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, 2024
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 Technologies, Inc.
(Exact name of registrant as specified in its charter)

Louisiana	**72-0651161**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
100 CenturyLink Drive,	
Monroe, Louisiana	**71203**
(Address of principal executive offices)	(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, no-par value 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 18, 2025, 1,013,799,349 shares of common stock were outstanding. The aggregate market value of the voting stock held by non-affiliates as of June 30, 2024 was $1.1 billion.

DOCUMENTS INCORPORATED BY REFERENCE:

Portions of the Registrant's Proxy Statement to be furnished in connection with the 2025 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

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Unless the context requires otherwise, 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, unless the context otherwise requires.

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 our completed, pending or proposed transactions, investments, product development, Private Connectivity Fabric℠ and Quantum Fiber buildouts, transformation plans, participation in government programs, deleveraging plans, and other initiatives, including benefits or costs associated therewith;
- 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 successfully and timely monetize our network related assets through leases, commercial service arrangements or similar transactions (including as part of our Private Connectivity Fabric℠ solutions), including the possibility that the benefits of these transactions may be less than anticipated, that the costs thereof may be more than anticipated or that we may be unable to satisfy any conditions of any such transactions in a timely manner, or at all;

- 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 obligations, 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 enhance our growth products and manage the decline of our legacy products, including by maintaining the quality and profitability of our existing offerings, introducing profitable new offerings on a timely and cost-effective basis, and transitioning customers from our legacy products to our newer offerings;
- our ability to successfully and timely implement our corporate strategies, including our transformation, buildout and deleveraging strategies;
- our ability to successfully and timely realize the anticipated benefits from our 2022 and 2023 divestitures, and our 2024 debt modification and extinguishment transactions described elsewhere herein;
- 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 capital markets, interest rates, mortality rates, demographics or regulations;
- the impact of events that harm our reputation or brands, including potential negative impact of customer or shareholder complaints, government investigations, security breaches or service outages impacting us or our industry;
- adverse changes in our access to credit markets on acceptable 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;
- 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;

- 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 intellectual property used to conduct our operations;
- any adverse developments in legal or regulatory proceedings involving us;
- changes in tax, trade, 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, war, rioting, vandalism, societal unrest, political discord, 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, our assessment of regulatory, technological, industry, competitive, economic and market conditions, 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 or otherwise.

ITEM 1. BUSINESS

Business Overview and Purpose

We are a networking company with the goal of connecting people, data, and applications quickly, securely and effortlessly. We are unleashing the world's digital potential by providing 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 communications 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 four brands:

- "Lumen," which is our flagship brand for serving the enterprise and wholesale markets, including our Private Connectivity Fabric℠ ("PCF") network architecture, Lumen Digital products, and our priority services including Edge, Network-as-a-Service and cybersecurity;
- "Quantum Fiber," which is our brand for providing fiber-based broadband services to residential and small business customers;
- "CenturyLink," which is our long-standing brand for providing primarily mass-marketed copper-based communications services, which we manage for cash flow; and
- "Black Lotus Labs," which is our cyberthreat research and intelligence arm.

With approximately 163,000 fiber on-net buildings and 340,000 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) both our Latin American business and a portion of our incumbent local exchange carrier ("ILEC") business 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. We subsequently acquired Embarq Corporation in mid-2009, Qwest Communications International Inc. in early 2011 and Level 3 Communications, Inc. in late 2017. These acquisitions substantially expanded our geographic footprint, reduced our focus on providing legacy telecommunications services to retail customers, and increased our focus on providing more modern technology and communications services to Business customers.

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 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 (and retained the remainder of this business, which is conducted in 17 states, primarily in the Western United States). On November 1, 2023, affiliates of Level 3 Parent, LLC sold Lumen's operations in EMEA.

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,		
	2024	2023[1]	2022[1]
	(Dollars in millions)		
Operating revenue	$ 13,108	14,557	17,478
Operating expenses	12,648	24,141	17,383
Operating income (loss)	$ 460	(9,584)	95
Net loss	$ (55)	(10,298)	(1,548)

(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 2024, 2023 and 2022, approximately 2.8%, 6.5% and 8.6%, 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,	
	2024	2023
	(Dollars in millions)	
Total assets	$ 33,496	34,018
Total long-term debt[1]	17,906	19,988
Total stockholders' equity	464	417

(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:

- deliver best in class infrastructure to meet network, transport, data, and computing needs;
- optimize and innovate the way locations, data centers, and clouds connect;
- limit, detect, and mitigate network and data security vulnerabilities;
- expand our product offerings and strengthen our digital self-service ordering platforms;
- create a more adaptive and integrated network;
- continue to monetize our network-related assets, principally through the sale of PCF solutions;
- expand our network capacity through our AI backbone initiative;
- execute on our Quantum Fiber buildout plan;
- manage our non-core business for cash flow; and
- strengthen our financial position and performance through our modernization and simplification initiatives, resulting in lower costs and debt reduction.

Our Stakeholders

We believe that regular communications with our stakeholders is a vital component of Lumen's success. Our "North Star" strategy focuses on the operating principles of teamwork, trust, and transparency and infuses clarity into the communications we have with all of our stakeholders, including our investors, employees, customers, vendors, partners and our local communities.

Employees and Human Capital Resources

To position Lumen for growth and success, we have made changes to our senior 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 where teamwork, trust, and transparency drive both individual and collective success. 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 talent to develop the brightest ideas to transform industries across the globe. At December 31, 2024, we had approximately 25,000 employees world-wide, including approximately 3,400 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 a rigorous hiring process and 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.

We have increased our focus on fostering internal mobility and providing more visibility and career advancement opportunities to our workforce through our internal communications platforms. We support this culture of growth through a robust learning ecosystem, offering approximately 8,900 courses within our learning management system, the majority of which are Lumen-specific content, and a vast library of over 150,000 resources on our learning platform. 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 talent programs.

Positive Corporate Culture

At Lumen, we are focused on transforming our business and delivering results for our colleagues, customers, partners, and shareholders. Our employees are critical to Lumen's success and we believe creating a winning culture and teams with different skills, perspectives, experiences, and backgrounds is essential to attracting and retaining engaged employees. Lumen is transforming from the bottom up, by building a culture of teamwork, trust, and transparency. We will continue to recruit and retain the best talent based on individual merit and to create a respectful and engaged workplace. We want our employees to be proud to work with us and fully engaged to share in our purpose to unleash the world's digital potential. Lumen adheres to the principles set forth in its Code of Conduct, and will always endeavor to fully comply with local, state, and federal laws and regulations.

Health & Wellness

We are committed to promoting the health, safety and well-being of our people, partners, and the communities we serve. Lumen strives to outperform the industry average safety performance as we continue our investments in programs and training to support health and safety. Our aim is to help all of our employees to thrive, and we regularly re-evaluate how to best support our employees' well-being through benefits and resources. We invest in the physical, mental, and emotional well-being of our people through a comprehensive suite of benefits. Our benefit and wellness programs are designed to drive engagement that positively impacts our culture, job satisfaction, recruiting and retention programs. We offer progressive employee benefits and enhancements that recognize the unique needs of our people and their families.

Labor Relations

At December 31, 2024, 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. Our commitment to staying abreast of our customers' needs is evident in our Customer Advisory Board, a forum where some of our largest customers gather twice a year to discuss emerging technology trends. In addition, the Lumen Customer Community is an interactive online platform designed exclusively for Lumen customers which serves as a central hub where customers can connect with each other and access valuable resources. We believe a strong experience leads to satisfied customers and engaged employees who are encouraged to recommend innovative 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. We are driving towards a digital-first culture that enables 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 customer experience 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 incorporating employee feedback is the most effective way to collect comprehensive data to continuously improve. We regularly invite our front-line employees to provide feedback on opportunities to improve our capabilities.

Partners and Vendors

We leverage a digital ecosystem of trusted partners to help us innovate and grow. 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 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.

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.

Lumen's Sustainability Management Committee ("SMC") is the driving force behind our comprehensive sustainability program, including the monitoring of climate-related issues. This cross-functional committee, composed of senior and seasoned leaders from diverse areas of our business, is responsible for driving our sustainability agenda with our Board of Directors and senior leadership. The SMC often works closely with Lumen's Environment, Health and Safety ("EHS") team, a management-level group responsible for overseeing and implementing our EHS and environmental sustainability initiatives.

Our EHS program 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 designed to 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. We recently announced early achievement of our 2018-2025 science-based GHG emissions-reduction targets and we are proud to have exceeded our targets ahead of schedule. 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, monitor trends, and implement measures to enhance efficiency and reduce discharge.

- *Waste*: We are committed to reusing and recycling products, carefully managing our waste and minimizing material use throughout our operations. We encourage customers to return to us their equipment, which is then either reused or sent to a certified recycler. This and other programs enable us to divert electronic and communications equipment from landfills.

- *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-related 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, wildfires 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*: We conduct risk assessments, review safety incident data and monitor 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, 2024, our network (owned and leased) included approximately 340,000 route miles of fiber optic plant, most of which consists of "long-haul" fiber connecting major metropolitan centers and the remainder of which is "metro" fiber that connects buildings within the metropolitan markets we serve. We also own copper-based network infrastructure and multiple gateway and transmission facilities used in connection with operating our network throughout North America.

