fully paid non-assessable share of Series CC Junior Participating Preferred Stock, par value \$25 per share, of the Company (the "Preferred Shares"), at a purchase price of \$9.00 per one ten-thousandth of a Preferred Share (the "Exercise Price"), upon presentation and surrender of this Right Certificate with the Form of Election to Purchase duly executed. The number of Rights evidenced by this Right Certificate (and the number of one ten-thousandths of a Preferred Share which may be purchased upon exercise hereof) set forth above, and the Exercise Price set forth above, are the number and Exercise Price as of December 1, 2023, based on the Preferred Shares as constituted at such date. As provided in the Agreement, the Exercise Price and the number of one ten-thousandths of a Preferred Share which may be purchased upon the exercise of the Rights evidenced by this Right Certificate are subject to modification and adjustment upon the happening of certain events.

This Right Certificate is subject to all of the terms, provisions and conditions of the Agreement, which terms, provisions and conditions are hereby incorporated herein by reference and made a part hereof and to which Agreement reference is hereby made for a full description of the rights, limitations of rights, obligations, duties and immunities hereunder of the Rights Agent, the Company and the holders of the Right Certificates. Copies of the Agreement are on file at the principal executive offices of the Company and the offices of the Rights Agent.

This Right Certificate, with or without other Right Certificates, upon surrender at the office or offices of the Rights Agent designated for such purpose, may be exchanged for another Right Certificate or Right Certificates of like tenor and date evidencing Rights entitling the holder to purchase a like aggregate number of Preferred Shares as the Rights evidenced by the Right Certificate or Right Certificates surrendered shall have entitled such holder to purchase. If this Right Certificate shall be exercised in part, the holder shall be entitled to receive upon surrender hereof another Right Certificate or Right Certificates for the number of whole Rights not exercised.

Subject to the provisions of the Agreement, the Rights evidenced by this Right Certificate (i) may be redeemed by the Company at a redemption price of \$0.0001 per Right or (ii) may be exchanged in whole or in part for Preferred Shares or Common Shares (as such term is defined in the Agreement).

No fractional Preferred Shares will be issued upon the exercise of any Right or Rights evidenced hereby (other than fractions which are integral multiples of one ten-thousandth of a Preferred Share, which may, at the election of the Company, be evidenced by depositary receipts), but, in lieu thereof, a cash payment will be made, as provided in the Agreement.

No holder of this Right Certificate shall be entitled to vote or receive dividends or be deemed for any purpose the holder of the Preferred Shares or of any other securities of the Company which may at any time be issuable on the exercise hereof, nor shall anything contained in the Agreement or herein be construed to confer upon the holder hereof, as such, any of the rights of a shareholder of the Company or any right to vote for the election of directors or upon any matter submitted to shareholders at any meeting thereof, or to give or withhold consent to any corporate action, or to receive notice of meetings or other actions affecting shareholders (except as provided in the Agreement), or to receive dividends or subscription rights, or otherwise, until the Right or Rights evidenced by this Right Certificate shall have been exercised as provided in the Agreement.

This Right Certificate shall not be valid or obligatory for any purpose until it shall have been countersigned manually or by electronic means by the Rights Agent.

WITNESS the signature of the proper officers of the Company. Dated as of , 20 .

[Signature blocks intentionally omitted]

Form of Reverse Side of Right Certificate

FORM OF ASSIGNMENT

(To be executed by the registered holder if such holder desires to transfer the Right Certificate.)

FOR VALUE RECEIVED hereby sells, assigns and transfers

unto

(Please print name and address of transferee)

this Right Certificate, together with all right, title and interest therein, and does hereby irrevocably constitute and appoint Attorney, to transfer the within Right Certificate on the books of the within-named Company, with full power of substitution.

Dated: _____

Signature

Signature Medallion Guaranteed:

All Guarantees must be made by a financial institution (such as a bank or broker) which is a participant in the Securities Transfer Agents Medallion Program ("STAMP"), the New York Stock Exchange, Inc. Medallion Signature Program ("MSP"), or the Stock Exchanges Medallion Program ("SEMP") and must not be dated. Guarantees by a notary public are not acceptable.

The undersigned hereby certifies that the Rights evidenced by this Right Certificate are not beneficially owned by an Acquiring Person or an Affiliate or Associate thereof (as defined in the Agreement).

Signature

FORM OF ELECTION TO PURCHASE

(To be executed if holder desires to exercise
Rights represented by the Right Certificate.)

To: LUMEN TECHNOLOGIES, INC.

The undersigned hereby irrevocably elects to exercise Rights represented by this Right Certificate to purchase the Preferred Shares issuable upon the exercise of such Rights and requests that certificates for such Preferred Shares be issued in the name of:

Please insert social security
or other identifying number

(Print name and address)

If such number of Rights shall not be all the Rights evidenced by this Right Certificate, a new Right Certificate for the balance remaining of such Rights shall be registered in the name of and delivered to:

Please insert social security
or other identifying number

(Print name and address)

Dated: _____

Signature

Signature Medallion Guaranteed:

All Guarantees must be made by a financial institution (such as a bank or broker) which is a participant in the Securities Transfer Agents Medallion Program ("STAMP"), the New York Stock Exchange, Inc. Medallion Signature Program ("MSP"), or the Stock Exchanges Medallion Program ("SEMP") and must not be dated. Guarantees by a notary public are not acceptable.

The undersigned hereby certifies that the Rights evidenced by this Right Certificate are not beneficially owned by an Acquiring Person or an Affiliate or Associate thereof (as defined in the Agreement).

Signature

NOTICE

The signature in the Form of Assignment or Form of Election to Purchase, as the case may be, must conform to the name as written upon the face of this Right Certificate in every particular, without alteration or enlargement or any change whatsoever.

In the event the certification set forth above in the Form of Assignment or the Form of Election to Purchase, as the case may be, is not completed, the Company and the Rights Agent will deem the beneficial owner of the Rights evidenced by this Right Certificate to be an Acquiring Person or an Affiliate or Associate thereof (as defined in the Agreement) and such Assignment or Election to Purchase will not be honored.

SUMMARY OF RIGHTS TO PURCHASE
PREFERRED SHARES¹Introduction

Our Company, Lumen Technologies, Inc., a Louisiana corporation, has entered into a Second Amended and Restated Section 382 Rights Agreement with Computershare Trust Company, N.A., as Rights Agent, effective as of December 1, 2023 (the “NOL Rights Plan”). Our Board of Directors (the “Board”) approved the NOL Rights Plan in an effort to deter acquisitions of our common stock that would potentially limit our ability to use our built in losses and any resulting net loss carryforwards to reduce potential future federal income tax obligations.

For those interested in the specific terms of the NOL Rights Plan, we provide the following summary description. Please note, however, that this description is only a summary, and is not complete, and should be read together with the entire NOL Rights Plan, which has been filed with the Securities and Exchange Commission as an exhibit to our Current Report on Form 8-K, dated November 15, 2023. A copy of the NOL Rights Plan is available free of charge from our Company.

General. Under the NOL Rights Plan, from and after the record date of February 25, 2019, each share of our common stock will carry with it one preferred share purchase right (a “Right”), until the Distribution Date (as defined below) or earlier expiration of the Rights, as described below. In general, any person that, together with all Affiliates and Associates (each as defined in the NOL Rights Plan), acquires 4.9% or more of our outstanding common stock after February 13, 2019, will be subject to significant potential dilution. Shareholders who owned 5.0% or more of the outstanding common stock as of the close of business on February 13, 2019, will not trigger the NOL Rights Plan so long as they do not (i) acquire additional shares of common stock representing one-half of one percent (0.5%) or more of the shares of common stock outstanding at the time of such acquisition or (ii) fall under 4.9% ownership of common stock and then re-acquire shares that in the aggregate equal 4.9% or more of the common stock. A person will not trigger the Rights solely as a result of any transaction that the Board (as defined in the NOL Rights Plan) determines, in its sole discretion, is an exempt transaction for purposes of triggering the Rights.

The Board may, in its sole discretion prior to the Distribution Date, exempt any person or group for purposes of the NOL Rights Plan if the Board determines the acquisition by such person or group will not jeopardize tax benefits or is otherwise in the Company’s best interests. Any person that acquires shares of common stock in violation of these limitations is known as an “Acquiring Person.” Notwithstanding the foregoing, a Person (as defined in the NOL Rights Plan) shall not be an “Acquiring Person” if the Board determines at any time that a Person who would otherwise be an “Acquiring Person,” has become such without intending to become an “Acquiring Person,” and such Person divests as promptly as practicable (or within such period of time as the Board determines is reasonable) a sufficient number of shares of Common Stock of the Company so that such Person would no longer be an “Acquiring Person,” as defined pursuant to the NOL Rights Plan. The NOL Rights Plan is not expected to interfere with any merger or other business combination approved by our Board.

The Rights. From the record date of February 25, 2019, until the Distribution Date or earlier expiration of the Rights, the Rights will trade with, and will be inseparable from, the

¹ As updated for changes since the Record Date.

common stock. New Rights also accompany new shares of common stock issued after February 13, 2019, until the Distribution Date or earlier expiration of the Rights.

Exercise Price. Each Right will allow its holder to purchase from our Company one ten-thousandth of a share of Series CC Junior Participating Preferred Stock ("Preferred Share") for \$9.00, subject to adjustment (the "Exercise Price"), once the Rights become exercisable. This fraction of a Preferred Share will give the shareholder approximately the same dividend, voting, and liquidation rights as would one share of common stock. Prior to exercise, the Right does not give its holder any dividend, voting, or liquidation rights.

Exercisability. The Rights will not be exercisable until ten (10) business days (as may be extended in the sole discretion of the Board) after the public announcement that a person or group has become an Acquiring Person unless the NOL Rights Plan is theretofore terminated or the Rights are theretofore redeemed (as described below).

We refer to the date when the Rights become exercisable as the "Distribution Date." Until that date or earlier expiration of the Rights, the common stock certificates will also evidence the Rights, and any transfer of shares of common stock will constitute a transfer of Rights. After that date, the Rights will separate from the common stock and be evidenced by book-entry credits or by Rights certificates that we will mail or furnish to all eligible holders of common stock. Any Rights held by an Acquiring Person, or any Affiliates or Associates of the Acquiring Person, are void and may not be exercised.

Consequences of a Person or Group Becoming an Acquiring Person. If a person or group becomes an Acquiring Person, all holders of Rights except the Acquiring Person, or any Affiliates or Associates of the Acquiring Person, may, upon payment of the Exercise Price and subject to the terms and conditions of the NOL Rights Plan, purchase shares of our common stock with a market value of twice the Exercise Price, based on the "current per share market price" of the common stock (as defined in the NOL Rights Plan) on the date of the acquisition that resulted in such person or group becoming an Acquiring Person.

Exchange. After a person or group becomes an Acquiring Person, our Board in its sole discretion may extinguish the Rights by exchanging one share of common stock or an equivalent security for each Right, other than Rights held by the Acquiring Person or any Affiliates or Associates of the Acquiring Person.

Preferred Share Provisions. Each one ten-thousandth of a Preferred Share, if issued:

- will not be redeemable.
- will entitle holders to dividends equal to the dividends, if any, paid on one share of common stock.
- will entitle holders upon liquidation either to receive \$1.00 per share or an amount equal to the payment made on one share of common stock, whichever is greater.
- will vote together with the common stock as one class on all matters submitted to a vote of shareholders of the Company and will have the same voting power as one share of common stock, except as otherwise provided by law.
- will entitle holders to a per share payment equal to the payment made on one share of common stock, if shares of our common stock are exchanged via merger, consolidation, or a similar transaction.

The value of one ten-thousandth interest in a Preferred Share is expected to approximate the value of one share of common stock.

Expiration. The Rights will expire on the earliest of (i) December 1, 2026, (ii) the time at which the Rights are redeemed, (iii) the time at which the Rights are exchanged, (iv) the time at which the Board determines that the Net Operating Losses of the Company (the "NOLs") are utilized in all material respects or that an ownership change under Section 382 of the Internal Revenue Code would not adversely impact in any material respect the time period in which the Company could use the NOLs, or materially impair the amount of the NOLs that could be used by the Company in any particular time period, for applicable tax purposes, (v) December 1, 2024 if approval of the NOL Rights Plan by the affirmative vote of a majority of the votes cast at a duly called meeting has not been obtained prior to such date, or (vi) a determination by the Board, prior to the Distribution Date, that the NOL Rights Plan and the Rights are no longer in the best interests of the Company and its shareholders.

Redemption. The Board may redeem the Rights for \$0.0001 per Right at any time before the Distribution Date. If the Board redeems any Rights, the Board must redeem all of the Rights. Once the Rights are redeemed, the only right of the holders of Rights will be to receive the redemption price of \$0.0001 per Right (the "Redemption Price"), subject to adjustment as noted below.

Adjustment Provisions. Upon the terms and conditions specified in the NOL Rights Plan, one or more of the Exercise Price, the number of Preferred Shares issuable per Right, the number of outstanding Rights and the Redemption Price are subject to adjustment in connection with a stock dividend, a subdivision, a combination or consolidation of the common stock or Preferred Shares (by reclassification or otherwise) or any similar transaction in order to preserve equivalent rights of the holders of Rights.

Amendments. The terms of the NOL Rights Plan may be amended without the consent of the holders of the Rights, including to effect extensions of the expiration of the Rights. After the Distribution Date, the NOL Rights Plan may not be amended in a way that adversely affects holders of the Rights (other than an Acquiring Person, or an Affiliate or Associate of an Acquiring Person).

AMENDMENT AGREEMENT (Dutch Auction) dated as of February 15, 2024 (this "Amendment Agreement"), to the Amended and Restated Credit Agreement dated as of January 31, 2020 (as amended by that certain LIBOR Transition Amendment dated as of March 17, 2023 and as further amended, restated, supplemented or otherwise modified from time to time, the "Credit Agreement"), among LUMEN TECHNOLOGIES, INC. (formerly known as CENTURYLINK, INC.), a Louisiana corporation (the "Borrower"); the ISSUING BANKS and LENDERS party thereto; and BANK OF AMERICA, N.A., as Administrative Agent and Collateral Agent (together with its successors, in either capacity, the "Existing Agent").