At December 31, 2024, our domestic network connected to (i) approximately 163,000 buildings, which we refer to as “fiber on-net” buildings, located in 226 metropolitan markets serving our enterprise customer base and (ii) approximately 22.0 million broadband-enabled units capable of receiving our Mass Markets broadband services across 17 states. At December 31, 2024, approximately 4.2 million of our 22.0 million 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 plan to construct additional fiber optic infrastructure over the next few years 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 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 and our customers 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 risks relating to our systems, network assets, network operations, 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, lower prices, or 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, digital ordering capabilities, ease of access and use, billing simplicity and customer service. We continue to experience pricing pressure for several of our products and services due to a wide array of large communications companies and systems integrators providing high-speed fiber services to enterprise and wholesale business customers and other companies that market slower-speed non-fiber services typically at lower prices to more price-sensitive customers.

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 initiatives.

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 decrease use of our voice network.

We continue to operate various ILECs, which are obligated under federal law 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. Consequently, our ILECs face competition from competitive local exchange carriers ("CLECs"), which typically 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, such as our PCF solutions, 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 five 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 domestic residential and small business customers.

The following table shows the composition of our operating revenue by segment for the years ended December 31, 2024, 2023 and 2022:

	Years Ended December 31,			Percent Change	
	2024	2023	2022	2024 vs 2023	2023 vs 2022
Percentage of revenue:					
Business	79 %	80 %	75 %	(1)%	5 %
Mass Markets	21 %	20 %	25 %	1 %	(5)%
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, 2024, 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 and Conduit.* 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 access to conduit, which are ducts installed underground to house and protect fiber optic cables. Additionally, we 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 340,000 route miles globally with extensive off-net access solutions across North America and Asia Pacific;
    - *Communications (Voice over IP, "VoIP").* We offer a VoIP portfolio, including session initiation protocol ("SIP") trunking, and our Cloud Voice Solution, which combines hosted voice, SIP trunking, and branded collaboration. Our Cloud Communications platform moves voice communications to the cloud for seamless communication, operational efficiency, and reliable, cost-effective support for critical safety systems;
    - *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;

- *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 enterprise-wide options that transform a customer's various communication tools into a single 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 enterprises, government entities and service providers to streamline multiple networks into a 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 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.

  - *Managed and Professional Service 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, 2024, 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, 2024, we held approximately 2,400 patents and patent applications in the U.S. and other countries. We have also received licenses to use patents held by others. 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

For several years, the federal government has instituted various funding programs to facilitate greater access to broadband services, including those noted below.

Between 2015 and 2021, we received approximately $500 million annually through Phase II of the FCC's Connect America Fund ("CAF II"), a broadband support 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 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 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. In the third quarter of 2024, we relinquished rights to develop certain RDOF census blocks in four states, which resulted in (i) a reduction of our anticipated RDOF Phase I support payments to approximately $16 million for the year ending December 31, 2024 and $15 million each remaining year thereafter and (ii) an expectation of payment to the federal government, which we anticipate will be approximately $10 million.

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 by a few states. 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. We believe that the release of this funding could increase competition for broadband customers.

In mid-2024, a federal appellate court ruled that the FCC's universal service funding system, which levied fees against us and other telecommunication companies, was unlawful. Due to pending judicial and legislative proceedings, it is unclear how this development may ultimately impact us.

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 common carrier service under Title II of the Communications Act of 1934. In December 2017, the FCC voted to repeal this order. In May 2024, the FCC adopted a new order regulating BIAS as a Title II utility service, but a federal appeals court vacated this order in January 2025. Several states have proposed, implemented or enacted laws or orders focused on state-specific Internet service regulation. In addition, certain members of Congress and various consumer interest groups have advocated in favor of classifying BIAS as a Title II utility service. These developments make it difficult to predict the future degree of regulation of BIAS. Any 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) exercise some control over the rates telecommunications companies charge their customers for regulated services, (iii) require ILECs to provide voice service throughout their territories, particularly in areas where alternative voice service is not available, (iv) administer support programs designed to subsidize the provision of services to high-cost rural areas, (v) regulate the purchase and sale of ILECs, (vi) require ILECs to provide service under publicly-filed tariffs setting forth the terms, conditions and prices of regulated services, (vii) limit ILECs' ability to borrow and pledge their assets, (viii) regulate transactions between ILECs and their affiliates and (ix) 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. State agencies also regulate certain aspects of non-ILEC communications businesses, including determining carriers' eligibility to receive federal universal service fund support.

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 and do not fully address many issues, including the pricing of services.

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

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 or impact our network buildout initiatives.

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.

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 "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 our annual reports on Form 10-K, quarterly reports on Form 10-Q, and current reports on Form 8-K (i) in the “Investor Relations” section of our website (*ir.lumen.com*) under the heading “FINANCIALS” and subheading “SEC Filings" or (ii) on the SEC’s website at *www.sec.gov*. In like manner, you may obtain free electronic copies of reports filed by two of our principal subsidiaries, which contain supplemental information about us that you may find useful. 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. The Code of Conduct, as well as various other governance documents, 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 2024, 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 industry conditions 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, fiber miles (determined by multiplying the route miles of fiber cables by the cable's fiber strands), broadband subscribers, broadband-enabled units, fiber on-net buildings (which are buildings in metropolitan markets connected to our network) 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 attain our operational and strategic goals and our projected cost savings, we need to integrate, simplify, upgrade, and modernize our existing applications and systems, including many legacy systems from past acquisitions. This process will require us to, among other things, timely retire aging or obsolete systems, deploy a master data management platform, and integrate various legacy IT systems into a new, simplified structure. 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 and resilient operating model, advanced project management capabilities, and successful collaboration among personnel with differing expertise. We cannot assure you these efforts will be successful. Any failure to timely accomplish these initiatives may negatively affect our (i) ability to deliver services to our customers at required speed and scale, (ii) ability to realize anticipated efficiencies and attain our operational cost reduction projections, (iii) network stability, (iv) ability to timely repair infrastructure and respond to service outages or (v) ability to meet regulatory, legal or contractual obligations.

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 platform, 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 transformations of our workforce and systems. 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 may not realize the anticipated benefits of our strategic focus on selling PCF solutions.

During the second half of 2024, we announced that Lumen and its subsidiaries had recently sold several billion dollars of new PCF solutions. Full payment for certain deals involving construction of new routes depends on fulfilling certain delivery obligations or other performance conditions, and revenue under our PCF agreements may be less than anticipated. Our costs under these agreements may be greater than anticipated due to construction delays or cost overruns as a result of weather, supply chain, labor, permitting, or other unforeseen issues. If demand for data center connectivity declines or customer needs or preferences change for any other reason, future demand for, and the profitability of, our PCF solutions could decline or cease.

Our attempts to capitalize on emerging market opportunities may not be as successful as envisioned.

Growth in AI products and other recent industry changes have fueled demand for higher transmission speeds, greater bandwidth, lower latency and more advanced networking services. In response, we are endeavoring to build a digital networking services ecosystem that enables us to offer attractive products and services (including PCF solutions) that fulfill this market demand. But, as indicated by other disclosures in this Item 1A, our success will be dependent on improving and integrating our systems and meeting evolving customer demands in a highly competitive industry experiencing rapid advances in technology. For these reasons and others, our attempts to capitalize on emerging market opportunities may not be as successful as we currently envision.

In connection with establishing our strategies and earnings guidance, we have assumed that the continued development of AI will continue to drive robust demand for our products and services, which subjects us to the risk of misallocating our resources if AI-related demand fails to meet current expectations.

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 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 are newer, more integrated or more advanced, which enable them to provision services faster and more efficiently, (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 increasing demand for digitally-integrated products and 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, our competitors may overbuild in our markets and roll out high speed connectivity products.

Increasingly, customers are demanding higher transmission speeds and 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 developing such advanced services. If we fail to develop competitive 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 and offering products and services attractive to our customers, to migrate our customers from legacy to newer products and services, to timely provision our products and services, to maintain and expand our network to enable it to support customer demands for significantly 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 fail to retain customers or attract new ones.

As we continue to transform our organization, we may be unable to attract, develop and retain leaders and employees with the right skill sets and technical expertise.

As we continue to transform into a company that primarily serves Business customers requiring newer advanced products, we may be unable to attract and retain skilled and motivated leaders and employees who possess the technical, development, operational, sales or managerial 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. The prevalence of remote working arrangements 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 or benefits 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 relatively low trading price of our common stock, which, as discussed below, has diminished the attractiveness of our equity incentive compensation programs. Our failure to successfully attract and retain key personnel could materially adversely impact our business or financial performance.

Over 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 lower the productivity and collegiality of our workforce.

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

For several years we have experienced declining revenues and high debt levels, which has created uncertainties regarding our future prospects and ability to discharge our obligations. Despite the positive impacts of our 2024 PCF agreements and debt transactions, these uncertainties persist.

Concerns regarding our future prospects and ability to discharge our obligations, coupled with a relatively low stock trading price and recent reductions of our workforce, 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. If recipients of those awards are concerned about our future stock price or financial performance, they may view less favorably the value of their equity awards and the competitiveness of their total compensation package.

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.

In addition, a relatively 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, service outages, data breaches, internal control deficiencies, performance failures, compliance violations, employee misconduct, 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.

As a critical infrastructure service provider, we transmit large amounts of data over our systems, and process and store highly sensitive customer data. Consequently we, our third-party service providers, and our customers are under constant threat of cyber attacks. The number and sophistication of these attacks continues to increase. Despite our efforts to prevent these events, some of these attacks could result in a material adverse impact to our operations due to distributed denial of service attacks, ransomware attacks, malware, virus, credential harvesting, man-in-the-middle attacks, or social engineering attacks. As previously disclosed in our 2023 reports to the SEC and various 2024 media reports, (i) sophisticated threat actors accessed our internal information technology systems in 2023 and 2024 and (ii) we experienced a ransomware attack on a limited number of our servers in 2023. The ransomware attack did not impact any operations or customer data. We do not believe these incidents had or are likely to have a material adverse impact on our ability to serve our customers or our business, operations or financial results.

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 information, 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 third-party 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) the large number of our employees working from remote locations, (vii) our IT support agreements with purchasers of businesses we have divested over the past few years and (viii) as further discussed below, the difficulty of defending against increasingly sophisticated attacks.

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 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 use of machine learning, AI and other sophisticated techniques to initiate cyber and phishing attacks, (ii) the wider accessibility of cyber-attack tools that can circumvent security controls and evade detection, which can delay and limit our ability to accurately assess and fully remediate the impact of the attack, and (iii) growing threats from Chinese, Russian and other state actors due to heightened geopolitical tensions and rivalries, and the attendant increased possibility of cyber warfare targeting us in the event of a direct conflict. 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 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.

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, wholesale pricing pressure and other factors have caused us to experience declines in revenue derived from a broader array of our products and services, including those marketed to our Business customers as our “nurture” and “harvest” offerings. 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 higher-margin product offerings. Accordingly, the operating and strategic plans that we have implemented to address these challenges may not succeed in attaining our goal of achieving future revenue growth in the time frames we project, or at all.

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, quality and quantity of these purchased 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 for several reasons, including bankruptcy. Those risks are heightened when we contract with a competitor who may have incentives to act in ways unfavorable to us, including by terminating those contracts, imposing price increases or favoring their transmissions over ours. 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. For instance, 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 in the future if any of these vendors are unable or unwilling for any reason to continue to deliver their products or services on terms acceptable to us, including due to business interruptions, security incidents, litigation, financial distress, bankruptcy or changes in their operations or business strategies.

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, including if the third-party licensor violates, or is alleged to have violated, the intellectual property rights of others. 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, licenses 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, or to conduct operations within their jurisdictions. A significant number of these authorizations are scheduled to lapse over the next five to 10 years, unless we are able to extend or renew them. 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.

Extreme weather conditions and climate changes 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 areas that subject them to the risks associated with severe tropical storms, hurricanes, tornadoes, earthquakes, floods, wildfires 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 business 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 changes 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. Climate changes could also require us to continue to increase our spending on network resilience initiatives, and could result in additional regulation impacting our operations or profitability.

Our environmental programs and disclosures may expose us to reputational, legal and business risks.

Our reputation and brands could be impacted by our public environmental initiatives, including our environmental sustainability initiatives. These initiatives, goals, or targets could be difficult to achieve and costly to implement. To the extent that our required or voluntary disclosures about environmental initiatives increase, we could be criticized for their accuracy, adequacy, or completeness. We could fail to achieve, or be perceived to fail to achieve, our environmental-related initiatives, goals, or targets. Our actual or perceived failure to achieve our environmental-related initiatives, goals, targets, 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. Conversely, we may fail to attract or retain customers, vendors, employees or other stakeholders who are opposed to our environmental-related initiatives, or may face claims from stakeholders who believe such initiatives harmed them or us.

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 possibility that supply constraints, labor shortages, construction delays or other factors could hamper our ability to attain our infrastructure buildout plans, (iii) the risk that the continuation of high vacancy rates in the fiber on-net buildings we serve could reduce demand for our services. and (iv) the risks and uncertainties inherent in acquiring or disposing of businesses, or engaging in other strategic transactions.

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 or unclear and are occasionally in conflict with each other. Accordingly, we cannot ensure we will always be in compliance with all these requirements at any particular 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 or current participation in certain of the FCC's buildout programs subjects us to certain financial risks. For example, if we are not in compliance with FCC measures by the end of the CAF II or RDOF programs, we could incur substantial penalties or forfeitures, including but not limited to being suspended or disbarred from future governmental programs or contracts, which could have a material adverse impact on our financial condition. From time to time, legislative or regulatory bodies create new subsidy programs designed to enhance the communications infrastructure in the U.S. (such as Congress's creation of a $65 billion broadband connectivity fund in 2021), which in the past have typically increased the number of companies offering competing products in certain of our markets.

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 debarred 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 debarred 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.

For years, the laws governing our operations have been unsettled, which has impacted our ability to plan for the future. We expect regulatory uncertainty to increase following a 2024 U.S. Supreme Court decision reversing a prior ruling that required courts to defer to reasonable agency interpretations of ambiguous federal laws. New laws or court decisions could affect our services or expose us to burdensome requirements or liabilities. 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 proposals to increase the regulation of internet service providers or to further strengthen data privacy laws are enacted or 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. Finally, we expect that expanded regulation of 911 emergency services will increase our costs and exposure to fines for noncompliance.

As a carrier of last resort for certain of our Mass Market customers, we could be required to provide services under circumstances that are economically disadvantageous or that divert resources from other business priorities.

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 and potentially require us to implement changes to manage this exposure.

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

There are several potentially material proceedings pending against us, including several derivative and class action suits. 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 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. Due to the complexity of its design and algorithms, AI presents various risks and challenges, and its use could cause operational disruptions or have other unintended adverse consequences. While we aim to 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. Our 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, our use of AI could materially 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, 2024, 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 a wide range of U.S. and non-U.S. laws, regulations, treaties, tariffs and other directives governing our operations in international jurisdictions in which we provide services, either directly or indirectly through our contractual arrangements with other carriers. Many of these laws or other directives are complex, change frequently and conflict with the laws in other jurisdictions to which we are bound. There is a risk that these laws or other directives could materially restrict our ability to deliver services in various international jurisdictions or expose us to the risk of potential penalties, license revocations or contract terminations if we violate them. In addition, if the U.S. continues increasing its tariffs, we could incur additional expense we may be unable to recover from our customers.

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.

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. These allegations have resulted in regulatory inquiries and lawsuits, and could in the future subject us to legislative or regulatory actions, removal costs, 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, and could negatively impact our business or the value of our securities.

Financial Risks

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

As of December 31, 2024, we had approximately $13.7 billion of outstanding consolidated secured indebtedness, $4.6 billion of outstanding consolidated unsecured indebtedness (excluding (i) finance lease obligations, (ii) unamortized premiums, net and (iii) unamortized debt issuance costs) and approximately $737 million of unused borrowing capacity under our revolving credit facilities.

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, creditors or investors;
- 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 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. 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, weak economic conditions 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. Even if successfully implemented, these transactions could 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. Roughly three-quarters 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. Most 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, our investors should be aware that (i) determining the priority of the rights of holders of our consolidated debt instruments 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) 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.

As disclosed in the periodic reports for our subsidiaries Level 3 Parent, LLC and Qwest Corporation, Lumen Technologies, Inc. also enters into debt arrangements with its subsidiaries from time to time. Any such intercompany transactions with its consolidated subsidiaries are eliminated in accordance with U.S. generally accepted accounting principles (“GAAP") and, accordingly, are not reflected on the consolidated balance sheets of Lumen Technologies, Inc. For instance, at December 31, 2024, Lumen Technologies, Inc. owed approximately $2.7 billion to Level 3 Financing, Inc., (i) $1.2 billion of which was owed under a secured $1.2 billion revolving loan agreement and (ii) $1.5 billion of which was owed under an unsecured $1.825 billion revolving loan agreement. Qwest Corporation is also currently permitted to borrow up to $2.0 billion from a subsidiary of Lumen Technologies, Inc. under a revolving promissory note, but no amounts were outstanding thereunder at December 31, 2024. Lumen Technologies, Inc.’s debt arrangements with its subsidiaries may be revised from time to time, including to increase or decrease the amount thereof.

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 Parent, LLC, including receiving cash from Level 3 Parent, LLC, or distributing cash from Level 3 Parent, LLC to other of our affiliated entities.

Lumen Technologies, Inc.’s senior secured credit facilities 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. Any such acceleration of our debt could have materially adverse consequences, including reducing the possibility of obtaining financing and potentially forcing us to seek bankruptcy protection. 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.

In 2023, holders of a substantial portion of our funded indebtedness asserted that we had violated certain of our debt covenants. Other creditors could potentially seek to assert similar claims in the future, the risk of which is heightened by the complexity of our debt structure, debt covenants and operations.