WHEREAS, the Borrower, each of the Lenders party hereto (which collectively constitute the Required Lenders) and the Existing Agent have agreed to amend certain provisions of the Credit Agreement as provided below on the terms and conditions set forth herein.

Accordingly, in consideration of the mutual agreements herein contained and other good and valuable consideration, the sufficiency and receipt of which are hereby acknowledged, the parties hereto hereby agree as follows:

SECTION 1. Definitions; Terms Generally. Capitalized terms used and not otherwise defined herein have the meanings assigned to them in the Credit Agreement. The rules of construction set forth in the Credit Agreement shall apply to this Amendment Agreement.

SECTION 2. Amendments and other Agreements

(1) Effective as of the Amendment Agreement Effective Time (as defined below), Section 2.25 of the Credit Agreement is hereby amended to add a new Section 2.25(e) as follows:

"(e) Notwithstanding anything herein to the contrary or otherwise, on or prior to the later of (x) March 31, 2024 and (y) the date on which the Transaction Support Agreement is validly terminated in accordance with the terms thereof, the Borrower may from time to time, at its discretion and in a manner of its choosing, make any offer to purchase Term Loans of one or more Classes (as determined by the Borrower, but excluding the Term A Loans and the Term A-1 Loans); *provided, however*, that such offer must be made available to all holders of such Term Loans on the same express terms and on a *pro rata* basis. For the avoidance of doubt, such offer may include cash or other consideration, may be conducted by way of assignment or otherwise, may be made for up to and including the full outstanding principal amount of such Term Loans and any accrued but unpaid interest thereon and may be referred to as a modified Dutch auction or otherwise. The term "Transaction Support Agreement" shall refer to that certain Amended and Restated Transaction Support Agreement, dated as of January 22, 2024 (as amended, amended and restated, supplemented or otherwise modified from time to time), among the Borrower, the Lenders party thereto and the other parties party thereto."

(2) Notwithstanding anything in the Credit Agreement to the contrary, the Existing Agent hereby acknowledges and agrees in accordance with Section 2.08(c) that two (2) Business Days prior notice of any termination or reduction of Revolving Facility Commitments shall be acceptable.

(3) Notwithstanding anything in the Credit Agreement to the contrary, the Existing Agent hereby acknowledges and agrees in accordance with the last paragraph of Section

2.10(c) that two (2) Business Days prior notice of any prepayment of any Loan under any Facility shall be acceptable.

SECTION 3. Representations and Warranties of the Borrower. To induce the Lenders party hereto to execute and deliver this Amendment Agreement, the Borrower represents and warrants to each of the Lenders and the Existing Agent as of the Amendment Agreement Effective Date that:

(1) the execution, delivery and performance by the Borrower of this Amendment Agreement (i) are within the Borrower's corporate power and have been duly authorized by all necessary corporate legal actions required to be obtained by the Borrower; (ii) does not violate (A) any provision of law, statute, rule or regulation applicable to the Borrower, (B) the certificate or articles of incorporation or other constitutive documents or by-laws of the Borrower or (C) any applicable order of any court or any law, rule, regulation or order of any Governmental Authority applicable to the Borrower; and (iii) requires no action, consent or approval of, registration or filing with or any other action by any Governmental Authority, except for those as have been obtained or will be obtained on or before the Amendment Agreement Effective Date, except in the case of clauses (ii) and (iii), as would not reasonably be expected to result in a Material Adverse Effect; and

(2) this Amendment Agreement has been duly executed and delivered by the Borrower and constitutes, when executed and delivered by the Borrower, a legal, valid and binding obligation of the Borrower, enforceable against the Borrower in accordance with its terms, subject to (i) the effects of bankruptcy, insolvency, moratorium, reorganization, fraudulent conveyance or other similar laws affecting creditors' rights generally, (ii) general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law) and (iii) implied covenants of good faith and fair dealing.

SECTION 4. Effectiveness. This Amendment Agreement shall become effective on the date (such date of such effectiveness being referred to herein as the "Amendment Agreement Effective Date"; such time of such effectiveness being referred to herein as the "Amendment Agreement Effective Time") on which each of the following conditions precedent have been satisfied (or waived by the Required Lenders):

(1) Execution and Delivery of this Amendment Agreement. The Existing Agent shall have received counterparts of this Amendment Agreement duly executed by the Lenders party hereto which constitute the Required Lenders, as applicable, and the Borrower.

(2) Fees. The Borrower shall have paid all reasonable and documented out-of-pocket fees and expenses of the Administrative Agent in connection with the Amendment Agreement or otherwise under the Credit Agreement.

SECTION 5. Reference To And Effect Upon The Amended Credit Agreement and Loan Documents. From and after the Amendment Agreement Effective Date, the term "Loan Documents" in the Credit Agreement and the other Loan Documents shall include, without limitation, this Amendment Agreement and any agreements, instruments and other documents executed and/or delivered in connection herewith.

SECTION 6. GOVERNING LAW; SUBMISSION TO JURISDICTION. THIS AMENDMENT AGREEMENT AND ANY CLAIM, CONTROVERSY, DISPUTE OR CAUSE OF ACTION (WHETHER IN CONTRACT OR TORT OR OTHERWISE) BASED UPON, ARISING OUT OF OR RELATING TO THIS AMENDMENT AGREEMENT SHALL BE CONSTRUED IN ACCORDANCE WITH AND GOVERNED BY THE LAWS OF THE STATE OF NEW YORK, WITHOUT REGARD TO CONFLICTS OF LAW PRINCIPLES

THAT WOULD REQUIRE THE APPLICATION OF ANY OTHER LAW. SECTIONS 9.11 AND 9.15 OF THE CREDIT AGREEMENT ARE INCORPORATED HEREIN, *MUTATIS MUTANDIS*, AS IF A PART HEREOF.

SECTION 7. Counterparts. This Amendment Agreement may, if agreed by the Administrative Agent, be in the form of an Electronic Record and may be executed using Electronic Signatures (including, without limitation, facsimile and .pdf) and shall be considered an original, and shall have the same legal effect, validity and enforceability as a paper record. This Amendment Agreement may be executed in as many counterparts as necessary or convenient, including both paper and electronic counterparts, but all such counterparts are one and the same Amendment Agreement. For the avoidance of doubt, the authorization under this paragraph may include, without limitation, use or acceptance by the Administrative Agent of a manually signed paper document, amendment, approval, consent, information, notice, certificate, request, statement, disclosure or authorization related to this Agreement (each a "Communication") which has been converted into electronic form (such as scanned into PDF format), or an electronically signed Communication converted into another format, for transmission, delivery and/or retention. Notwithstanding anything contained herein to the contrary, the Administrative Agent is under no obligation to accept an Electronic Signature in any form or in any format unless expressly agreed to by the Administrative Agent pursuant to procedures approved by it; provided, further, without limiting the foregoing, (a) to the extent the Administrative Agent has agreed to accept such Electronic Signature, the Administrative Agent shall be entitled to rely on any such Electronic Signature without further verification and (b) upon the request of the Administrative Agent any Electronic Signature shall be promptly followed by a manually executed, original counterpart. For purposes hereof, "Electronic Record" and "Electronic Signature" shall have the meanings assigned to them, respectively, by 15 USC §7006, as it may be amended from time to time.

SECTION 8. Further Assurances. Each of the parties hereto agrees to take all further actions and execute all further documents as the Borrower, the Existing Agent or the Lenders party hereto may from time to time reasonably request to carry out the transactions contemplated by this Amendment Agreement and all other agreements executed and delivered in connection herewith.

SECTION 9. Section Headings. Section headings in this Amendment Agreement are included herein for convenience of reference only, are not part of this Amendment Agreement and shall not affect the construction of, or be taken into consideration in interpreting, this Amendment Agreement.

SECTION 10. Notices. All notices, requests, and demands to or upon the respective parties hereto shall be given in accordance with Section 9.01 of the Credit Agreement.

SECTION 11. Final Agreement, Etc. This Amendment Agreement, the Credit Agreement, the other Loan Documents, and the other written agreements, instruments, and documents entered into in connection therewith set forth in full the terms of agreement between the parties hereto and thereto with respect to the subject matter hereof and thereof and are intended as the full, complete, and exclusive contracts governing the relationship between such parties with respect to the subject matter hereof and thereof, superseding all other discussions, promises, representations, warranties, agreements, and understandings between the parties with respect thereto. By its signature set forth below, the Borrower hereby ratifies and confirms to the Existing Agent and the Lenders that, after giving effect to this Amendment Agreement and the transactions contemplated hereby, each of the Credit Agreement (as amended by this Amendment Agreement) and each other Loan Document continues in full force and effect and is the legal, valid and binding obligation of the Borrower and each other Loan Party party thereto, enforceable against the Borrower and such Loan Party in accordance with its terms, except as

enforceability may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws relating to or limiting creditors' rights generally or by equitable principles and the Borrower hereby ratifies and confirms each such Loan Document. This Amendment Agreement shall not extinguish the obligations of payment of money outstanding under the Credit Agreement or discharge or release the Lien or priority created by any Security Document or any security therefore. The Borrower (i) reaffirms the Liens granted by each Loan Party to the Existing Agent for the benefit of the Secured Parties to secure the Obligations and (ii) acknowledges and agrees that the grants of security interests by each Loan Party contained in the Collateral Agreement shall remain in full force and effect after giving effect to this Amendment Agreement and shall continue to secure all of the Obligations. Nothing herein contained shall be construed as a substitution or novation of the obligations outstanding under the Credit Agreement or any other Loan Document, which shall remain in full force and effect, except to the extent modified hereby. Nothing express or implied in this Amendment Agreement or any other document contemplated hereby shall be construed as a release or other discharge of any of the Loan Parties under any Loan Document from its obligations or liabilities thereunder or be construed or operate as a waiver of any right or remedy, condition in, breach of, or any Default or Event of Default under, the Credit Agreement or any other Loan Document. The Borrower's, the Existing Agent's, or any Lender's exercise or failure to exercise any rights or remedies under any of the foregoing in a particular instance shall not operate as a waiver of its right to exercise the same or different rights and remedies in any other instances. There are no oral agreements among the parties hereto. It is acknowledged and agreed that this Amendment Agreement shall not constitute a waiver or novation of, and is without prejudice to, any all rights and remedies under that certain Amended and Restated Transaction Support Agreement, dated as of January 22, 2024 (as amended, amended and restated, supplemented or otherwise modified from time to time), among the Borrower, the Lenders party thereto and the other parties party thereto.

SECTION 12. Amendments; Severability.

(1) This Amendment Agreement may not be amended, and no provision hereof may be waived, except in accordance with Section 9.08 of the Credit Agreement. This Amendment Agreement is a Loan Document.

(2) To the extent permitted by applicable law, any provision of this Amendment Agreement held to be invalid, illegal or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective to the extent of such invalidity, illegality or unenforceability without affecting the validity, legality and enforceability of the remaining provisions thereof; and the invalidity of a particular provision in a particular jurisdiction shall not invalidate such provision in any other jurisdiction.

(3) In the event any one or more of the provisions contained in this Amendment Agreement or any waiver, amendment or modification to this Amendment Agreement or other Loan Document (or purported waiver, amendment, or modification) including pursuant to this Amendment Agreement, should be held invalid, illegal, unenforceable or to be unauthorized under the terms of Section 9.08 of the Credit Agreement, then: (x) (i) such provisions, waivers, amendments or modifications (or purported waivers, amendments or modifications) shall be construed or deemed modified so as to be valid, legal, enforceable and authorized under the terms of Section 9.08 of the Credit Agreement with an economic effect as close as possible to that of the invalid, illegal, unenforceable or unauthorized provisions, waivers, amendments or modifications, as applicable, and (ii) once construed or modified by clause (i), such provisions, waivers, amendments or modifications (or attempted waivers, amendments, or modifications) shall be deemed to have been operative *ab initio*, (y) any such provision, waiver, amendment or modification (or purported waiver, amendment or modification) not capable of being modified or construed in accordance with the foregoing clause (x) shall automatically be considered without effect, and such provision, waiver, amendment or modification shall for all

purposes be deemed to have never been implemented or occurred, as applicable, and (z) after giving effect to each of the foregoing clauses (x) and (y), the validity, legality and enforceability of the remaining provisions or waivers, amendments or modifications, as applicable, contained herein and therein shall not in any way be affected or impaired thereby.

[Signature pages to follow]

IN WITNESS WHEREOF, this Amendment Agreement has been executed by the parties hereto as of the date first written above.

LUMEN TECHNOLOGIES, INC.

By: /s/ Chris Stansbury

Name: Chris Stansbury

Title: Executive Vice President & Chief
Financial Officer

[Signature Page to Amendment Agreement]

BANK OF AMERICA, N.A.,
as Administrative Agent and Collateral Agent

By: /s/ Don B. Pinzon
Name: Don B. Pinzon
Title: Vice President

[Signature Page to Amendment Agreement]

[Required Lender Signatures on file with Administrative Agent]

[Signature Page to Amendment Agreement]

SECOND SUPPLEMENTAL INDENTURE

SECOND SUPPLEMENTAL INDENTURE (this “Supplemental Indenture”) dated as of December 29, 2023, among GLOBAL CROSSING NORTH AMERICA, INC., GLOBAL CROSSING NORTH AMERICAN HOLDINGS, INC., LEVEL 3 TELECOM HOLDINGS II, LLC, LEVEL 3 TELECOM MANAGEMENT CO. LLC, LEVEL 3 TELECOM OF ALABAMA, LLC, LEVEL 3 TELECOM OF ARKANSAS, LLC, LEVEL 3 TELECOM OF CALIFORNIA, LP, LEVEL 3 TELECOM OF D.C., LLC, LEVEL 3 TELECOM OF IDAHO, LLC, LEVEL 3 TELECOM OF ILLINOIS, LLC, LEVEL 3 TELECOM OF IOWA, LLC, LEVEL 3 TELECOM OF LOUISIANA, LLC, LEVEL 3 TELECOM OF MISSISSIPPI, LLC, LEVEL 3 TELECOM OF NEW MEXICO, LLC, LEVEL 3 TELECOM OF NORTH CAROLINA, LP, LEVEL 3 TELECOM OF OHIO, LLC, LEVEL 3 TELECOM OF OKLAHOMA, LLC, LEVEL 3 TELECOM OF OREGON, LLC, LEVEL 3 TELECOM OF SOUTH CAROLINA, LLC, LEVEL 3 TELECOM OF TEXAS, LLC, LEVEL 3 TELECOM OF UTAH, LLC, LEVEL 3 TELECOM OF VIRGINIA, LLC, LEVEL 3 TELECOM OF WASHINGTON, LLC, LEVEL 3 TELECOM OF WISCONSIN, LP and VYVX, LLC (each, a “New Guarantor” and collectively, the “New Guarantors”), LEVEL 3 PARENT, LLC, a Delaware limited liability company (“Level 3 Parent”), LEVEL 3 FINANCING, INC., a Delaware corporation (the “Issuer”), on behalf of itself and the Guarantors (other than Level 3 Parent) (the “Existing Guarantors”), under the Indenture referred to below, and THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., a national banking association, as trustee and collateral agent under the Indenture referred to below (the “Trustee”).