Our recent debt transactions may not achieve their anticipated benefits.

During 2024, we engaged in a series of transactions designed to extend our debt maturities, enhance our access to revolving credit, and reduce our indebtedness. In connection with announcing the closing of these transactions, we indicated that they would provide us with additional time to transform our operations and improve our financial performance.

In completing these transactions, we incurred substantial transaction expenses, agreed to pay higher levels of interest and committed to more restrictive debt covenants, which collectively could have important consequences, including the potentially adverse consequences of carrying significant debt or failing to comply with applicable debt covenants, each as specified elsewhere in this Item 1A. For all these reasons and more, we may not realize some or all of the benefits we anticipate receiving from completing our 2024 debt transactions.

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, to perform our buildout obligations under certain of our PCF agreements, and to otherwise maintain, upgrade and expand our network infrastructure and product offerings. These capital requirements are driven by several factors, including (i) changes in customers' service requirements; (ii) our need to continue to maintain aging or obsolete infrastructure until it can be replaced; (iii) our continuing need to expand and improve our network to remain competitive and meet customer demand; and (iv) our regulatory and contractual 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, interest expense, operating costs, maintenance expenses, tax obligations, periodic pension contributions and other benefits payments. Although our recent PCF agreements have significantly increased our near-term liquidity, we cannot assure you our future cash flows from operating activities will be sufficient to fund our capital investments, debt obligations or any other long-term cash requirements.

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 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 Parent, LLC or its subsidiaries 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, 2024, we had approximately $570 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. At December 31, 2024, we also had 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, 2024, our company-sponsored benefit plans that cover our current and former U.S.-based employees had approximately 21,000 active employee participants, approximately 52,000 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 and modification 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.

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, 2024, approximately 20% 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 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, which could have a material adverse effect on our results of operations or financial condition.

High inflation could continue to adversely impact us.

Although inflation has recently been declining, during the past several years our operations were impacted by the highest domestic inflation rates in decades. If inflation rates remain elevated or increase, our operations will likely continue to be impacted. Potential impacts of high inflation include (i) lower revenue if inflationary pressures cause our customers to defer or decrease their orders, (ii) lower profit margins, (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.

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 of our financial statements and their compliance with GAAP. We cannot assure you these measures will be effective.

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;
- higher prevailing interest rates would increase interest expense under our floating-rate debt;
- 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 2022 and 2023 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.

It has been challenging and time-consuming to provide transition services to the purchasers of our divested operations, and we expect this will continue to be the case. We may experience (i) 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, (ii) greater tax or other costs or realize fewer benefits than anticipated under our post-closing agreements with the purchasers, (iii) higher vendor costs due to reduced economies of scale or other similar dis-synergies, (iv) weaker performance to the extent segregation and support of the divested businesses distracts personnel or diverts resources from the operation, digitization, and transformation of our retained business, (v) losses or increased inefficiencies from stranded or underutilized assets, (vi) the loss of any customers dissatisfied with our services post-closing, (vii) challenges in retaining and attracting personnel or (viii) operational or commercial difficulties segregating the divested assets from our retained assets.

The divestitures have reduced our 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.

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.

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, submit 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 of Directors 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 of Directors. 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 systems owned, operated or controlled by unaffiliated third-party operators and (ii) our processing and storage of large amounts of sensitive customer data. Cyber-attacks on our systems may be initiated by a wide variety of intruders, including employees, cyber-criminals, nation state actors and other advanced persistent threat actors, and may include 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. This program seeks 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 cybersecurity and privacy 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 cybersecurity and privacy 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 the 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 Standards 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 mutually exchange 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 our 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 Cybersecurity Incident Response Team ("CIRT") is responsible for detecting and coordinating responses to all 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 ("CSWAT"), which is responsible for addressing cybersecurity incidents that raise more significant risks.

Our CSWAT is comprised of senior IT, operations, risk, legal and compliance leaders across business segments. In addition to addressing our more significant cyber incidents, the 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 oversight by our Board of Directors, 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 cybersecurity risk assessments from information security, privacy, and internal audit management teams, 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 of Directors 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 extensive experience working in the public and private sectors leading security organizations, risk management functions, and driving large information technology deployments. He has an Engineering degree, a Master of Business Administration, a Chief Information Security Officer Certification, and a Global Information Assurance Certification Security Leadership Certification. He oversees the implementation and compliance of our information security standards and mitigation of information security related risks.

Our cybersecurity organization includes a response team and management-level committees who support our processes to assess and manage cybersecurity risk as follows:

- 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 generally seek to promote a company-wide awareness of cybersecurity risk through broad-based communications and educational initiatives, including regularly conducting phishing tests and holding employee trainings on our privacy, cybersecurity and information management policies, at least annually and more frequently when legal or other developments warrant.

- The Technology, Security, and Privacy Council, co-chaired by the CSO, the Chief Information Officer (CIO), and the Chief Privacy Officer (CPO), leverages the combined expertise of various security, IT, legal, internal audit, and operational leaders across the company. This council provides a forum for these cross-functional members of management of our leadership team to consider emerging technologies, such as artificial intelligence and emerging cybersecurity risks; review cybersecurity and privacy regulations; review and update policies and standards as appropriate; and promote cross-functional collaboration to manage cybersecurity and privacy risks across the enterprise. Members of this council are responsible for reporting on cybersecurity and privacy risks to the Risk Oversight Committee ("ROC").

- The ROC, whose core members include our Chief Financial Officer, Chief Technology and Product Officer, Executive Vice President of Enterprise Operations, and Chief Legal Officer, oversees our company-wide risk mitigation strategies. With respect to cyber risks, the ROC's oversight function helps to ensure accountability, adequacy of resourcing, implementation of Company directives, and alignment of oversight provided by our Board of Directors and our senior leadership team. Some of the more significant risks discussed by the ROC are also reported to our Risk and Security Committee at least quarterly.

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 the dates below:

	As of December 31,	
	2024	2023
Land	1 %	2 %
Fiber, conduit and other outside plant[1]	40 %	37 %
Central office and other network electronics[2]	38 %	38 %
Support assets[3]	16 %	16 %
Construction in progress[4]	5 %	7 %
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.

We own a substantial portion of our telecommunications equipment required for our business. However, we also lease from third parties certain facilities, network capacity and equipment under various lease or other 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 $20.4 billion and $19.8 billion at December 31, 2024 and 2023, 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 18, 2025, there were approximately 74,000 stockholders of record, although there were significantly more beneficial holders of our common stock.

Issuer Purchases of Equity Securities

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 2024 to satisfy the related tax withholding obligations:

Period	Total Number of Shares Withheld for Taxes	Average Price Paid Per Share
October 2024	31,772	$ 6.32
November 2024	53,569	9.10
December 2024	25,519	7.12
Total	110,860	

For a description of our share repurchases in late 2022 under a share repurchase program that lapsed in November 2024, see Note 20—Repurchases of Lumen Common Stock to our consolidated financial statements included in Item 8 of Part II of this report.

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 networking company with the goal of connecting people, data, and applications quickly, securely and effortlessly. We are unleashing the world's digital potential by providing 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 communications 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 163,000 fiber on-net buildings and 340,000 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 incumbent local exchange carrier ("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 the 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. We retained the remainder of this business, which is conducted in 17 states, primarily in the Western United States.

On November 1, 2023, we and certain of our affiliates sold Lumen's operations in Europe, the Middle East and Africa ("EMEA") 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 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.

Macroeconomic Changes

Over the past few years macroeconomic changes have impacted us and our customers in several ways.

We believe macroeconomic changes over the past few years have resulted in (i) increases in certain revenue streams and decreases in others, (ii) operational challenges resulting from inflation and 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 few years have increased fiber construction demand from customers. The resulting increase in construction labor rates increased the cost of enabling units to be capable of receiving our Quantum Fiber broadband services. We believe these factors also occasionally contributed to a delay in attaining our Quantum Fiber buildout targets.

Continued business uncertainty, supply constraints or inflationary pressures 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.

These above-mentioned macroeconomic factors, coupled with dis-synergies resulting from our 2022 and 2023 divestitures, changes in customer preferences and negotiations with our creditors through the end of the first quarter of 2024, placed additional pressures on our financial performance and our market capitalization. These developments contributed to us recognizing a total of nearly $14.0 billion in goodwill impairment charges in 2022 and 2023. Some of these pressures continue to impact us. To the extent these pressures continue, we could experience additional deterioration in our projected cash flows or market capitalization, or make significant changes to the assumed discount rates or market multiples that we use to determine the fair value of our reporting units. Any of these could result in additional future impairments of our approximately $2.0 billion of remaining goodwill.

For further information relating to these matters, see (i) "—Trends Impacting Our Operations" and (ii) Item 1A of this report.

Reporting Segments

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

- *Business Segment:* Under our Business segment, we provide our products and services under the following five sales channels:
    - Large Enterprise: Under our large enterprise sales channel, we provide our products and services to large enterprise customers and carriers in North America.
    - Mid-Market Enterprise: Under our mid-market enterprise sales channel, we provide our products and services directly to medium-sized enterprises in North America, as well as 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.
    - International and Other: Under our international and other sales channel, we provide (i) various products and services to multinational and global enterprise customers and carriers and (ii) services under the limited number of our remaining content delivery network ("CDN") contracts.
- *Mass Markets Segment.* Under our Mass Markets segment, we provide products and services to domestic residential and small business customers. At December 31, 2024, we served 2.5 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 existing and emerging products and services in which we are significantly investing, including our dark fiber and conduit, Edge Cloud, IP, managed security, software-defined wide area networks ("SD WAN"), 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 voice, and private line services; and
- *Other*, which includes equipment sales, managed and professional service solutions and certain 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.

From time to time, we may change the categorization of our products and services.

Trends Impacting Our Operations

In addition to the above-described impact of macroeconomic and industry pressures, our consolidated operations have been, and will continue to be, impacted by the following 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 our customers' experience and reduce our operating expenses.
- The increased use of multi-cloud storage, digital applications, video streaming, gaming, robotics, quantum computing, and artificial intelligence has substantially increased demand for robust, scalable network services. We are continuing to enhance our product and service offerings and taking other steps to enable customers to have access to greater bandwidth and capacity.
- 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 offerings, or resulting in volume or rate reductions for other offerings and (ii) also creating certain opportunities for us arising out of increased demand for advanced networking services and high-speed, low-latency 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 and overall leverage have caused, and may continue to cause, certain customers and other third parties to avoid transacting business with us.
- Our expenses will be impacted by higher vendor costs, reduced economies of scale and other dis-synergies due to our 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 structure to remain competitive.
- We have historically generated revenue by entering into transactions that utilize excess conduit, fiber or other assets on our network to create custom networks for our customers, including through our Private Connectivity Fabric^{SM} solutions. We plan to continue to actively pursue additional revenue-generating opportunities with respect to these assets through right-of-use agreements, leases or other agreements. We may or may not consummate such transactions from time to time, and the revenue from and obligations associated with any such opportunities may be significant, either individually or in the aggregate. The completion of any future transactions may be subject to customary conditions, and may not be executed in a timely manner, or at all.

These and other developments and trends impacting our operations are discussed elsewhere in Item 1A and 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.

Operating Revenue

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

	Years Ended December 31,			2024 vs 2023 % Change	2023 vs 2022 % Change
	2024	2023	2022		
	(Dollars in millions)				
Business Segment:					
Large Enterprise	$ 3,379	3,618	3,827	(7) %	(5) %
Mid-Market Enterprise	1,887	2,044	2,242	(8) %	(9) %
Public Sector	1,849	1,789	1,863	3 %	(4) %
Wholesale	2,875	3,152	3,605	(9) %	(13) %
International and Other	373	980	1,562	(62) %	(37) %
Business Segment Revenue	10,363	11,583	13,099	(11) %	(12) %
Mass Markets Segment Revenue	2,745	2,974	4,379	(8) %	(32) %
Total operating revenue	$ 13,108	14,557	17,478	(10) %	(17) %

Our consolidated operating revenue decreased by $1.4 billion for the year ended December 31, 2024 as compared to the year ended December 31, 2023, $547 million of which was due to the sale of the EMEA business and select CDN contracts in the fourth quarter of 2023. Our consolidated revenue decreased by $2.9 billion for the year ended December 31, 2023 compared to the year ended December 31, 2022, $2.1 billion of which was attributable to the sale of both our Latin American and ILEC businesses in the second half of 2022, and the sale of our EMEA business in the fourth quarter of 2023. See our segment results below for additional information.

Operating Expenses

The following table summarizes our operating expenses for the years ended December 31, 2024 and 2023. For information regarding expenses for the year ended December 31, 2022, 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, 2023.

	Years Ended December 31,		%Change
	2024	2023	
	(Dollars in millions)		
Cost of services and products (exclusive of depreciation and amortization)	$ 6,703	7,144	(6) %
Selling, general and administrative	2,972	3,198	(7) %
Net loss on sale of businesses	17	121	(86) %
Depreciation and amortization	2,956	2,985	(1) %
Goodwill impairment	—	10,693	nm
Total operating expenses	$ 12,648	24,141	(48) %

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 $441 million for the year ended December 31, 2024 as compared to the year ended December 31, 2023. This decrease was primarily due to a decrease of $440 million as a result of the sale of the EMEA business in the fourth quarter of 2023 and a reduction of $147 million in employee-related expense from lower headcount in the business we retained following that sale and the 2022 sales of our Latin American business and a portion of our ILEC business. These decreases were partially offset by an increase in facilities costs of $120 million, as well as increases of $21 million related to real estate and power expenses.

Selling, General and Administrative

Selling, general and administrative expenses decreased by $226 million for the year ended December 31, 2024 as compared to the year ended December 31, 2023. The decrease was due to (i) a decrease of approximately $80 million due to the sale of the EMEA business, (ii) a decrease of approximately $67 million attributable to our recognition of a non-recurring loss in connection with our donation of our Monroe, Louisiana campus in 2023 (iii) a decrease of $115 million in employee-related expenses as a result of our 2024 workforce reductions, and (iv) a decrease of $150 million related to gains on various real estate and other asset sales during the year, including $22 million due to the recognition in the first quarter of 2024 of a deferred gain on the fourth quarter 2023 sale of select CDN contracts. These decreases were offset by (i) an increase of $157 million in legal and other professional fees mainly driven by our first and third quarter 2024 debt transactions and (ii) an increase of $80 million attributable to an impairment loss related to the initiation of marketing our Broomfield, Colorado office buildings to locate a buyer and the classification of those buildings as held for sale.

Net Loss on Sale of Businesses

For a discussion of the net loss on the sale of businesses that we recognized for the years ended December 31, 2024 and December 31, 2023, 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,		
	2024	2023	%Change
	(Dollars in millions)		
Depreciation	$ 1,890	1,932	(2) %
Amortization	1,066	1,053	1 %
Total depreciation and amortization	$ 2,956	2,985	(1) %

Depreciation expense decreased by $42 million for the year ended December 31, 2024 as compared to the year ended December 31, 2023 primarily due to a decrease of $63 million relating to changes in the depreciation lives of fiber network assets and a decrease of $52 million relating to a net decline in depreciable assets. These decreases were partially offset by (i) a $29 million increase relating to the removal of certain assets held for sale and decommissioned assets, (ii) a $19 million increase relating to changes made at the beginning of 2024 in the method of depreciation from the group method of depreciation to the straight line by individual asset method, and (iii) an increase of $18 million from accelerated depreciation of CDN assets.

Amortization expense increased by $13 million for the year ended December 31, 2024 as compared to the year ended December 31, 2023. The increase was due to a $43 million increase associated with the accelerated amortization of software assets, mostly related to CDN contracts, and a $15 million increase associated with net increases in amortizable assets. These increases were partially offset by (i) a $24 million decrease due to a changed method of amortization as discussed in Note 1—Background and Summary of Significant Accounting Policies "— Change in Accounting Estimates", (ii) a $12 million decrease related to changes in our CDN customer relationships, and (iii) an $11 million decrease due to 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 report under two segments: Business and Mass Markets. As of December 31, 2024, we had three reporting units for goodwill impairment testing: (i) Mass Markets, (ii) North America Business ("NA Business") and (iii) Asia Pacific ("APAC") region. Prior to the divestiture of the EMEA business in November 2023, 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. Similarly, prior to the August 2022 divestiture of our Latin American business, the Latin American ("LATAM") region was also a reporting unit.

When we performed a qualitative impairment test during the fourth quarter of 2024, we concluded it was more likely than not that the estimated fair value of each of our reporting units was greater than our carrying value of equity of each of our reporting units as of our testing date. Therefore, we concluded no impairment existed as of our annual assessment date in the fourth quarter of 2024.

The sustained decline in our share price during the second quarter of 2023 was considered a triggering event requiring evaluation of goodwill impairment. 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.

For additional information about our impairment charges, see (i) “—Macroeconomic and Industry Changes” above and (ii) Note 3—Goodwill, Customer Relationships and Other Intangible Assets to our consolidated financial statements in Item 8 of Part II of this report.

Other Consolidated Results

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

	Years Ended December 31,		
	2024	2023	%Change
	(Dollars in millions)		
Interest expense	$ (1,372)	(1,158)	18 %
Net gain on early retirement of debt	348	618	(44) %
Other income (expense), net	334	(113)	nm
Total other expense, net	$ (690)	(653)	6 %
Income tax (benefit) expense	$ (175)	61	nm

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 increased by $214 million for the year ended December 31, 2024 as compared to the year ended December 31, 2023. The increase was primarily due to an increase in the average interest rate from 5.9% to 7.0%, which was partially offset by a decrease of $1.3 billion in our average outstanding long-term debt.

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, 2024 and 2023, see Note 7—Long-Term Debt and Credit Facilities.