W I T N E S S E T H :

WHEREAS, the Issuer, Level 3 Parent and the other Guarantors party thereto have heretofore executed and delivered to the Trustee an Indenture dated as of November 29, 2019 (the “Indenture”; capitalized terms used but not defined herein having the meanings assigned thereto in the Indenture), providing for the issuance of its 3.400% Senior Secured Notes due 2027;

WHEREAS, the Indenture permits the New Guarantors to execute and deliver to the Trustee a supplemental indenture pursuant to which the New Guarantors shall unconditionally guarantee all the Issuer's obligations under the Securities pursuant to a Guarantee on the terms and conditions set forth herein;

WHEREAS, the Guarantee contained in this Supplemental Indenture shall constitute a “Note Guarantee”, and each of the New Guarantors shall constitute a “Guarantor”, for all purposes of the Indenture;

WHEREAS, pursuant to Section 801 and Section 1207 of the Indenture, the Trustee and the Issuer are authorized to execute and deliver this Supplemental Indenture; and

WHEREAS, all acts and requirements necessary to make this Supplemental Indenture the legal, valid and binding obligation of Level 3 Parent, the Issuer and the New Guarantors have been done.

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt of which is hereby acknowledged, each New Guarantor, Level 3 Parent, the Issuer, the Existing Guarantors and the Trustee mutually covenant and agree for the equal and ratable benefit of the Holders of the Securities as follows:

1. Agreement to Guaranty. Each New Guarantor hereby agrees, jointly and severally with all the existing Guarantors, to unconditionally guarantee the Issuer's obligations

under the Securities and the Indenture on the terms and subject to the conditions set forth in Article Twelve of the Indenture and to be bound by all other applicable provisions of the Indenture and the Securities.

2. Successors and Assigns. This Supplemental Indenture shall be binding upon each New Guarantor and its successors and assigns and shall inure to the benefit of the successors and assigns of the Trustee and the Holders and, in the event of any transfer or assignment of rights by any Holder or the Trustee, the rights and privileges conferred upon that party in the Indenture and in the Securities shall automatically extend to and be vested in such transferee or assignee, all subject to the terms and conditions of the Indenture.

3. No Waiver. Neither a failure nor a delay on the part of either the Trustee or the Holders in exercising any right, power or privilege under this Supplemental Indenture, the Indenture or the Securities shall operate as a waiver thereof, nor shall a single or partial exercise thereof preclude any other or further exercise of any right, power or privilege. The rights, remedies and benefits of the Trustee and the Holders herein and therein expressly specified are cumulative and not exclusive of any other rights, remedies or benefits which either may have under this Supplemental Indenture, the Indenture or the Securities at law, in equity, by statute or otherwise.

4. Modification. No modification, amendment or waiver of any provision of this Supplemental Indenture, nor the consent to any departure by any New Guarantor therefrom, shall in any event be effective unless the same shall be in writing and signed by the Trustee, and then such waiver or consent shall be effective only in the specific instance and for the purpose for which given. No notice to or demand on any New Guarantor in any case shall entitle any such New Guarantor to any other or further notice or demand in the same, similar or other circumstances.

5. Opinion of Counsel. Concurrently with the execution and delivery of this Supplemental Indenture, the Issuer shall deliver to the Trustee an Opinion of Counsel to the effect that this Supplemental Indenture has been duly authorized, executed and delivered by each New Guarantor and the Issuer and that, subject to the application of bankruptcy, insolvency, moratorium, fraudulent conveyance or transfer and other similar laws relating to creditors' rights generally and to the principles of equity, whether considered in a proceeding at law or in equity, the Guarantee of each New Guarantor is a legal, valid and binding obligation of such New Guarantor, enforceable against such New Guarantor in accordance with its terms.

6. Ratification of Indenture; Supplemental Indentures Part of Indenture Except as expressly amended hereby, the Indenture is in all respects ratified and confirmed and all the terms, conditions and provisions thereof shall remain in full force and effect. This Supplemental Indenture shall form a part of the Indenture for all purposes, and every Holder of Securities heretofore or hereafter authenticated and delivered shall be bound hereby.

7. Governing Law. **THIS SUPPLEMENTAL INDENTURE SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK BUT WITHOUT GIVING EFFECT TO APPLICABLE PRINCIPLES OF CONFLICTS OF LAW TO THE EXTENT THAT THE APPLICATION OF THE LAWS OF ANOTHER JURISDICTION WOULD BE REQUIRED THEREBY.**

8. Counterparts. The parties may sign any number of copies of this Supplemental Indenture. Each signed copy shall be an original, but all of them together represent the same agreement.

9. Effect of Headings. The Section headings herein are for convenience only and shall not affect the construction thereof.

10. Trustee. The Trustee makes no representations as to the validity or sufficiency of this Supplemental Indenture. The recitals and statements herein are deemed to be those of the Issuer, Level 3 Parent, the Existing Guarantors and the New Guarantors, and not of the Trustee.

[Remainder of this page intentionally left blank]

IN WITNESS WHEREOF, the parties hereto have caused this Supplemental Indenture to be duly executed as of the date first above written.

GLOBAL CROSSING NORTH AMERICA, INC.
GLOBAL CROSSING NORTH AMERICAN HOLDINGS, INC.
LEVEL 3 TELECOM HOLDINGS II, LLC
LEVEL 3 TELECOM MANAGEMENT CO. LLC
LEVEL 3 TELECOM OF ALABAMA, LLC
LEVEL 3 TELECOM OF ARKANSAS, LLC
LEVEL 3 TELECOM OF CALIFORNIA, LP
LEVEL 3 TELECOM OF D.C., LLC
LEVEL 3 TELECOM OF IDAHO, LLC
LEVEL 3 TELECOM OF ILLINOIS, LLC
LEVEL 3 TELECOM OF IOWA, LLC
LEVEL 3 TELECOM OF LOUISIANA, LLC
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LEVEL 3 TELECOM OF OHIO, LLC
LEVEL 3 TELECOM OF OKLAHOMA, LLC
LEVEL 3 TELECOM OF OREGON, LLC
LEVEL 3 TELECOM OF SOUTH CAROLINA, LLC
LEVEL 3 TELECOM OF TEXAS, LLC
LEVEL 3 TELECOM OF UTAH, LLC
LEVEL 3 TELECOM OF VIRGINIA, LLC
LEVEL 3 TELECOM OF WASHINGTON, LLC
LEVEL 3 TELECOM OF WISCONSIN, LP
VYVX, LLC

By: /s/ Stacey W. Goff

Name: Stacey W. Goff

Title: Executive Vice President & General Counsel

[Signature Page to Supplemental Indenture]

LEVEL 3 PARENT, LLC,

By: /s/ Stacey W. Goff
Name: Stacey W. Goff
Title: Executive Vice President & General Counsel

LEVEL 3 FINANCING, INC., on behalf of itself as the Issuer and the other Existing
Guarantors

By: /s/ Stacey W. Goff
Name: Stacey W. Goff
Title: Executive Vice President & General Counsel

[Signature Page to Supplemental Indenture]

THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., as Trustee and as
Note Collateral Agent

By: /s/ April Bradley
Name: April Bradley
Title: Vice President

[Signature Page to Supplemental Indenture]

SECOND SUPPLEMENTAL INDENTURE

SECOND SUPPLEMENTAL INDENTURE (this "Supplemental Indenture") dated as of December 29, 2023, among GLOBAL CROSSING NORTH AMERICA, INC., GLOBAL CROSSING NORTH AMERICAN HOLDINGS, INC., LEVEL 3 TELECOM HOLDINGS II, LLC, LEVEL 3 TELECOM MANAGEMENT CO. LLC, LEVEL 3 TELECOM OF ALABAMA, LLC, LEVEL 3 TELECOM OF ARKANSAS, LLC, LEVEL 3 TELECOM OF CALIFORNIA, LP, LEVEL 3 TELECOM OF D.C., LLC, LEVEL 3 TELECOM OF IDAHO, LLC, LEVEL 3 TELECOM OF ILLINOIS, LLC, LEVEL 3 TELECOM OF IOWA, LLC, LEVEL 3 TELECOM OF LOUISIANA, LLC, LEVEL 3 TELECOM OF MISSISSIPPI, LLC, LEVEL 3 TELECOM OF NEW MEXICO, LLC, LEVEL 3 TELECOM OF NORTH CAROLINA, LP, LEVEL 3 TELECOM OF OHIO, LLC, LEVEL 3 TELECOM OF OKLAHOMA, LLC, LEVEL 3 TELECOM OF OREGON, LLC, LEVEL 3 TELECOM OF SOUTH CAROLINA, LLC, LEVEL 3 TELECOM OF TEXAS, LLC, LEVEL 3 TELECOM OF UTAH, LLC, LEVEL 3 TELECOM OF VIRGINIA, LLC, LEVEL 3 TELECOM OF WASHINGTON, LLC, LEVEL 3 TELECOM OF WISCONSIN, LP and VYVX, LLC (each, a "New Guarantor" and collectively, the "New Guarantors"), LEVEL 3 PARENT, LLC, a Delaware limited liability company (" Level 3 Parent"), LEVEL 3 FINANCING, INC., a Delaware corporation (the "Issuer"), on behalf of itself and the Guarantors (other than Level 3 Parent) (the "Existing Guarantors"), under the Indenture referred to below, and THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., a national banking association, as trustee and collateral agent under the Indenture referred to below (the "Trustee").

WITNESSETH:

WHEREAS, the Issuer, Level 3 Parent and the other Guarantors party thereto have heretofore executed and delivered to the Trustee an Indenture dated as of November 29, 2019 (the "Indenture"; capitalized terms used but not defined herein having the meanings assigned thereto in the Indenture), providing for the issuance of its 3.875% Senior Secured Notes due 2029;

WHEREAS, the Indenture permits the New Guarantors to execute and deliver to the Trustee a supplemental indenture pursuant to which the New Guarantors shall unconditionally guarantee all the Issuer's obligations under the Securities pursuant to a Guarantee on the terms and conditions set forth herein;

WHEREAS, the Guarantee contained in this Supplemental Indenture shall constitute a "Note Guarantee", and each of the New Guarantors shall constitute a "Guarantor", for all purposes of the Indenture;

WHEREAS, pursuant to Section 801 and Section 1207 of the Indenture, the Trustee and the Issuer are authorized to execute and deliver this Supplemental Indenture; and

WHEREAS, all acts and requirements necessary to make this Supplemental Indenture the legal, valid and binding obligation of Level 3 Parent, the Issuer and the New Guarantors have been done.

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt of which is hereby acknowledged, each New Guarantor, Level 3

Parent, the Issuer, the Existing Guarantors and the Trustee mutually covenant and agree for the equal and ratable benefit of the Holders of the Securities as follows:

I. Agreement to Guaranty. Each New Guarantor hereby agrees, jointly and severally with all the existing Guarantors, to unconditionally guarantee the Issuer's obligations under the Securities and the Indenture on the terms and subject to the conditions set forth in Article Twelve of the Indenture and to be bound by all other applicable provisions of the Indenture and the Securities.

II. Successors and Assigns. This Supplemental Indenture shall be binding upon each New Guarantor and its successors and assigns and shall inure to the benefit of the successors and assigns of the Trustee and the Holders and, in the event of any transfer or assignment of rights by any Holder or the Trustee, the rights and privileges conferred upon that party in the Indenture and in the Securities shall automatically extend to and be vested in such transferee or assignee, all subject to the terms and conditions of the Indenture.

III. No Waiver. Neither a failure nor a delay on the part of either the Trustee or the Holders in exercising any right, power or privilege under this Supplemental Indenture, the Indenture or the Securities shall operate as a waiver thereof, nor shall a single or partial exercise thereof preclude any other or further exercise of any right, power or privilege. The rights, remedies and benefits of the Trustee and the Holders herein and therein expressly specified are cumulative and not exclusive of any other rights, remedies or benefits which either may have under this Supplemental Indenture, the Indenture or the Securities at law, in equity, by statute or otherwise.

IV. Modification. No modification, amendment or waiver of any provision of this Supplemental Indenture, nor the consent to any departure by any New Guarantor therefrom, shall in any event be effective unless the same shall be in writing and signed by the Trustee, and then such waiver or consent shall be effective only in the specific instance and for the purpose for which given. No notice to or demand on any New Guarantor in any case shall entitle any such New Guarantor to any other or further notice or demand in the same, similar or other circumstances.

V. Opinion of Counsel. Concurrently with the execution and delivery of this Supplemental Indenture, the Issuer shall deliver to the Trustee an Opinion of Counsel to the effect that this Supplemental Indenture has been duly authorized, executed and delivered by each New Guarantor and the Issuer and that, subject to the application of bankruptcy, insolvency, moratorium, fraudulent conveyance or transfer and other similar laws relating to creditors' rights generally and to the principles of equity, whether considered in a proceeding at law or in equity, the Guarantee of each New Guarantor is a legal, valid and binding obligation of such New Guarantor, enforceable against such New Guarantor in accordance with its terms.