Other Income (Expense), Net

Other income (expense), 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 from cash and cash equivalents, (v) gains and losses from non-operating asset dispositions (see Note 19—Other Financial Information), (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,	
	2024	2023
	(Dollars in millions)	
Pension and post-retirement net periodic expense	$ (152)	(158)
Foreign currency loss	(25)	(10)
Gain on sale of investment	205	—
Loss on investment in limited partnership	(10)	(75)
Loss on investment in equity securities	—	(22)
Transition and separation services	157	186
Interest income	119	41
Other	40	(75)
Other income (expense), net	$ 334	(113)

Income Tax Expense

For the years ended December 31, 2024 and 2023, our effective income tax rate was 76.1% and (0.6)%, respectively. The effective tax rate for the year ended December 31, 2024 includes a $135 million favorable impact of the exclusion of cancellation of debt income under Section 108 of the Internal Revenue Code. 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. 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,		
	2024	2023	2022
	(Dollars in millions)		
Operating revenue			
Business	$ 10,363	11,583	13,099
Mass Markets	2,745	2,974	4,379
Total operating revenue	$ 13,108	14,557	17,478

Reconciliation of segment EBITDA to total adjusted EBITDA is below:

	Years Ended December 31,		
	2024	2023	2022
	(Dollars in millions)		
Net loss	$ (55)	(10,298)	(1,548)
Income tax (benefit) expense	(175)	61	557
Total other expense, net	690	653	1,086
Depreciation and amortization expense	2,956	2,985	3,239
Goodwill impairment	—	10,693	3,271
Stock-based compensation expense	29	52	98
Total adjusted EBITDA	$ 3,445	4,146	6,703
Business segment adjusted EBITDA	$ 5,411	6,055	7,200
Mass Markets segment adjusted EBITDA	1,453	1,517	2,610
Other unallocated expense	(3,419)	(3,426)	(3,107)

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	
	2024	2023	2022	2024 vs 2023	2023 vs 2022
	(Dollars in millions)				
Business Segment Product Categories:					
Grow	$ 4,373	4,494	4,618	(3)%	(3)%
Nurture	2,961	3,493	4,128	(15)%	(15)%
Harvest	2,271	2,679	3,411	(15)%	(21)%
Other	758	917	942	(17)%	(3)%
Total Business Segment Revenue	10,363	11,583	13,099	(11)%	(12)%
Expenses:					
Total expense	4,952	5,528	5,899	(10)%	(6)%
Total adjusted EBITDA	$ 5,411	6,055	7,200	(11)%	(16)%

Year ended December 31, 2024 compared to the year ended December 31, 2023 and the year ended December 31, 2023 compared to the year ended December 31, 2022.

Business segment revenue decreased $1.2 billion for the year ended December 31, 2024 compared to December 31, 2023 and decreased $1.5 billion for the year ended December 31, 2023 compared to December 31, 2022. Approximately $547 million of the decrease for the year ended December 31, 2024 compared to December 31, 2023 was due to the sale of the EMEA business and select CDN contracts in the fourth quarter of 2023. 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. More specifically, within each product category for the year ended December 31, 2024 compared to December 31, 2023 and for the year ended December 31, 2023 compared to December 31, 2022:

- Grow decreased $121 million and $124 million, respectively, reflecting decreases of approximately $272 million and $370 million associated with the sale of the divested businesses. For the year ended December 31, 2024 compared to December 31, 2023, we saw growth in IP services of $107 million and an increase in revenue from dark fiber and conduit of $112 million, partially offset by declines in other products, including declines in wavelength services by $42 million. For the year ended December 31, 2023 compared to December 31, 2022, we saw an increase of $244 million primarily in our IP, wavelengths, dark fiber, enterprise broadband and colocation products and services.

- Nurture decreased $532 million and $635 million, respectively, approximately $88 million and $262 million of which was associated with the sale of the divested businesses. The remainder of the declines were principally attributable to declines in traditional VPN services of $314 million and $261 million, respectively, and declines in Ethernet services of $117 million and $112 million, respectively.

- Harvest decreased by $408 million and $732 million, respectively, approximately $70 million and $370 million of which was associated with the sale of the divested businesses. The remainder of the decline was principally attributable to a $252 million and $265 million decline, respectively, in legacy voice and private line services.

- Other decreased by $159 million and $25 million, respectively. For the year ended December 31, 2024 as compared to December 31, 2023, approximately $93 million of this decline was attributable to the above-mentioned sale of select CDN contracts in late 2023 and decreases in equipment sales revenue of approximately $29 million. For the year ended December 31, 2023 as compared to December 31, 2022, approximately $48 million of the decline was attributable to decreased CDN revenue leading up to the above-mentioned sale, partially offset by an increase in equipment sales revenue of $35 million.

Business segment expense decreased by $576 million for the year ended December 31, 2024 compared to December 31, 2023 and decreased $371 million for the year ended December 31, 2023 compared to December 31, 2022. For the year ended December 31, 2024 compared to December 31, 2023 this decrease was primarily driven by (i) a decrease of $209 million due to the above-mentioned sale of the EMEA business and select CDN contracts in 2023, (ii) a $166 million reduction in overall network expense and (iii) a decrease of $138 million in employee-related costs. For the year ended December 31, 2023 compared to December 31, 2022, the decrease was primarily due to (i) the sale of the divested businesses of $230 million, (ii) an $81 million decrease in employee-related costs, and (iii) a $68 million decrease in other network related costs.

Business segment adjusted EBITDA as a percentage of revenue was 52%, 52% and 55% for the years ended December 31, 2024, 2023 and 2022.

Mass Markets Segment

	Years Ended December 31,			Percent Change	
	2024	2023	2022	2024 vs 2023	2023 vs 2022
	(Dollars in millions)				
Mass Markets Product Categories:					
Fiber Broadband	$ 736	637	604	16 %	5 %
Other Broadband	1,167	1,395	2,163	(16)%	(36)%
Voice and Other	842	942	1,612	(11)%	(42)%
Total Mass Markets Segment Revenue	2,745	2,974	4,379	(8)%	(32)%
Expenses:					
Total expense	1,292	1,457	1,769	(11)%	(18)%
Total adjusted EBITDA	$ 1,453	1,517	2,610	(4)%	(42)%

Year ended December 31, 2024 compared to the year ended December 31, 2023 and the year ended December 31, 2023 compared to the year ended December 31, 2022.

Mass Markets segment revenue decreased by $229 million for the year ended December 31, 2024 compared to December 31, 2023 and decreased $1.4 billion for the year ended December 31, 2023 compared to December 31, 2022. Approximately $1.1 billion of the decreases for the year ended December 31, 2023 compared to December 31, 2022 was 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, 2024 compared to December 31, 2023 and for the year ended December 31, 2023 compared to December 31, 2022:

- Fiber Broadband revenue increased $99 million and $33 million, respectively, primarily driven by growth in the number of fiber customers associated with our continued increase in enabled locations from our Quantum Fiber buildout. For the year ended December 31, 2023 compared to December 31, 2022, the increase was partially offset by a decrease of $41 million due to the sale of the ILEC business.

- Other Broadband revenue decreased $228 million and $768 million, respectively, primarily due to fewer customers for our lower speed copper-based broadband services. For the year ended December 31, 2023 compared to December 31, 2022, there was an additional decrease of $563 million due to the sale of the ILEC business.

- Voice and Other decreased $100 million and $670 million, respectively. For the year ended December 31, 2024 compared to December 31, 2023, the decrease was principally due to the continued loss of copper-based voice customers. For the year ended December 31, 2023 compared to December 31, 2022, the decrease was due to (i) a $472 million decrease due to the sale of the ILEC business, (ii) continued loss of copper-based voice customers, and (iii) 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.

Mass Markets segment expense decreased by $165 million for the year ended December 31, 2024 compared to December 31, 2023 primarily due to (i) a decrease of $60 million in employee-related costs, (ii) a decrease of $36 million in other network related costs, (iii) a decrease of $33 million in professional fees, and (iv) a decrease of $10 million in network expenses. Mass Markets segment expense decreased $312 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 adjusted EBITDA as a percentage of revenue was 53%, 51% and 60% for the years ended December 31, 2024, 2023 and 2022, 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 (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, 2024, goodwill and intangible assets totaled $6.8 billion, or 20%, 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, 2024 as follows:

	Business	Mass Markets	Total
		(Dollars in millions)	
As of December 31, 2024	$ —	1,964	1,964

Intangible assets arising from business combinations, such as goodwill, customer relationships, capitalized software, trademarks and trade names, are initially recorded at estimated fair value. We amortize customer relationships primarily over an estimated life of seven to 14 years, using the straight-line method, depending on the customer. We amortize capitalized software using the straight-line method primarily over estimated lives ranging up to seven years. We amortize our other intangible assets using the straight-line method over an estimated life of nine 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. We carry these assets at the estimated fair value at the time of acquisition and record assets not acquired in acquisitions 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 years ended December 31, 2024 and 2023, we concluded it was more likely than not that our indefinite-lived intangible assets were not impaired, and therefore 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, 2024, we had three reporting units for goodwill impairment testing, which are (i) Mass Markets (ii) NA Business and (iii) APAC region. Prior to their divestitures in 2023 and 2022, the EMEA and 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 the 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. Due to inherent uncertainties, actual cash flows could vary significantly from our projected cash flows. 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 determine whether the indicated control premium is reasonable in comparison to recent transactions in the marketplace. Our development of estimates of fair value under both the discounted cash flow method and the market approach method are subject to inherent uncertainties and actual results could vary significantly from our estimates.

Declines in our stock price in the past were a critical factor that led us to determine that our goodwill was impaired. 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 2024, 2023 and 2022. 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 2024, approximately 64% of the Combined Pension Plan's January 1, 2024 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 13 years for participating employees expected to receive benefits under the plan. We treated the other 36% of the Combined Pension Plan's beginning net actuarial loss balance as indefinitely deferred during 2024. In 2024, approximately 75% of the beginning net actuarial gain of $337 million at January 1, 2024 for the post-retirement benefit plans was subject to amortization as a component of net periodic expense, with the other 25% of the beginning net actuarial gain balance for the post-retirement benefit plans treated as indefinitely deferred.

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 pre-tax loss 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.

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) in Benefit Obligation at December 31, 2024
			(Dollars in millions)
Combined Pension Plan discount rate	1	% $	(325)
	(1)	%	374
Post-retirement benefit plans discount rate	1	%	(133)
	(1)	%	133

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, 2023 or 2024.

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

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, 2024, we established a valuation allowance of $343 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. For additional information, see "—Debt Instruments and Financing Arrangements" below.

At December 31, 2024, we held cash and cash equivalents of $1.9 billion. As of December 31, 2024, we had approximately $737 million of borrowing capacity available under our approximately $1.0 billion of revolving credit facilities, net of undrawn letters of credit issued to us thereunder. We typically use our revolving credit facilities as a source of liquidity for operating activities and our other cash requirements. We had approximately $59 million of cash and cash equivalents outside the United States at December 31, 2024. 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 or significant foreign taxes. We do not currently intend to repatriate to the United States any material amounts of our foreign cash and cash equivalents from operating entities.

Our senior leadership team 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 payments, periodic securities repurchases, periodic pension contributions and other benefits payments.

Based on our current capital allocation objectives, during 2025 we project expending approximately $4.1 billion to $4.3 billion of capital expenditures.

For the 12-month period ending December 31, 2025, we project that our fixed commitments will include (i) $52 million of scheduled term loan amortization payments (ii) $39 million of finance lease and other fixed payments and (iii) $321 million of debt maturities.

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 senior leadership team and our Board. We may also draw on our revolving credit facilities as a source of liquidity for operating activities and to give us additional flexibility to finance our capital investments, payments 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 Divestitures

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."

Impact of PCF Transactions

During the second half of 2024, we announced that Lumen and its subsidiaries sold several billion dollars of new PCF solutions.

Lumen and its subsidiaries expect to receive the majority of cash from these agreements, which include advance payments to fund network expansion projects, over the next three to four years. Lumen and its subsidiaries will incur certain material expenditures in connection with these agreements, and expect the majority of such expenditures to be made over the same period of time. The payments Lumen and its subsidiaries actually make and receive may vary materially from what is expected and will depend, among other things, on the timing of delivery and installation of the products and services by Lumen and its subsidiaries.

During the second half of 2024, we began receiving advance payments under these agreements, which increased our net cash provided by operating activities reflected in our consolidated statements of cash flows and our deferred revenue reflected in our consolidated balance sheets. We anticipate that our continued receipt of cash payments under these agreements will (i) cause our consolidated cash flows to vary from quarter to quarter over the next several years and (ii) enable us to accelerate our network simplification initiatives. In addition, we expect our consolidated capital expenditures to increase as we use these cash receipts to fund network expansion projects contemplated under such agreements.

We expect to enter into additional agreements in the future to sell products and services as part of our PCF solutions but cannot provide any assurances. See "Risk Factors" under Item 1A of Part II of this report.

Capital Expenditures

We incur capital expenditures on an ongoing basis to expand and improve our service offerings, enhance and modernize our networks, fulfill our contractual obligations, and compete effectively in our markets. We evaluate our discretionary 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 our capital investment is influenced by, among other things, current and projected demand for our services and products, our network and customer contract requirements, cash flow generated by operating activities, cash required for debt service 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, developing new services, and expanding our fiber network, including our Quantum Fiber buildout plan. A portion of our 2025 capital expenditures will also be focused on 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, (iii) —Impact of PCF Transactions above and (iv) Item 1 of Part 1 of this report.

Debt Instruments and Financing Arrangements

Debt Instruments

On March 22, 2024, Lumen Technologies, Level 3 Financing, Qwest and a group of consenting debtholders representing over $15.0 billion of Lumen's outstanding consolidated long-term debt completed transactions contemplated under the amended and restated transaction support agreement dated January 22, 2024 (the "TSA Transactions"), which, among other things, extended maturities of the debt instruments of Lumen and Level 3 Financing, Inc. and provided access to approximately $1.0 billion of new Lumen revolving credit facilities maturing in 2028 to replace Lumen's former $2.2 billion revolving credit facility. In addition, Level 3 Financing, Inc. privately placed $1.575 billion aggregate principal amount of newly-issued first lien notes, a portion of the proceeds of which were used to reduce Lumen's consolidated indebtedness. For more information, see Note 7—Long-Term Debt and Credit Facilities to our consolidated financial statements included under Item 8 of Part II of this annual report.

On September 24, 2024, (i) Lumen Technologies issued approximately $438 million aggregate principal amount of its newly-issued 10.000% Secured Notes due 2032 and paid approximately $14 million cash (excluding accrued and unpaid interest payable with respect to the exchanged notes) in exchange for approximately $491 million aggregate principal amount of its outstanding senior unsecured notes (which were concurrently cancelled), and (ii) Level 3 Financing issued approximately $350 million aggregate principal amount of its newly-issued 10.000% Second Lien Notes due 2032 in exchange for approximately $357 million aggregate principal amount of its outstanding senior unsecured notes (which were concurrently cancelled). These transactions reduced the aggregate principal amount of Lumen's consolidated indebtedness by approximately $60 million.

Through open market repurchases and cash tender offers occurring throughout the year ended December 31, 2024, Lumen further reduced the aggregate principal amount of its consolidated indebtedness by approximately $769 million.

At December 31, 2024, we had:

- $13.7 billion of outstanding consolidated secured indebtedness;
- $4.6 billion of outstanding consolidated unsecured indebtedness (excluding (i) finance lease obligations, (ii) unamortized premiums, net and (iii) unamortized debt issuance costs); and
- approximately $737 million of unused borrowing capacity under our revolving credit facilities, as discussed further below.

Under its credit agreements dated March 22, 2024, Lumen maintained at December 31, 2024 (i) approximately $954 million of superpriority revolving credit facilities, under which we owed nothing as of such date, and we had approximately $217 million of letters of credit issued and undrawn as of such date, and (ii) approximately $3.6 billion of drawn superpriority term loan facilities. Under its credit agreements dated March 22, 2024, Level 3 Financing maintained at December 31, 2024, $2.4 billion of drawn 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, 2024, we had $220 million undrawn letters of credit outstanding, $217 million of which were issued under our revolving credit facilities, $1 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).

In addition to indebtedness under their March 22, 2024 credit agreements, Lumen and Level 3 Financing, Inc. are indebted under their respective outstanding senior notes, and certain of Lumen's other subsidiaries are indebted under their respective outstanding 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 Debt Transactions

Subject to market conditions, we plan to continue to issue debt securities from time to time 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.[1]	Standard & Poor's[1]	Fitch Ratings
Lumen Technologies, Inc.:			
Unsecured	Caa3	CCC-	CCC-
Secured	Caa1/Caa2	B	B+
Level 3 Financing, Inc.:			
Unsecured	Caa1	CCC-	CCC-
Secured	B2/Caa1	CCC+	B+/CCC
Qwest Corporation:			
Unsecured	Caa3	B-	B+

(1) In August 2024, Moody's upgraded the Lumen Technologies Corporate Family Rating ("CFR") to Caa1 and placed the ratings of Lumen Technologies' debt on positive outlook. In November 2024, Standard & Poor's placed the ratings of Lumen Technologies' debt on positive credit watch.

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 debt refinancings, redemptions, tender offers, exchange offers, open market purchases and other transactions designed principally to reduce our consolidated indebtedness, extend our debt maturities, improve our financial flexibility or otherwise enhance our debt profile. Subject to market conditions, restrictions under our debt covenants, and other limitations, we expect to opportunistically 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, 2024, Lumen Technologies had approximately $570 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 Communications, Inc. 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. For additional information about our NOLs, see Note 16—Income Taxes— to our consolidated financial statements in Item 8 of Part II of this report,

We expect to use substantially all of our remaining NOLs in future periods in accordance with Section 382's annual limitations, although we cannot guarantee 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.

In January 2024, we received a federal income tax cash refund of $729 million, including interest. 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 potential corporate tax reform legislation or taxable transactions.