VI. Ratification of Indenture; Supplemental Indentures Part of Indenture Except as expressly amended hereby, the Indenture is in all respects ratified and confirmed and all the terms, conditions and provisions thereof shall remain in full force and effect. This Supplemental Indenture shall form a part of the Indenture for all purposes, and every Holder of Securities heretofore or hereafter authenticated and delivered shall be bound hereby.

VII. Governing Law. **THIS SUPPLEMENTAL INDENTURE SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK BUT WITHOUT GIVING EFFECT TO APPLICABLE**

PRINCIPLES OF CONFLICTS OF LAW TO THE EXTENT THAT THE APPLICATION OF THE LAWS OF ANOTHER JURISDICTION WOULD BE REQUIRED THEREBY.

VIII. Counterparts. The parties may sign any number of copies of this Supplemental Indenture. Each signed copy shall be an original, but all of them together represent the same agreement.

IX. Effect of Headings. The Section headings herein are for convenience only and shall not affect the construction thereof.

X. Trustee. The Trustee makes no representations as to the validity or sufficiency of this Supplemental Indenture. The recitals and statements herein are deemed to be those of the Issuer, Level 3 Parent, the Existing Guarantors and the New Guarantors, and not of the Trustee.

[Remainder of this page intentionally left blank]

IN WITNESS WHEREOF, the parties hereto have caused this Supplemental Indenture to be duly executed as of the date first above written.

GLOBAL CROSSING NORTH AMERICA, INC.
GLOBAL CROSSING NORTH AMERICAN HOLDINGS, INC.
LEVEL 3 TELECOM HOLDINGS II, LLC
LEVEL 3 TELECOM MANAGEMENT CO. LLC
LEVEL 3 TELECOM OF ALABAMA, LLC
LEVEL 3 TELECOM OF ARKANSAS, LLC
LEVEL 3 TELECOM OF CALIFORNIA, LP
LEVEL 3 TELECOM OF D.C., LLC
LEVEL 3 TELECOM OF IDAHO, LLC
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LEVEL 3 TELECOM OF TEXAS, LLC
LEVEL 3 TELECOM OF UTAH, LLC
LEVEL 3 TELECOM OF VIRGINIA, LLC
LEVEL 3 TELECOM OF WASHINGTON, LLC
LEVEL 3 TELECOM OF WISCONSIN, LP
VYVX, LLC

By: /s/ Stacey W. Goff

Name: Stacey W. Goff

Title: Executive Vice President & General Counsel

[Signature Page to Supplemental Indenture]

LEVEL 3 PARENT, LLC,

By: /s/ Stacey W. Goff
Name: Stacey W. Goff
Title: Executive Vice President & General Counsel

LEVEL 3 FINANCING, INC., on behalf of itself as the Issuer and the other Existing
Guarantors

By: /s/ Stacey W. Goff
Name: Stacey W. Goff
Title: Executive Vice President & General Counsel

[Signature Page to Supplemental Indenture]

THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., as Trustee and as
Note Collateral Agent

By: /s/ April Bradley
Name: April Bradley
Title: Vice President

[Signature Page to Supplemental Indenture]

SECOND SUPPLEMENTAL INDENTURE

SECOND SUPPLEMENTAL INDENTURE (this “Supplemental Indenture”) dated as of December 29, 2023, among GLOBAL CROSSING NORTH AMERICA, INC., GLOBAL CROSSING NORTH AMERICAN HOLDINGS, INC., LEVEL 3 TELECOM HOLDINGS II, LLC, LEVEL 3 TELECOM MANAGEMENT CO. LLC, LEVEL 3 TELECOM OF ALABAMA, LLC, LEVEL 3 TELECOM OF ARKANSAS, LLC, LEVEL 3 TELECOM OF CALIFORNIA, LP, LEVEL 3 TELECOM OF D.C., LLC, LEVEL 3 TELECOM OF IDAHO, LLC, LEVEL 3 TELECOM OF ILLINOIS, LLC, LEVEL 3 TELECOM OF IOWA, LLC, LEVEL 3 TELECOM OF LOUISIANA, LLC, LEVEL 3 TELECOM OF MISSISSIPPI, LLC, LEVEL 3 TELECOM OF NEW MEXICO, LLC, LEVEL 3 TELECOM OF NORTH CAROLINA, LP, LEVEL 3 TELECOM OF OHIO, LLC, LEVEL 3 TELECOM OF OKLAHOMA, LLC, LEVEL 3 TELECOM OF OREGON, LLC, LEVEL 3 TELECOM OF SOUTH CAROLINA, LLC, LEVEL 3 TELECOM OF TEXAS, LLC, LEVEL 3 TELECOM OF UTAH, LLC, LEVEL 3 TELECOM OF VIRGINIA, LLC, LEVEL 3 TELECOM OF WASHINGTON, LLC, LEVEL 3 TELECOM OF WISCONSIN, LP and VYVX, LLC (each, a “New Guarantor” and collectively, the “New Guarantors”), LEVEL 3 PARENT, LLC, a Delaware limited liability company (“Level 3 Parent”), LEVEL 3 FINANCING, INC., a Delaware corporation (the “Issuer”), on behalf of itself and the Guarantors (other than Level 3 Parent) (the “Existing Guarantors”), under the Indenture referred to below, and THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., a national banking association, as trustee and collateral agent under the Indenture referred to below (the “Trustee”).

WITNESSETH:

WHEREAS, the Issuer, Level 3 Parent and the other Guarantors party thereto have heretofore executed and delivered to the Trustee an Indenture dated as of March 31, 2023 (the “Indenture”; capitalized terms used but not defined herein having the meanings assigned thereto in the Indenture), providing for the issuance of its 10.500% Senior Secured Notes due 2030;

WHEREAS, the Indenture permits the New Guarantors to execute and deliver to the Trustee a supplemental indenture pursuant to which the New Guarantors shall unconditionally guarantee all the Issuer's obligations under the Securities pursuant to a Guarantee on the terms and conditions set forth herein;

WHEREAS, the Guarantee contained in this Supplemental Indenture shall constitute a “Note Guarantee”, and each of the New Guarantors shall constitute a “Guarantor”, for all purposes of the Indenture;

WHEREAS, pursuant to Section 801 and Section 1207 of the Indenture, the Trustee and the Issuer are authorized to execute and deliver this Supplemental Indenture; and

WHEREAS, all acts and requirements necessary to make this Supplemental Indenture the legal, valid and binding obligation of Level 3 Parent, the Issuer and the New Guarantors have been done.

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt of which is hereby acknowledged, each New Guarantor, Level 3 Parent, the Issuer, the Existing Guarantors and the Trustee mutually covenant and agree for the equal and ratable benefit of the Holders of the Securities as follows:

(i. Agreement to Guaranty. Each New Guarantor hereby agrees, jointly and severally with all the existing Guarantors, to unconditionally guarantee the Issuer's obligations

under the Securities and the Indenture on the terms and subject to the conditions set forth in Article Twelve of the Indenture and to be bound by all other applicable provisions of the Indenture and the Securities.

(ii. Successors and Assigns. This Supplemental Indenture shall be binding upon each New Guarantor and its successors and assigns and shall inure to the benefit of the successors and assigns of the Trustee and the Holders and, in the event of any transfer or assignment of rights by any Holder or the Trustee, the rights and privileges conferred upon that party in the Indenture and in the Securities shall automatically extend to and be vested in such transferee or assignee, all subject to the terms and conditions of the Indenture.

(iii. No Waiver. Neither a failure nor a delay on the part of either the Trustee or the Holders in exercising any right, power or privilege under this Supplemental Indenture, the Indenture or the Securities shall operate as a waiver thereof, nor shall a single or partial exercise thereof preclude any other or further exercise of any right, power or privilege. The rights, remedies and benefits of the Trustee and the Holders herein and therein expressly specified are cumulative and not exclusive of any other rights, remedies or benefits which either may have under this Supplemental Indenture, the Indenture or the Securities at law, in equity, by statute or otherwise.

(iv. Modification. No modification, amendment or waiver of any provision of this Supplemental Indenture, nor the consent to any departure by any New Guarantor therefrom, shall in any event be effective unless the same shall be in writing and signed by the Trustee, and then such waiver or consent shall be effective only in the specific instance and for the purpose for which given. No notice to or demand on any New Guarantor in any case shall entitle any such New Guarantor to any other or further notice or demand in the same, similar or other circumstances.

(v. Opinion of Counsel. Concurrently with the execution and delivery of this Supplemental Indenture, the Issuer shall deliver to the Trustee an Opinion of Counsel to the effect that this Supplemental Indenture has been duly authorized, executed and delivered by each New Guarantor and the Issuer and that, subject to the application of bankruptcy, insolvency, moratorium, fraudulent conveyance or transfer and other similar laws relating to creditors' rights generally and to the principles of equity, whether considered in a proceeding at law or in equity, the Guarantee of each New Guarantor is a legal, valid and binding obligation of such New Guarantor, enforceable against such New Guarantor in accordance with its terms.

(vi. Ratification of Indenture; Supplemental Indentures Part of Indenture. Except as expressly amended hereby, the Indenture is in all respects ratified and confirmed and all the terms, conditions and provisions thereof shall remain in full force and effect. This Supplemental Indenture shall form a part of the Indenture for all purposes, and every Holder of Securities heretofore or hereafter authenticated and delivered shall be bound hereby.

(vii. Governing Law. **THIS SUPPLEMENTAL INDENTURE SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK BUT WITHOUT GIVING EFFECT TO APPLICABLE PRINCIPLES OF CONFLICTS OF LAW TO THE EXTENT THAT THE APPLICATION OF THE LAWS OF ANOTHER JURISDICTION WOULD BE REQUIRED THEREBY.**

(viii. Counterparts. The parties may sign any number of copies of this Supplemental Indenture. Each signed copy shall be an original, but all of them together represent the same agreement.

(ix. Effect of Headings. The Section headings herein are for convenience only and shall not affect the construction thereof.

(x. Trustee. The Trustee makes no representations as to the validity or sufficiency of this Supplemental Indenture. The recitals and statements herein are deemed to be those of the Issuer, Level 3 Parent, the Existing Guarantors and the New Guarantors, and not of the Trustee.

[Remainder of this page intentionally left blank]

IN WITNESS WHEREOF, the parties hereto have caused this Supplemental Indenture to be duly executed as of the date first above written.

GLOBAL CROSSING NORTH AMERICA, INC.
GLOBAL CROSSING NORTH AMERICAN HOLDINGS, INC.
LEVEL 3 TELECOM HOLDINGS II, LLC
LEVEL 3 TELECOM MANAGEMENT CO. LLC
LEVEL 3 TELECOM OF ALABAMA, LLC
LEVEL 3 TELECOM OF ARKANSAS, LLC
LEVEL 3 TELECOM OF CALIFORNIA, LP
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LEVEL 3 TELECOM OF TEXAS, LLC
LEVEL 3 TELECOM OF UTAH, LLC
LEVEL 3 TELECOM OF VIRGINIA, LLC
LEVEL 3 TELECOM OF WASHINGTON, LLC
LEVEL 3 TELECOM OF WISCONSIN, LP
VYVX, LLC

By: /s/ Stacey W. Goff

Name: Stacey W. Goff

Title: Executive Vice President & General Counsel

[Signature Page to Supplemental Indenture]

LEVEL 3 PARENT, LLC,

By: /s/ Stacey W. Goff

Name: Stacey W. Goff
Title: Executive Vice President & General
Counsel

LEVEL 3 FINANCING, INC., on behalf of itself as the Issuer and the other Existing
Guarantors

By: /s/ Stacey W. Goff

Name: Stacey W. Goff
Title: Executive Vice President & General
Counsel

[Signature Page to Supplemental Indenture]

THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., as Trustee and as
Note Collateral Agent

By: /s/ April Bradley
Name: April Bradley
Title: Vice President

[Signature Page to Supplemental Indenture]

December 5, 2022

Ms. Ashley Haynes-Gaspar
16922 SE 33rd Ct
Bellevue, WA 98008

Re: Offer of Employment

Dear Ashley:

I am pleased to confirm our offer of the position of Executive Vice President ("EVP") Customer Success, Wholesale and International of Lumen Technologies, Inc. ("Lumen"). We anticipate you will assume this position on January 3, 2023 ("Start Date"). In this position, you will report to Kate Johnson, Chief Executive Officer of Lumen, and your work location will be Broomfield, CO. It is our pleasure to extend this offer to you. In this Offer Letter you will find an explanation of our offer.

Compensation (Annualized)

Annual Base Salary	\$500,000.00
Target Annual Bonus (STI) Plan	100% of base pay = \$500,000.00
Target Long-Term Incentive (LTI) Program	\$1,500,000.00

One-Time Sign-On Compensation

Cash Sign-On Bonus	\$500,000.00
LTI Sign-On Award	\$1,200,000.00

Annual Bonus (STI) Plan: You will be eligible to participate in the annual short-term incentive ("STI") plan subject to the terms and conditions of that plan. The target annual bonus amount for your position is 100% of your annual base pay. Your 2023 annual bonus under the STI plan will be pro-rated based on the number of eligible days worked from your Start Date through the end of the program year. Actual bonus payouts may be more or less than target, depending on both individual and corporate performance.

Annual Long Term Incentive (LTI) Program: You will be eligible to participate in Lumen's Long-Term Incentive ("LTI") Program. The target annual LTI grant amount for your position currently is \$1,500,000. Awards under the LTI Program are expressed as a fixed dollar amount, which is then converted to a number of shares using the same methodology applicable to other senior executives of Lumen. Currently, annual awards under the LTI program consist of a mix of time-based restricted shares ("TBRS") and performance-based restricted shares ("PBRS"). Annual LTI grant values in future years will be based on a variety of factors, including market data (which influences annual target LTI), individual performance, and scope of job responsibilities, and may be more or less than the current target. All awards are subject to approval of Lumen's Human Resources and Compensation Committee of the Board of Directors ("Compensation Committee").

Cash Sign-On Bonus: We are pleased to provide you with a cash sign-on bonus ("Cash Sign-On Bonus") of \$500,000 to be paid in the following manner:

1. The first installment of the Cash Sign-On Bonus in the gross amount of \$250,000 will be paid concurrently with the first regular payroll cycle following your Start Date, subject to normal withholdings. This bonus may be subject to clawback as follows:
 - a) If your employment is terminated for Cause (as defined in the Lumen Executive Severance Plan, or the "Executive Severance Plan") or you voluntarily resign employment within 12 months after your Start Date, you will be required to return the full amount of your sign-on bonus (\$250,000) in cash to Lumen on or before your last day of work.
 - b) If you are involuntarily terminated for Cause (as defined in the Executive Severance Plan) or you voluntarily resign employment at any time beginning after the end of the 12th month after your Start Date to the end of the 24th month after your Start Date, you will be required to return a pro rata amount of your sign-on bonus in cash to Lumen on or before your last day of work. The pro rata amount will equal the gross amount of your cash sign-on bonus less \$20,833 (1/12th of the total amount) for each full month worked after the 12th month following your Start Date, until the end of the 24th month, when no repayment is due.

2. Subject to continued employment on the first anniversary your Start Date, the second installment of the Cash Sign-On Bonus in the gross amount of \$250,000 will be paid with the first regular payroll cycle following the first anniversary your Start Date and subject to normal withholdings. This bonus may be subject to clawback as follows:

- a) If you are involuntarily terminated for Cause (as defined in the Executive Severance Plan) or you voluntarily resign employment at any time beginning after the first anniversary your Start Date to the end of the 24th month after your Start Date, you will be required to return a pro rata amount of your sign-on bonus in cash to Lumen on or before your last day of work. The pro rata amount will equal the gross amount of your cash sign-on bonus less \$20,833 (1/12th of the total amount) for each full month worked after the 12th month following your Start Date, until the end of the 24th month, when no repayment is due.

LTI Sign-On Award: We are pleased to provide you with a sign-on equity award in the form of TBRS in the gross amount of \$1,200,000 (the "Sign-On Equity Award") that will vest ratably over three years, with one-third vesting on each of the first, second and third anniversaries of the grant date. The grant of the Sign-On Equity Award will occur on your Start Date and is subject to continued employment at the time of vesting and all other terms and conditions of the applicable equity incentive plan and the stock award agreements.

Relocation: The Company will also provide relocation assistance to you as outlined in the Relocation Expense Agreement and Lumen Domestic Relocation Policy (the "Relocation Policy"). Once the authorization has been received by the Relocation Department you will be contacted to discuss your benefit. However, as a general matter, you will have one year following your Start Date to complete your relocation. As outlined in the Relocation Policy, some relocation benefits must be reported to you as income and will be subject to normal withholdings, while other relocation benefits are not considered income and are not subject to taxes. You will be paid a tax gross-up associated with the taxable relocation benefits.

Retirement and Welfare Benefits: You will be eligible to participate in retirement and welfare benefit plans that are generally available to other members of the Company's senior leadership team from time to time, in accordance with the terms and conditions of those plans.

Severance Programs: Following your Start Date, the Executive Severance Plan will govern your severance rights and benefits, including in the event of a change of control of Lumen.

Compliance with Lumen Policies: You acknowledge that, as an officer and director of the Company, you will be required to comply with, and your employment will be subject to, its policies, rules and regulations, as they may be implemented or revised from time-to-time by the Board, as applicable to senior executive officers of the Company, including its Code of Conduct and Corporate Governance Guidelines, which will be provided or made available to you on or prior to your Start Date.

You will be subject to the Company's Policy Statement on Insider Trading ("Insider Trading Policy"), and any transactions involving Lumen securities will be subject to the Insider Trading Policy and applicable securities laws and regulations.

General Terms: Lumen may terminate or modify the terms of your employment at any time, subject to the terms and conditions, as applicable, of (i) this Offer Letter and any equity award agreements, between you and the Company, which may only be amended by our mutual agreement, and (ii) the Executive Severance Plan, equity compensation plans, any other employee health, welfare, retirement or benefit plan, or other similar arrangements under which you may be entitled to receive benefits, all of which are subject to amendment in the future.

Any rights you may have to the various benefits described in this Offer Letter are subject to your acceptance (confirmed by your signature on the Acceptance of Offer attached to this Offer Letter) of the terms of this offer. This Offer Letter, which shall be governed by Colorado law, supersedes any prior offers, understandings or representations regarding the terms of your employment with Lumen, whether oral or written, including without limitation any term sheets. The terms of this Offer Letter cannot be altered or changed except by a written document that has been approved by the Compensation Committee and executed by both you and, on behalf of Lumen, me or another executive officer of the Company.

All payments to you shall be subject to applicable federal, state, local and other income and employment tax withholdings.

If you have questions about this offer, please do not hesitate to contact me at (225) 252-4526. Please return your signed acceptance or declination to scott.trezise@lumen.com as soon as possible, but not later than fourteen days after the date of this Offer Letter. Please keep a copy of the signed document for your records.

Ashley, I am very much looking forward to you joining the Lumen leadership team. We are confident that you can help propel Lumen forward in achieving its higher purpose – to further human progress through technology. In moving forward, we count on our leaders to drive transformation with a growth mindset, a focus on getting the right things done, effective communication with capable teams, and a desire to challenge the status quo as change makers.

Sincerely,

/s/ Scott Trezise

Scott Trezise
EVP, Human Resources

Encl.

Acceptance of Offer

I have read and understand the terms of this Offer Letter and hereby accept the offer of employment and all of the terms and conditions outlined therein.

SIGNED: _____ DATE: _____
Ashley Haynes-Gaspar

OFFER LETTER ADDENDUM
Additional Requirements and Agreements

As used in this Addendum, "Lumen" means any subsidiary or affiliate of Lumen Technologies, Inc., including subsidiaries and affiliates of CenturyTel, Embarq, Qwest, Savvis, or Level 3, and any predecessor or successor to those subsidiaries or affiliates.

By accepting this offer, you hereby agree to the following, each of which is a condition of your employment:

COMPLIANCE WITH LEGAL REQUIREMENTS AND POLICIES

As a condition of employment, you must complete Section 1 of the Form I-9 no later than your first day of work, and you must present appropriate documents, as required by the federal government, to establish your identity and eligibility to work in the United States as required by Section 2 of Form I-9 within three business days of beginning work. You must provide satisfactory original documentation from the lists on the Form I-9. You may be requested to provide additional documentation as required by the Social Security Administration and/or the Department of Homeland Security (DHS), in accordance with the DHS E-Verify Program, applicable laws and regulations. Cooperating with such requests is a condition of employment.

You agree to abide by the Lumen Code of Conduct and Lumen policies, as found in the online U.S. Employee Handbook Policies, as they are issued or modified from time to time. Now and throughout your employment with Lumen, you are required to disclose to Lumen's Corporate Compliance department all potential or actual conflicts of interest. You must familiarize yourself with Lumen's Conflict of Interest Policy, which is part of the Lumen Code of Conduct, so that you can identify potential conflicts of interest. Your employment will be subject to and governed by these policies, and your acceptance of this offer will constitute an express acceptance of the terms and provisions of those policies. Any future changes in policies will also automatically be binding on you.

The policies posted in the online Employee Toolkit do not constitute a contract between Lumen and you. Lumen retains the right to change, modify, suspend, interpret, or cancel in whole or part any of its policies or practices, without advance notice, in its sole discretion. **Your employment is voluntary and "At-Will," meaning either you or the company can end your employment at will at any time, for any reason, with or without cause.** When practicable, each party will try to provide the courtesy of reasonable notice of intent to terminate the employment relationship. Your "At-Will" status can only be changed by a writing signed by Lumen's EVP of Human Resources.

INTELLECTUAL PROPERTY

You agree that any inventions, discoveries, creations (including without limitation software, product documentation, web pages, writings, drawings, articles, presentations, videos and other works), improvements, Confidential Information and other intellectual property ("Creations") that you may develop or create, or assist in developing or creating during your employment with Lumen, whether or not patentable or eligible for copyright, that relate to the actual, planned, or foreseeable business or other activities of Lumen, or that result from your work for Lumen or from using Lumen property and equipment, shall be the exclusive property of Lumen. To the extent such Creations are not owned by or assigned to Lumen by operation of law, you hereby assign to Lumen all right, title and interest to your Creations in all countries. You shall promptly disclose all Creations to Lumen and shall, both during and after your employment, and without additional compensation, execute all assignments and other documents and take all actions deemed necessary by Lumen to secure and enforce any U.S. or foreign intellectual property right in such Creations. You are not obligated to assign any intellectual property to Lumen that you created prior to your employment with Lumen. You must identify in writing on a separate page entitled "Prior Intellectual Property" any such intellectual property that you wish to exclude from the operation of this Agreement and email it to HRonboarding@lumen.com along with this Addendum to Lumen.

CONFIDENTIAL INFORMATION

Except as provided below, you agree (a) to keep in confidence and not to, except as required in the course of Lumen's business or as authorized in writing on its behalf, publish, disclose, use, or authorize anyone else to publish, disclose or use during the period of your employment and at any time thereafter, any

Confidential Information; (b) that all Confidential Information shall at all times remain Lumen's property; (c) that on or prior to the day your employment terminates, you will return to Lumen all of its property, including all documents, records, copies and excerpts of documents (including electronically stored information) containing any Confidential Information; and (d) from that day forward you shall not disclose Confidential Information to any person outside Lumen, or use Confidential Information for any purpose.

"Confidential Information" is any oral or written technical or business information not generally known outside of Lumen, including without limitation, sensitive business information, trade secrets, non-public intellectual property, customer records and lists, negotiations, policy manuals, merger and acquisition plans, training materials and marketing plans, corporate financial information, software and documentation (including object code), performance evaluations, analyses of competitive products, contracts and sales proposals, employment records, other critical and sensitive information, internal audit reports, and all information regarding which Lumen owes a third party a duty of confidence or nondisclosure. "Confidential Information" shall not include information that is generally available to and known by the public at the time of disclosure to you; provided that, such disclosure is not the direct or indirect fault of you or person(s) acting on your behalf.

In addition, during your employment with Lumen, you will not disclose or make use of any confidential information or trade secrets in violation of any agreements with, or rights of, any other employer or party, and you will not bring to Lumen's premises or property (including its computers) any confidential, trade secret or non-public information belonging to or obtained from any other employer or party.

Nothing herein shall be construed to prevent disclosure of Confidential Information as may be required by applicable law or regulation, or pursuant to the valid order of a court of competent jurisdiction or an authorized government agency, provided that the disclosure does not exceed the extent of disclosure required by such law, regulation, or order.

Notwithstanding the foregoing, and in accordance with 18 U.S.C. § 1833, neither this Addendum nor any Lumen policy prohibits you (1) from disclosing Confidential Information (a) in confidence to a Federal, State, or local government official, either directly or indirectly, or to an attorney, and (b) solely for the purpose of reporting or investigating a suspected violation of law; or (2) from disclosing Confidential Information in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal. Disclosures to attorneys, made under seal, or pursuant to court order are also protected in certain circumstances under 18 U.S.C. § 1833.

NON-SOLICITATION OF CUSTOMERS

You agree that while employed by Lumen and during the two (2) year period immediately following either a voluntary termination or an involuntary termination for cause (including but not limited to conflicts of interest or other misconduct) of your employment, you shall not contact or call on any client, customer or prospective client or customer of Lumen for or on behalf of anyone other than Lumen (i) for the purpose of securing competing business, (ii) to solicit, attempt to obtain, accept or in any other way secure competing business for or on behalf of anyone other than Lumen from any client, customer or prospective client or customer of Lumen, (iii) to solicit, divert or entice away the business of any client, customer or prospective client or customer of Lumen, or otherwise disrupt the relationship between such client, customer or prospective client or customer of Lumen and the Company or its Affiliates, or (iv) to solicit, induce, influence or attempt to influence any supplier, lessor, lessee, licensor, partner, joint venturer, potential acquirer or any other person who has a business relationship with the Company or its Affiliates, or who on the termination date is engaged in discussions or negotiations to enter into a business relationship with the Company or its Affiliates, to discontinue, reduce or limit the extent of such relationship with the Company or any of its Affiliates. As used herein, "client, customer or prospective client or customer of Lumen" includes any person or entity with whom you had contact while employed by Lumen, for whom you provided any services, directly or indirectly (e.g., by providing direction, guidance or supervision to another person), on behalf of Lumen or about whom you learned any confidential or proprietary information during the one (1) year period prior to your termination of employment with Lumen. As used herein, "contact," "call on," "solicit" and "attempt to obtain" include any direct or indirect (e.g., by directing, guiding or supervising another person) contact and apply regardless of who (*i.e.*, you, a person directed by you or the customer or prospective customer) first initiated the contact.

NON-SOLICITATION OF EMPLOYEES

You further agree that, without the prior written consent of Lumen, while employed by Lumen, and during the two (2) year period immediately following the termination of your employment, whether voluntary or involuntary, you will neither directly nor indirectly induce or encourage, or attempt to induce or encourage, any employee of Lumen to terminate his or her employment; provided, however, that the foregoing shall not apply with respect to you directly or indirectly causing to be placed any general advertisement in newspapers and/or other media of general circulation (including advertisements posted on the Internet or social media) that are not targeted specifically at any such persons. As used herein, "induce" and "encourage" include any direct or indirect contacts, regardless of who (i.e., you or the other employee) first initiated the contact.

RECOVERY OF BENEFITS, OVERPAYMENTS AND INDEBTEDNESS

You hereby authorize Lumen, where permitted by law, to withhold and offset from any compensation otherwise due to you (including any salary, wages, bonuses or expense reimbursements) any and all debts owed by you to Lumen (including any inadvertent overpayments, personal charges on your company credit or purchasing card, or other amounts which you are not entitled to retain), indebtedness to an employee benefit plan, any repayment obligation under your offer letter, or other indebtedness to the Company. If Lumen incurs any legal expenses in collecting these amounts, you are personally liable for such expenses, unless otherwise provided by the applicable agreements. You will be obligated to repay any remaining balance.

NO PREVIOUS AGREEMENTS LIMITING EMPLOYMENT WITH LUMEN

You confirm that you are not bound by any agreement with any previous employer or any party which restricts in any way your prospective employment by Lumen (for example, any non-compete, non-solicitation, non-disclosure or confidentiality agreement). Such agreements may be contained in prior offer letters, stock grants, employment agreements, consulting agreements, or agreements for the sale of a business. You also represent that your employment with Lumen and the performance of your proposed duties for Lumen will not violate any obligations you may have to previous employers or other parties. In your work for Lumen, you will not disclose or make use of any information or trade secrets in violation of any agreements with or rights of any previous employer or other party, and you will not bring to Lumen's premises or use on its behalf any non-public information belonging to or obtained from any previous employment or other party.

WAIVER OF RIGHT TO JURY TRIAL AND WAIVER OF RIGHT TO BRING CLASS, COLLECTIVE, CONSOLIDATED OR REPRESENTATIVE ACTIONS

To the extent permitted by applicable law, both **you and the Company agree that they voluntarily, knowingly, and intelligently agree to waive:**

- (a) **any right they may have to bring, recover money damages or otherwise participate with other persons in any class, collective, consolidated or representative action** under any federal, state or local law or statute regarding any and all claims or causes of action arising out of or relating to your employment with the company (the "Class Action Waiver"); and
- (b) **their right to jury trial regarding any and all Claims or causes of action** arising out of or relating to your employment with the Company (the "Jury Trial Waiver").

In the event of litigation, this Agreement may be filed as a written consent to a trial of claims individually (i.e., not as part of a class, collective or consolidated proceeding) by a court of competent jurisdiction without a jury. The Class Action Waiver and Jury Trial Waiver shall be severable from the remainder of this Agreement if there is a final judicial determination that either one or both of such waivers are unenforceable or enforceable only in the context of arbitration. In such event, but only in such event, you and the Company agree to individual binding arbitration of any and all claims pursuant to the attached Exhibit A, Arbitration Provision.

You confirm that you have read and understand the terms of this Addendum, have had an opportunity to ask questions and seek the assistance of legal counsel regarding its terms, and are not relying upon any advice from Lumen in this regard.

Exhibit A to this Addendum contains an agreement to arbitrate disputes. Please read it in its entirety. You affirm your understanding of and your agreement to the terms and conditions set forth herein, including those set out in Exhibit 1, and you hereby accept this offer of employment:

Signature: _____ Date: _____
Ashley Haynes-Gaspar

EXHIBIT A
Arbitration Provision

This Exhibit A, Arbitration Provision, applies only if a court has concluded that the Class Action Waiver and/or the Jury Trial Waiver in the Offer Letter Addendum is either unenforceable or only enforceable in the context of an arbitration agreement. The covenants in this Exhibit A are made in consideration for, and as a precondition to, receiving the benefits under the offer letter. This Arbitration Provision is governed by the Federal Arbitration Act, as amended, 9 U.S.C. §§ 1, et seq. ("FAA").

Arbitration

Both the Company and you **voluntarily, knowingly, and intelligently agree to binding arbitration of any and all Claims or causes of action arising out of or relating to your employment with the Company and termination of such employment**, including but not limited to all Claims. The term "Claims" means any claim, controversy or dispute between you and Lumen relating in any way to your hiring, employment, compensation, terms and conditions of employment, the termination of your employment, or the interpretation of your offer letter or any addendum to it, whether sounding in contract, statute, tort, fraud, misrepresentation, discrimination or any other legal theory. It includes claims under: Title VII of the Civil Rights Act of 1964, as amended; the Civil Rights Act of 1991; the Age Discrimination in Employment Act of 1967, as amended; 42 U.S.C. sections 1981, 1981a, 1983, 1985, or 1988; the Family and Medical Leave Act of 1993; the Americans with Disabilities Act of 1990, as amended; the Rehabilitation Act of 1973, as amended; the Fair Labor Standards Act of 1938, as amended; the Employee Retirement Income Security Act of 1974, as amended; or any other similar federal, state, or local law or regulation.

Both the Company and you waive any right they may otherwise have to a jury trial and to pursue remedies in court or other forums except as noted in the Exceptions to Arbitration Requirement section below. If, however, you would otherwise be legally or contractually permitted or required to exhaust administrative remedies to obtain legal relief, you may pursue permitted administrative remedies and must exhaust required administrative remedies prior to pursuing arbitration. The terms of this Arbitration Provision shall apply to Claims against the Company, its parents, subsidiaries, affiliates, and their directors, officers, and employees and any of their respective successors or assignees and to Claims against the You, his/her heirs, executors, administrators, or legal representatives.

In the event a court concludes that this Arbitration Provision is not enforceable under the FAA in a particular case, the law of the state of Colorado shall apply and govern the arbitrability of all Claims in that case. In all cases, arbitrability shall be determined by a court of competent jurisdiction. The substantive law of the state of Colorado, to the extent it is consistent with the terms stated in this Arbitration Provision, shall apply to any Claims. A single neutral arbitrator will conduct the arbitration under the Judicial Arbitration and Mediation Services Inc. ("JAMS") Employment Arbitration Rules and Procedures ("JAMS Rules") in effect when the demand for arbitration is filed. The current rules can be accessed at www.jamsadr.com. The Company will provide a printed copy of the current rules upon request. Other than as set forth in this Agreement, the arbitrator shall have no authority to add to, detract from, change, amend or modify existing law. The parties will mutually agree on the arbitrator (who does not need to be on the JAMS panel) and the location of the arbitration. The arbitrator shall have the authority to order such discovery as is necessary for a fair resolution of the dispute. The arbitrator shall also have the authority to award all relief or remedies provided under the statute or other law pursuant to which an asserted prevailing claim or defense is raised, as if the matter were being decided in court. The arbitrator may award punitive damages, where provided for by statute or the common law, subject to applicable caps (including but not limited to Title VII of the Civil Rights Act of 1964, as amended; the Civil Rights Act of 1991, as amended; the Age Discrimination in Employment Act of 1967, as amended; and the Americans with Disabilities Act of 1990, as amended), and the arbitrator shall be bound by any limitations on the amount of punitive or other damages imposed by said statutes or laws or the U.S Constitution. The arbitrator shall not have authority to hear any class, collective, consolidated, or representative claims but is limited to individual claims. The Company does not agree that class, collective, consolidated, or representative claims may be arbitrated. The arbitrator will apply the same statutes of limitation that would apply in court, to the extent allowed by law. The arbitrator will honor claims

of privilege recognized by law and will take reasonable steps to protect confidential or proprietary information, including the use of protective orders. The arbitrator's award will be in writing and shall include the essential findings of fact and conclusions of law on which the award is based. The arbitrator's decision and award shall be final and binding as to all Claims that were or could have been raised in the arbitration, except as otherwise provided by the FAA, and judgment upon the award rendered by the arbitrator may be entered by any court having jurisdiction thereof.

A party may apply to a court of competent jurisdiction for temporary or preliminary injunctive relief in connection with an arbitrable controversy in accordance with applicable law, and any such application shall not be deemed incompatible with or waiver of this Arbitration Provision. The court to which the application is made is authorized to consider the merits of the arbitrable controversy to the extent it deems necessary in making its ruling, but only to the extent permitted by applicable law. All determinations of final relief, however, will be decided in arbitration.

Nothing in this Arbitration Provision prohibits you from reporting possible violations of local, state, or federal law or regulation to any government agency or entity, including but not limited to the Equal Employment Opportunity Commission, Department of Justice, the Securities and Exchange Commission, the U.S. Congress, and any agency Inspector General, or making other disclosures that are protected under the whistleblower provisions of law.

Attorneys' Fees and Costs

For arbitrations commenced by you pursuant to this section, the JAMS Rules applicable to initial filing fees shall apply, but in no event will you be responsible for any portion of those fees more than the filing or initial appearance fees applicable to court actions in the jurisdiction where the arbitration will be conducted. The Company otherwise shall pay all costs and expenses unique to arbitration, including without limitation the arbitrator's fees. The Company will pay all arbitrator fees and expenses if it commences the arbitration. Each party will pay its own attorneys' fees and costs in arbitration and in court proceedings, except the arbitrator has the discretion to award the prevailing party reasonable attorneys' fees and costs where fees and costs are expressly permitted under the law.

Exceptions to Arbitration Requirement

The only exceptions to the parties' obligations to arbitrate disputes under this Arbitration Provision section are:

1. **Sarbanes-Oxley (SOX) whistleblower claims.** This Arbitration Provision does not require arbitration of any claims to enforce rights or remedies provided by 18 U.S.C. § 1514A.
2. **Miscellaneous Claims:** All claims for employee benefits under the Employee Retirement Income Security Act ("ERISA") of 1984, as amended, are governed by the terms of the applicable Agreement and/or ERISA. Similarly, claims for workers' compensation or unemployment compensation benefits are not subject to the terms of this Arbitration Provision. You retain the right to file administrative claims with any state or federal agency including, but not limited to the National Labor Relations Board, the Equal Employment Opportunity Commission, and the Department of Labor.

Waiver of Right to Bring Class, Collective, Consolidated or Representative Actions

YOU AND THE COMPANY AGREE THAT THEY VOLUNTARILY, KNOWINGLY, AND INTELLIGENTLY WAIVE ANY RIGHT THEY MAY HAVE TO BRING OR OTHERWISE PARTICIPATE WITH OTHER PERSONS IN ANY CLASS, COLLECTIVE, CONSOLIDATED ACTION OR REPRESENTATIVE ACTION UNDER ANY FEDERAL, STATE OR LOCAL LAW OR STATUTE TO THE FULLEST EXTENT PERMITTED BY LAW (the "Class Action Waiver"). Accordingly, both the Company and you agree to bring any dispute in arbitration on an individual basis only, and not on a class or collective basis on behalf of others. There is no right or authority for any dispute to be brought, heard, or arbitrated as a class or collective action, or as a member in any such class or collective proceeding.

Notwithstanding any other provision of this Agreement or the JAMS Rules, issues regarding the validity, enforceability or breach of the Class Action Waiver, whether in the context of a court proceeding or arbitration, may be resolved only by the court and not by an arbitrator. You will not be retaliated against, disciplined, or threatened with discipline because of your filing of or participation in a class or collective action in any forum. However, the Company may lawfully seek enforcement of the Class Action Waiver under the FAA and seek dismissal of such class and collective actions or claims. The Class Action Waiver shall be severable in any case in which the dispute is filed as an individual action and severance is necessary to ensure that the individual action proceeds in arbitration.

Severability

If any term of this Arbitration Provision is held to be invalid or unenforceable or contrary to public policy or any law by a court of competent jurisdiction, the term shall be severed in its entirety from this Agreement; the remaining terms of this Agreement shall remain in full force and effect.

**LUMEN TECHNOLOGIES, INC.
SUBSIDIARIES OF THE REGISTRANT
AS OF December 31, 2023**

Subsidiary	State of incorporation or formation
Actel, LLC	Delaware
Bloomington Telephone Company, Inc.	Michigan
Century Cellunet International, Inc.	Louisiana
Cellunet of India Limited	Mauritius
Century Telephone of West Virginia, Inc.	West Virginia
Lumen Clarke M. Williams Foundation	Colorado
CenturyLink Community Giving Foundation, Inc.	Colorado
CenturyLink Communications, LLC	Delaware
Boxgate Holdings, LLC	Delaware
ELASTICBOX INC., SUCURSAL EN ESPAÑA	Spain
Q Fiber, LLC	Delaware
Qwest International Services Corporation	Delaware
Qwest Transoceanic, Inc.	Delaware
Qwest Communications International Ltd.	United Kingdom
CenturyLink Limited	United Kingdom
Qwest Peru S.R.L.	Peru
SEAL Consulting, Inc.	New Jersey
Lumen Technologies Philippines, Inc.	Philippines
Lumen Technology Services Taiwan Limited	Taiwan
Lumen Technologies Hong Kong Limited	Hong Kong
Lumen Technologies Colocation Hong Kong Limited	Hong Kong
Lumen Technologies Services (Shanghai) Co., Ltd.	China
Digital Savvis HK JV Limited	British VI
Digital Savvis HK Holding 1 Limited	British VI
Digital Savvis Investment Management HK Limited	Hong Kong
Digital Savvis Management Subsidiary Limited	Hong Kong
Lumen Technologies Services Malaysia Sdn. Bhd	Malaysia
Lumen Technologies (Thailand) Limited	Thailand
CenturyLink Canada, Inc.	Canada
SAVVIS Communications Chile, S.A.	Chile
SAVVIS Federal Systems, Inc.	Delaware
SAVVIS Communications International, Inc.	Delaware
Lumen Technologies Korea Limited	Korea
SAVVIS Communications Private Limited	India
SAVVIS Mexico, S.A. de C.V.	Mexico
Egnyte, Inc.	Delaware
Wam!Net Japan K.K.	Japan
CenturyTel Broadband Wireless, LLC	Louisiana
Qwest Broadband Services, Inc.	Delaware
CenturyTel of Chester, Inc.	Iowa

Subsidiary	State of incorporation or formation
CenturyTel Holdings, Inc.	Louisiana
Century Marketing Solutions, LLC	Louisiana
CenturyTel Arkansas Holdings, Inc.	Arkansas
CenturyTel Holdings Alabama, Inc.	Alabama
CenturyTel Holdings Missouri, Inc.	Missouri
CenturyTel of the Northwest, Inc.	Washington
Cascade Autovon Company	Washington
CenturyTel/Cable Layers, Inc.	Wisconsin
CenturyTel of Colorado, Inc.	Colorado
CenturyTel of Eagle, Inc.	Colorado
CenturyTel of Eastern Oregon, Inc.	Oregon
CenturyTel Entertainment, Inc.	Washington
CenturyTel of the Gem State, Inc.	Idaho
CenturyTel of Inter Island, Inc.	Washington
CenturyTel of Minnesota, Inc.	Minnesota
CenturyTel of Montana, Inc.	Oregon
CenturyTel of Oregon, Inc.	Oregon
CenturyTel of Paradise, Inc.	Washington
CenturyTel of Cowiche, Inc.	Washington
CenturyTel of Postville, Inc.	Iowa
CenturyTel of the Southwest, Inc.	New Mexico
CenturyTel Telecom Service, Inc.	Washington
CenturyTel Telephone Utilities, Inc.	Washington
CenturyTel of Washington, Inc.	Washington
CenturyTel/WORLDDVOX, Inc.	Oregon
CenturyTel of Wyoming, Inc.	Wyoming
Eagle Valley Communications Corporation	Colorado
Pacific Telecom, Inc. (Shell)	Oregon
Universal Manufacturing Corp.	Wisconsin
CenturyLink Minnesota, Inc.	Minnesota
CenturyLink of Florida, Inc.	Florida
CenturyLink Interactive Holdings LLC	Delaware
CenturyLink Interactive Markets LLC	Delaware
CenturyLink Management Company	Delaware
CenturyLink Network Company, LLC	Delaware
CenturyLink of Nevada, LLC	Delaware
CenturyLink Intellectual Property LLC	Delaware
CenturyLink Sales Solutions, Inc.	Delaware
United Telephone Company of the Northwest	Oregon
United Telephone Company of the West	Delaware
Valley Network Partnership	Virginia
CenturyTel of Idaho, Inc.	Delaware
CenturyTel Internet Holdings, Inc.	Louisiana
centurytel.com, LLC	Louisiana

Subsidiary	State of incorporation or formation
CenturyTel Investments, LLC	Louisiana
CenturyTel Mobile Communications, Inc.	Louisiana
CenturyTel SM Telecorp, Inc.	Texas
CenturyTel Telecommunications, Inc.	Texas
Lumen Technologies Service Group, LLC	Louisiana
SIS Holdings LP	Delaware
CenturyTel Supply Group, Inc.	Louisiana
CenturyTel Web Solutions, LLC	Louisiana
Hillsboro Telephone Company, Inc.	Wisconsin
Lafayette MSA Limited Partnership	Delaware
Qwest Communications International, Inc.	Delaware
Qwest Capital Funding, Inc.	Colorado
Qwest Services Corporation	Colorado
CenturyLink Investment Management Company	Colorado
Qwest Corporation	Colorado
RiskSense, Inc.	Delaware
1200 Landmark Center Condominium Association, Inc.	Nebraska
Qwest Database Services, Inc.	Colorado
Qwest India Holdings, LLC	Delaware
Lumen IT India Private Limited	India
Seal Infotech Private Limited	India
The El Paso County Telephone Company	Colorado
MoveARoo, LLC	Delaware
Qwest Dex Holdings, Inc.	Delaware
Lumen Technologies Government Solutions, Inc.	Colorado
Qwest Wireless, L.L.C.	Delaware
TelUSA Holdings, LLC	Delaware
Telephone USA of Wisconsin, LLC	Delaware
Western Re, Inc.	Louisiana
Wildcat Holdco LLC	Delaware
Level 3 Parent, LLC	Delaware
Legend Circle Holdings, Inc.	Delaware
Eldorado Acquisition Two, Inc.	Delaware
Level 3 EON, LLC	Delaware
Level 3 Financing, Inc.	Delaware
Streamroot, Inc.	Delaware
Streamroot SAS	France
Level 3 Holdings, Inc.	Delaware
Continental Holdings, Inc.	Wyoming
KMI Continental Lignite, Inc.	Delaware
Continental Level 3, Inc.	Delaware
Continental Mineral Sales, Inc.	Delaware
CCC Canada Holding, Inc.	Delaware
AmSoft Information Services Limited	Mauritius

Subsidiary	State of incorporation or formation
Level 3 International Services, Inc.	Delaware
BTE Equipment, LLC	Delaware
Level 3 Communications Canada Co.	Nova Scotia
Level 3 Communications, LLC	Delaware
Level 3 Communications of Virginia, Inc.	Virginia
XCOM Technologies of New York, Inc.	New York
IP Networks, Inc.	Delaware
TelCove Operations, LLC	Delaware
TelCove of Pennsylvania, LLC	Delaware
WilTel Communications (Cayman) Limited	Cayman Islands
WilTel International Telecom (Chile) Limited	Cayman Islands
Williams Comunicaciones Chile Limitada	Chile
WilTel Communications Network, Inc.	Canada
WilTel Communications, LLC	Delaware
WilTel Communications Pty Limited	Australia
Vyvx, LLC	Delaware
FTV Communications, LLC	Delaware
Broadwing, LLC	Delaware
ACME Grating Ventures, L.L.C.	Delaware
Broadwing Communications, LLC	Delaware
Corvis Gratings Company	Nova Scotia, Canada
Corvis Canada Inc.	Quebec, Canada
Global Crossing North American Holdings, Inc.	Delaware
Global Crossing North America, Inc.	New York
Global Crossing Telecommunications, Inc.	Michigan
Global Crossing Local Services, Inc.	Michigan
Global Crossing Telemanagement VA, LLC	Virginia
Lumen Technologies Puerto Rico, LLC	Puerto Rico
Lumen Technologies St. Croix, LLC	US Virgin Islands
Level 3 Enhanced Services, LLC	Delaware
Level 3 Telecom, LLC	Delaware
Level 3 Telecom Holdings, LLC	Delaware
Level 3 Telecom Data Services, LLC	Delaware
Level 3 Telecom of Arizona, LLC	Delaware
Level 3 Telecom of Colorado, LLC	Delaware
Level 3 Telecom of Idaho, LLC	Delaware
Level 3 Telecom of Illinois, LLC	Delaware
Level 3 Telecom of Iowa, LLC	Delaware
Level 3 Telecom of Minnesota, LLC	Delaware
Level 3 Telecom of New Mexico, LLC	Delaware
Level 3 Telecom of Ohio, LLC	Delaware
Level 3 Telecom of Oregon, LLC	Delaware
Level 3 Telecom of South Carolina, LLC	Delaware
Level 3 Telecom of Tennessee, LLC	Delaware

Subsidiary	State of incorporation or formation
Level 3 Telecom of Texas, LLC	Delaware
Level 3 Telecom of Utah, LLC	Delaware
Level 3 Telecom of Washington, LLC	Delaware
Level 3 Telecom Management Co., LLC	Delaware
Xspedius Management Co. International, LLC	Delaware
Level 3 Telecom of Alabama, LLC	Delaware
Level 3 Telecom of Arkansas, LLC	Delaware
Level 3 Telecom of DC, LLC	Delaware
Level 3 Telecom of Kansas City, LLC	Delaware
Level 3 Telecom of Kentucky, LLC	Kentucky
Level 3 Telecom of Louisiana, LLC	Delaware
Level 3 Telecom of Maryland, LLC	Delaware
Level 3 Telecom of Mississippi, LLC	Delaware
Level 3 Telecom of Nevada, LLC	Delaware
Level 3 Telecom of Oklahoma, LLC	Delaware
Level 3 Telecom of Virginia, LLC	Virginia
Level 3 Telecom Holdings II, LLC	Delaware
Level 3 Telecom, LP	Delaware
Level 3 Telecom of California, LP	Delaware
Level 3 Telecom of Florida, LP	Delaware
Level 3 Telecom of Georgia, LP	Delaware
Level 3 Telecom of Hawaii, LP	Delaware
Level 3 Telecom of Indiana, LP	Delaware
Level 3 Telecom of New Jersey, LP	Delaware
Level 3 Telecom of New York, LP	Delaware
Level 3 Telecom of North Carolina, LP	Delaware
Level 3 Telecom of Wisconsin, LP	Delaware
Level 3 Asia, Inc.	Delaware
Level 3 Communications (Asia Pacific) Ltd.	Hong Kong
Level 3 International, Inc.	Delaware
Level 3 CDN International, Inc.	Delaware
Lumen Technologies New Zealand Limited	New Zealand
Lumen Technologies APAC Holdings Limited	United Kingdom
Level 3 Communications Australia Pty Ltd	Australia
Level 3 Communications Hong Kong Limited	Hong Kong
Lumen Communications India Private Limited	India
Lumen Technologies Asia Pacific Holdings Limited	Hong Kong
Lumen Technologies Australia Pty Ltd	Australia
Lumen Technologies Japan KK	Japan
Level 3 Communications Japan KK	Japan
Qwest Communications Korea, Limited	Korea
Qwest Hong Kong Telecommunications, Limited	Hong Kong
Lumen Technologies Singapore Pte. Ltd.	Singapore
Qwest Taiwan Telecommunications, Limited	Taiwan

Subsidiary	State of incorporation or formation
Lumen Technologies Europe Holdings Limited	United Kingdom
Lumen Technologies CDN Ireland Limited	Ireland
Lumen Technologies Solutions UK Limited	United Kingdom
Lumen Technologies Solutions Poland S.P. Z.O.O.	Poland
Level 3 Telecom DE 1, LLC	Delaware
Level 3 Telecom DE 2, LLC	Delaware
Level 3 Telecom DE 3, LLC	Delaware
Level 3 Telecom C, LLC	Delaware
Level 3 Telecom C1 Limited	Cayman Islands
Level 3 Telecom C2 Limited	Cayman Islands

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the registration statement (No. 333-227251) on Form S-3 and the registration statements (Nos. 333-273710, 333-245036, 333-225154, 333-221267, 333-215121, 333-174571, and 333-150157) on Form S-8 of our reports dated February 22, 2024, with respect to the consolidated financial statements of Lumen Technologies, Inc. and the effectiveness of internal control over financial reporting.

/s/ KPMG LLP

Denver, Colorado
February 22, 2024

CERTIFICATION OF CHIEF EXECUTIVE OFFICER

I, Kate Johnson, Chief Executive Officer, certify that:

1. I have reviewed this Annual Report on Form 10-K of Lumen Technologies, 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:
 - a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 22, 2024

/s/ Kate Johnson

Kate Johnson
Chief Executive Officer

CERTIFICATION OF CHIEF FINANCIAL OFFICER

I, Chris Stansbury, Chief Financial Officer, certify that:

1. I have reviewed this Annual Report on Form 10-K of Lumen Technologies, 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:
 - a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 22, 2024

/s/ Chris Stansbury

Chris Stansbury
Executive Vice President and Chief
Financial Officer

**Certification Pursuant to
18 U.S.C. Section 1350,
as Adopted Pursuant to
Section 906 of the Sarbanes-Oxley Act of 2002**

I, Kate Johnson, Chief Executive Officer of Lumen Technologies, Inc. ("Lumen Technologies"), certify that, to my knowledge, the Annual Report on Form 10-K for the year ended December 31, 2023 of Lumen Technologies fully complies with the requirements of Section 13(a) of the Securities Exchange Act of 1934 and that the information contained in the Form 10-K fairly presents, in all material respects, the financial condition and results of operations of Lumen Technologies as of the dates and for the periods covered by such report.

A signed original of this statement has been provided to Lumen Technologies and will be retained by Lumen Technologies and furnished to the Securities and Exchange Commission or its staff upon request.

Date: February 22, 2024

/s/ Kate Johnson

Kate Johnson
Chief Executive Officer

**Certification Pursuant to
18 U.S.C. Section 1350,
as Adopted Pursuant to
Section 906 of the Sarbanes-Oxley Act of 2002**

I, Chris Stansbury, Chief Financial Officer of Lumen Technologies, Inc. ("Lumen Technologies"), certify that, to my knowledge, the Annual Report on Form 10-K for the year ended December 31, 2023 of Lumen Technologies fully complies with the requirements of Section 13(a) of the Securities Exchange Act of 1934 and that the information contained in the Form 10-K fairly presents, in all material respects, the financial condition and results of operations of Lumen Technologies as of the dates and for the periods covered by such report.

A signed original of this statement has been provided to Lumen Technologies and will be retained by Lumen Technologies and furnished to the Securities and Exchange Commission or its staff upon request.

Date: February 22, 2024

/s/ Chris Stansbury

Chris Stansbury
Executive Vice President and Chief
Financial Officer

LUMEN TECHNOLOGIES, INC.**Policy for the
Recovery of Erroneously Awarded Compensation**

The Board of Directors (the “**Board**”) of Lumen Technologies, Inc. (the “**Company**”) has determined that it is in the best interests of the Company and its shareholders to adopt this Policy for the Recovery of Erroneously Awarded Compensation (this “**Policy**”), which provides for the recovery of certain incentive compensation in the event of an Accounting Restatement (as defined below). This Policy is designed to comply with, and shall be interpreted to be consistent with, Section 10D of the Securities Exchange Act of 1934, as amended (the “**Exchange Act**”), Rule 10D-1 promulgated under the Exchange Act (“**Rule 10D-1**”) and Section 303A.14 of the Listed Company Manual (the “**Listing Standards**”) of the New York Stock Exchange (“**NYSE**”). Capitalized terms not otherwise defined herein have the meanings set forth in Section 2 hereof.

1. Administration

Except as specifically set forth herein, this Policy shall be administered by the Human Resources and Compensation Committee of the Board (the “**Committee**”). The Committee is authorized to interpret and construe this Policy and to make all determinations necessary, appropriate or advisable to administer this Policy. Any determinations made by the Committee shall be final and binding on all affected individuals and need not be uniform with respect to each individual covered by the Policy. The Committee is authorized to consult with the full Board, the Audit Committee of the Board, or any other committee of the Board if and to the extent it deems necessary or appropriate to administer this Policy.

2. Definitions

As used in this Policy, the following definitions shall apply:

- (1) “**Accounting Restatement**” means an accounting restatement that corrects an error in the Company’s financial statements that is (i) material to the previously issued financial statements (commonly referred to as a “Big R” restatement, or (ii) that is not material to previously-issued financial statements, but would result in a material misstatement if the error were corrected or left uncorrected, in the current period (commonly referred to as a “little r” restatement).
 - (2) “**Clawback Period**” means, with respect to any Accounting Restatement, the three completed fiscal years of the Company immediately preceding the Restatement Date and any transition period (that results from a change in the Company’s fiscal year) of less than nine months within or immediately following those three completed fiscal years.
 - (3) “**Code**” means the U.S. Internal Revenue Code of 1986, as amended. Any reference to a section of the Code or regulation thereunder includes such section or regulation, any valid regulation or other official guidance promulgated under such section, and any comparable provision of any future legislation or regulation amending, supplementing, or superseding such section or regulation.
 - (4) “**Committee**” has the meaning set forth in Section 1 hereof.
 - (5) “**Covered Executives**” means the Company’s current and former executive officers, as determined by the Board in accordance with the definition of executive officer set forth in Rule 10D-1 and the Listing Standards.
 - (6) “**Effective Date**” means October 2, 2023.
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- (7) **"Erroneously Awarded Compensation"** has the meaning set forth in Section 4 of this Policy.
- (8) **"Financial Reporting Measures"** means measures that are determined and presented in accordance with the accounting principles used in preparing the Company's financial statements, and all other measures that are derived wholly or in part from such measures. Stock price and total shareholder return (and any measures that are derived wholly or in part from stock price or total shareholder return) shall, for purposes of this Policy, be considered Financial Reporting Measures. For the avoidance of doubt, a Financial Reporting Measure need not be actually presented in the Company's financial statements or included in a filing with the SEC.
- (9) **"Incentive-Based Compensation"** means any compensation that is granted, earned or vested based wholly or in part upon the attainment of a Financial Reporting Measure.
- (10) **"Restatement Date"** shall mean the earlier to occur of (i) the date the Board, a committee of the Board or the officers of the Company authorized to take such action if Board action is not required, concludes, or reasonably should have concluded, that the Company is required to prepare an Accounting Restatement, or (ii) the date a court, regulator or other legally authorized body directs the Company to prepare an Accounting Restatement, in each case regardless of if or when the restated financial statements are publicly disseminated.
- (11) **"SEC"** means the U.S. Securities and Exchange Commission.

3. Covered Executives; Incentive-Based Compensation

This Policy applies to all Incentive-Based Compensation received by a person: (a) on or after the Effective Date (even if approved, awarded or granted prior to the Effective Date); (b) after beginning service as a Covered Executive; (c) who served as a Covered Executive at any time during the performance period for such Incentive-Based Compensation; (d) while the Company had a class of securities listed on a national securities exchange or a national securities association; and (e) during the Clawback Period.

For purposes of this Policy, Incentive-Based Compensation is deemed "received" in the Company's applicable fiscal period during which the Financial Reporting Measure specified in the Incentive-Based Compensation award is attained, even if the payment or grant of the Incentive-Based Compensation occurs after the end of that period. For the avoidance of doubt, Incentive-Based Compensation that is subject to both a Financial Reporting Measure vesting condition and a service-based vesting condition shall be considered received when the relevant Financial Reporting Measure is achieved, even if the Incentive-Based Compensation continues to be subject to the service-based vesting condition.

4. Required Recoupment of Erroneously Awarded Compensation in the Event of an Accounting Restatement

In the event of an Accounting Restatement, the Company must recover, reasonably promptly, Erroneously Awarded Compensation, in amounts determined pursuant to this Policy and in accordance with Rule 10D-1 and the Listing Standards, as follows:

- (1) For purposes of this Policy, **"Erroneously Awarded Compensation"** means, in the event of an Accounting Restatement, the amount of Incentive-Based Compensation previously received that exceeds the amount of Incentive-Based Compensation that otherwise would have been received had it been determined based on the restated amounts in such Accounting Restatement, computed without regard to any taxes paid by the relevant Covered Executive.

(1) With respect to Incentive-Based Compensation based on stock price or total shareholder return, where the amount of Erroneously Awarded Compensation is not subject to mathematical recalculation directly from the information in an Accounting Restatement:

1. the amount of Erroneously Awarded Compensation will be based on a reasonable estimate of the effect of the Accounting Restatement on the stock price or total shareholder return upon which the Incentive-Based Compensation was received; and
2. the Company must maintain documentation of the determination of that reasonable estimate and provide such documentation to the NYSE.

(2) With respect to any compensation plans or programs that take into account Incentive-Based Compensation, the amount of Erroneously Awarded Compensation subject to recovery hereunder includes, but is not limited to, the amount contributed to any notional account based on Erroneously Awarded Compensation and any earnings accrued to date on that notional amount.

- (2) After an Accounting Restatement, the Committee shall determine the amount of any Erroneously Awarded Compensation received by each Covered Executive and shall promptly provide written notice to each Covered Executive by email or certified mail of the amount of any Erroneously Awarded Compensation and a demand for repayment or return of such compensation, as applicable.
- (3) The Committee shall have discretion to determine the appropriate means of recovering Erroneously Awarded Compensation based on the particular facts and circumstances. Notwithstanding the foregoing, except as set forth in Section 5 below, in no event may the Company accept an amount that is less than the amount of Erroneously Awarded Compensation in satisfaction of a Covered Executive's obligations hereunder.
- (4) To the extent that the Covered Executive has already reimbursed the Company for any Erroneously Awarded Compensation Received under any duplicative recovery obligations established by the Company or applicable law, the Committee may credit such reimbursed amount against the amount of Erroneously Awarded Compensation that is subject to recovery under this Policy.
- (5) To the extent that a Covered Executive fails to repay all Erroneously Awarded Compensation to the Company when due, the Company shall take all reasonable and appropriate actions to recover such Erroneously Awarded Compensation from the applicable Covered Executive. The applicable Covered Executive shall be required to reimburse the Company for any and all expenses reasonably incurred (including legal fees) by the Company in recovering such Erroneously Awarded Compensation in accordance with the immediately preceding sentence.
- (6) Recovery under this Policy with respect to a Covered Executive shall not require any finding that such Covered Executive engaged in misconduct or was responsible for any error that caused or contributed to the Accounting Restatement.
- (7) Any action by the Company to recover Erroneously Awarded Compensation under this Policy from a Covered Executive shall not, whether alone or in combination with any other action, event or condition, be deemed (i) "good reason" for resignation or to serve as a basis for a claim of constructive termination under any benefits or compensation arrangement applicable to such Covered Executive, or (ii) to constitute a breach of a contract or other arrangement to which such Covered Executive is party.

5. Method of Recoupment

The Committee shall determine, in its sole discretion, the timing and method for promptly recouping Erroneously Awarded Compensation hereunder, which may include without limitation (a) seeking reimbursement of all or part of any cash or equity-based award, (b) cancelling prior cash or equity-based awards, whether vested or unvested or paid or unpaid, (c) cancelling or offsetting against base salary and/or any planned future cash or equity-based awards, (d) forfeiture of deferred compensation, subject to compliance with Section 409A of the Code, and (e) any other method that does not contravene any applicable law, including without limitation Section 409A of the Code.

The Company is authorized and directed pursuant to this Policy to recoup Erroneously Awarded Compensation in compliance with this Policy unless the Committee or, in the absence of the Committee, a majority of the independent directors serving on the Board, has determined in good faith that recovery would be impracticable solely for the following limited reasons, and subject to the following procedural and disclosure requirements:

- The direct expense paid to a third party to assist in enforcing the Policy would exceed the amount to be recovered. Before concluding that it would be impracticable to recover any amount of Erroneously Awarded Compensation based on the expense of enforcement, the Committee must make reasonable attempts to recover such Erroneously Awarded Compensation, document such reasonable attempts to recover and provide that documentation to the NYSE;
- Recovery would violate home country law where that law was adopted prior to November 28, 2022. Before concluding that it would be impracticable to recover any amount of Erroneously Awarded Compensation based on violation of home country law, the Committee must satisfy the applicable opinion and disclosure requirements of Rule 10D-1 and the Listing Standards; or
- Recovery would likely cause an otherwise tax-qualified retirement plan, under which benefits are broadly available to employees of the Company, to fail to meet the requirements of 26 U.S.C. §401(a)(13) or 26 U.S.C. §411(a) and regulations thereunder.

6. No Indemnification of Covered Executives

Notwithstanding the terms of any indemnification or insurance policy or any contractual arrangement with any Covered Executive that provides or may be interpreted to provide to the contrary, the Company shall not indemnify any Covered Executives against the loss of any Erroneously Awarded Compensation, including any payment or reimbursement for the cost of third-party insurance purchased by any Covered Executives to fund potential clawback obligations under this Policy.

7. Committee Indemnification

Any members of the Committee, and any other members of the Board who assist in the administration of this Policy, shall not be personally liable for any action, determination or interpretation made with respect to this Policy and shall be fully indemnified by the Company to the fullest extent under any article, bylaw, contract, policy or law applicable to the Company with respect to any such action, determination or interpretation. The foregoing sentence shall not limit any other rights to indemnification of the members of the Board under any article, bylaw, contract, policy or law applicable to the Company.

8. Effective Date

This Policy shall be effective as of the Effective Date. Without limiting the generality of Section 5 hereof, and subject to applicable law, the Committee may affect recovery under this Policy from any amount of compensation approved, awarded, granted, payable or paid to the Covered Executive prior to, on or after the Effective Date.

9. Other Recoupment Rights; Company Claims

The Board intends that this Policy shall be applied to the fullest extent of the law. Any right of recoupment by the Company under this Policy is in addition to, and not in lieu of, any other remedies or rights of recoupment that may be available to the Company under applicable law, including Section 304 of the Sarbanes-Oxley Act of 2002, government regulation, or stock exchange listing requirement or pursuant to the terms of any similar policy in any employment agreement, equity award agreement, or other agreement, policy or plan of the Company and any other legal remedies available to the Company, including those set forth in the Company's Corporate Governance Guidelines. Notwithstanding the foregoing, unless otherwise required by applicable law, any amounts recouped under any other such recoupment or clawback rights that would be recoupable under this Policy shall count toward any required recoupment under this Policy and vice versa.

Nothing contained in this Policy, and no recoupment or recovery as contemplated by this Policy, shall limit any claims, damages or other legal remedies the Company or any of its affiliates may have against a Covered Executive arising out of or resulting from any actions or omissions by the Covered Executive.

10. Amendment

The Board may amend, modify, supplement, rescind or replace all or any portion of this Policy at any time and from time to time in its discretion, and shall amend this Policy as it deems necessary to comply with applicable law or any rules or standards adopted by the NYSE or other national securities exchange on which the Company's securities are listed.

11. Acknowledgement of Binding Effect

As a condition to continued employment, each Covered Executive shall sign and deliver to the Company, within 30 calendar days following the later of (i) the Effective Date of this Policy or (ii) the date the individual becomes a Covered Executive, the Acknowledgement Form attached hereto as **Exhibit A**, pursuant to which the Covered Executive agrees to be bound by, and to comply with, the terms and conditions of this Policy. This Policy is binding upon all Covered Executives, even if such Covered Executive fails to execute or deliver the attached Acknowledgment Form to the Company.

12. Severability

The provisions in this Policy are intended to be applied to the fullest extent of the law. To the extent that any provision of this Policy is found to be unenforceable or invalid under any applicable law, such provision shall be applied to the maximum extent permitted, and shall automatically be deemed amended in a manner consistent with its objectives to the extent necessary to conform to any limitations required under applicable law.

13. Successors

This Policy shall be binding and enforceable against all Covered Executives and their beneficiaries, heirs, executors, administrators or other legal representatives.

14. Governing Law; Jurisdiction and Forum; Waiver of Jury Trial

- (1) This Policy shall be governed by, and construed and enforced in accordance with, Section 10 of the Exchange Act, Rule 10D-1 and the Listing Standards, and to the extent applicable, the laws of the State of Colorado.
- (2) The Company and each Covered Executive: (i) submits to the personal jurisdiction of United States District Court for the District of Colorado, and, if the United States District Court for the District of Colorado lacks jurisdiction, the state District Court for

the 2nd Judicial District, Denver County, Colorado in the event any dispute arises out of this Policy; (ii) agrees that it, he or she will not attempt to deny or defeat such personal jurisdiction by motion or other request for leave from any such court; and (iii) agrees that it, he or she will not bring any proceeding relating to this Policy in any court other than the United States District Court for the District of Colorado and, if the United States District Court for the District of Colorado lacks jurisdiction, the state District Court for the 2nd Judicial District, Denver County, Colorado.

- (3) The Company and each Covered Executive: (i) waives trial by jury in any action, proceeding, or counterclaim arising out of or in any way connected with this Policy or the administration thereof, and (ii) agrees to refrain from seeking a jury trial in any lawsuit, proceeding, counterclaim or any other litigation procedure based upon, or arising out of, this Policy.

15. Required Policy-Related Filings and Disclosures

A copy of this Policy and any amendments thereto will be filed as an exhibit to the Company's annual report on Form 10-K filed with the SEC. In addition, the Company shall file all disclosures with respect to this Policy in accordance with the requirements of the federal securities laws, including disclosures required by the SEC.

EXHIBIT A

LUMEN TECHNOLOGIES INC.

**POLICY FOR THE
RECOVERY OF ERRONEOUSLY AWARDED COMPENSATION**

ACKNOWLEDGEMENT FORM

By signing below, the undersigned acknowledges and confirms that the undersigned has received and reviewed a copy of the Lumen Technologies Inc. Policy for the Recovery of Erroneously Awarded Compensation (as it may be amended, restated, supplemented or otherwise modified from time to time, the "**Policy**"). Capitalized terms used but not otherwise defined in this

Acknowledgement Form (this "**Acknowledgement Form**") shall have the meanings ascribed to such terms in the Policy.

By signing this Acknowledgement Form, the undersigned further acknowledges and agrees that:

- the undersigned is and will continue to be subject to the Policy;
- the Policy will apply both during and after the undersigned's employment with the Company;
- in the event of any inconsistency between the Policy and the terms of any employment agreement to which the undersigned is a party, or the terms of any compensation plan, program or agreement under which any compensation has been granted, awarded, earned or paid, the terms of the Policy shall govern;
- the undersigned will abide by the terms of the Policy, including, without limitation, by returning any Erroneously Awarded Compensation to the Company to the extent required by, and in a manner permitted by, the Policy; and
- the Policy shall be binding and enforceable against the undersigned and the undersigned's beneficiaries, heirs, executors, administrators and other legal representatives.

Covered Executive

Signature

Printed Name

Date