The Inflation Reduction Act enacted in 2022, among other things, implemented a new federal 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, 2024. In addition, in 2021, the Organization for Economic Co-operation and Development ("OECD") has issued Pillar Two model rules introducing a new global minimum corporate tax of 15% and the OECD and the majority of its participating countries continue to work toward the enactment of such tax. While the U.S. has not adopted Pillar Two legislation, various other governments around the world have enacted such legislation that is effective for tax periods after December 31, 2023. These global minimum tax rules have increased our administrative and compliance burdens but the impact to our financial statements for the year ended December 31, 2024 was immaterial. We anticipate further legislative activity and administrative guidance throughout 2025 and continue to monitor evolving global tax legislation.

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, 2024, the accounting unfunded status of our qualified and non-qualified defined benefit pension plans and our qualified post-retirement benefit plans was $645 million and $1.7 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.

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 8 of Part II 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 and we further contributed approximately $319 million of cash in September 2022. 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 2025. The amount of required contributions to our Combined Pension Plan in 2026 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 made a voluntary contribution of $170 million to the trust for the Combined Pension Plan during 2024. We currently do not expect to make a voluntary contribution in 2025.

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 $185 million, $194 million and $210 million for the years ended December 31, 2024, 2023 and 2022, 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 2024, our expected annual long-term rate of return on the pension plan assets, net of administrative expenses, was 6.5%. For 2025, our expected annual long-term rate of return on these assets, net of administration expenses, remains 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. The settlement threshold was not exceeded for the years ended December 31, 2024, December 31, 2023 or December 31, 2022. In the event of workforce reductions in the future, the annual lump sum payments may trigger settlement accounting.

Future Contractual Obligations

Our estimated future obligations as of December 31, 2024 include both current and long term obligations. At December 31, 2024, we had a current obligation of $412 million and a long-term obligation of $18.1 billion of long-term debt (excluding unamortized premiums, net and unamortized debt issuance costs). Under our operating leases, at December 31, 2024 we had a current obligation of $340 million and a long-term obligation of $1.3 billion. As of such date, we had current obligations related to right-of-way agreements and purchase commitments of $999 million and a long-term obligation of $2.6 billion. Additionally, as of such date we had a current asset retirement obligation of $25 million and a long-term obligation of $132 million. Finally, at December 31, 2024 our pension and post-retirement benefit plans had an unfunded benefit obligation, of which $189 million is classified as current and $2.2 billion is classified as long-term. For additional information, see Note 5—Leases, Note 7—Long-Term Debt and Credit Facilities, Note 9—Property, Plant and Equipment, Note 11—Employee Benefits and Note 18—Commitments, Contingencies and Other Items.

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 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. In the third quarter of 2024, we relinquished rights to develop certain RDOF census blocks in four states, which resulted in (i) a reduction of our anticipated RDOF Phase I support payments to approximately $16 million for the year ending December 31, 2024 and $15 million each year thereafter through the program period and (ii) an expectation of payment to the federal government, which we anticipate will be approximately $10 million.

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 increase broadband regulation. 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. 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, 2024 and 2023. For information regarding cash flow activities for the year ended December 31, 2022, 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, 2023.

	Years Ended December 31,		
	2024	2023	$ Change
	(Dollars in millions)		
Net cash provided by operating activities	$ 4,333	2,160	2,173
Net cash used in investing activities	(2,830)	(1,201)	1,629
Net cash used in financing activities	(1,851)	(18)	1,833

Operating Activities

Net cash provided by operating activities increased by $2.2 billion for the year ended December 31, 2024 as compared to the year ended December 31, 2023 primarily due to (i) cash payments received in the third quarter of 2024 pursuant to our recent sales of PCF solutions and (ii) our federal income tax cash refund of $729 million, including interest, received in the first quarter of 2024. These increases were partially offset by (i) an increase in net loss adjusted for non-cash expenses and gains, partly as a result of the sale of our EMEA business in late 2023, and (ii) a voluntary contribution of $170 million to the trust for the Combined Pension Plan during 2024. 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 and bonuses.

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

Investing Activities

Net cash used in investing activities increased by $1.6 billion for the year ended December 31, 2024 as compared to the year ended December 31, 2023 primarily due to the pre-tax cash proceeds from the sale of the EMEA business in 2023, partially offset by gross proceeds from the sale of an investment in the second quarter of 2024.

Financing Activities

Net cash used in financing activities increased by $1.8 billion for the year ended December 31, 2024 as compared to the year ended December 31, 2023 due to the substantially greater payments of long-term debt and associated debt extinguishment costs and fees, partially offset by proceeds from issuance of long-term debt in 2024.

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. For additional information, see “Risk Factors” in Item 1A of Part II of this report.

Our network includes some residual lead-sheathed copper cables installed years ago that constitute a small portion of our network. Recent media coverage of potential health and environmental risks associated with these cables has resulted in regulatory inquiries and lawsuits, and could subject us to legislative or regulatory actions, removal costs, compliance costs or penalties. As of December 31, 2024, we have 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 8 of Part II of this report, and the risk factor disclosures included herein under “Risk Factors” in Item 1A of Part I of this report.

We are also involved in various other 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, 2024, 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.

Our 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, 2024, we did not hold or issue derivative financial instruments for trading or speculative purposes.

As of December 31, 2024, we had approximately $6.0 billion aggregate principal amount of debt bearing unhedged floating interest rates based on the secured overnight financing rate ("SOFR"). A hypothetical increase of 100 basis points in SOFR relating to our $6.0 billion of unhedged floating rate debt would, among other things, decrease our annual pre-tax earnings by approximately $60 million.

We conduct a small 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 continue to 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, 2024.

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, 2024 and 2023, the related consolidated statements of operations, comprehensive income (loss), cash flows, and stockholders' equity for each of the years in the three-year period ended December 31, 2024, 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, 2024 and 2023, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2024, 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, 2024, 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 20, 2025 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 Matter

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates 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 a critical audit matter 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 matter below, providing separate opinions on the critical audit matter or on the accounts or disclosures to which it relates.

Testing of revenue

As discussed in Note 4 to the consolidated financial statements, the Company recorded $13.1 billion of operating revenues for the year ended December 31, 2024. 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.

/s/ KPMG LLP
We have served as the Company's auditor since 1977.
Denver, Colorado
February 20, 2025

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, 2024, 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, 2024, 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, 2024 and 2023, the related consolidated statements of operations, comprehensive income (loss), cash flows, and stockholders' equity, for each of the years in the three-year period ended December 31, 2024, and the related notes (collectively, the consolidated financial statements), and our report dated February 20, 2025 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 20, 2025

LUMEN TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS

	Years Ended December 31,		
	2024	2023	2022
	(Dollars in millions, except per share amounts, and shares in thousands)		
OPERATING REVENUE	$ 13,108	14,557	17,478
OPERATING EXPENSES			
Cost of services and products (exclusive of depreciation and amortization)	6,703	7,144	7,868
Selling, general and administrative	2,972	3,198	3,078
Net loss (gain) on sale of businesses	17	121	(113)
Loss on disposal groups held for sale	—	—	40
Depreciation and amortization	2,956	2,985	3,239
Goodwill impairment	—	10,693	3,271
Total operating expenses	12,648	24,141	17,383
OPERATING INCOME (LOSS)	460	(9,584)	95
OTHER EXPENSE			
Interest expense	(1,372)	(1,158)	(1,332)
Net gain on early retirement of debt (Note 7)	348	618	214
Other income (expense), net	334	(113)	32
Total other expense, net	(690)	(653)	(1,086)
LOSS BEFORE INCOME TAXES	(230)	(10,237)	(991)
Income tax (benefit) expense	(175)	61	557
NET LOSS	$ (55)	(10,298)	(1,548)
BASIC AND DILUTED LOSS PER COMMON SHARE			
BASIC	$ (0.06)	(10.48)	(1.54)
DILUTED	$ (0.06)	(10.48)	(1.54)
WEIGHTED AVERAGE COMMON SHARES OUTSTANDING			
BASIC	987,680	983,081	1,007,517
DILUTED	987,680	983,081	1,007,517

See accompanying notes to consolidated financial statements.

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

	Years Ended December 31,		
	2024	2023	2022
	(Dollars in millions)		
NET LOSS	$ (55)	(10,298)	(1,548)
OTHER COMPREHENSIVE INCOME:			
Items related to employee benefit plans:			
Change in net actuarial loss, net of $(30), $20 and $(205) tax	97	(59)	631
Reclassification of net actuarial loss to (loss) gain on the sale of businesses, net of $—, $— and $(142) tax	—	(22)	422
Change in net prior service cost, net of $4, $4 and $(9) tax	(11)	(11)	30
Reclassification of prior service credit to (loss) gain on the sale of businesses, net of $—, $— and $6 tax	—	—	(19)
Reclassification of realized loss on interest rate swaps to net (loss) income, net of $—, $— and $(5) tax	—	—	17
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) and $58 tax	1	(1)	(134)
Other comprehensive income	87	289	1,059
COMPREHENSIVE INCOME (LOSS)	$ 32	(10,009)	(489)

See accompanying notes to consolidated financial statements.

LUMEN TECHNOLOGIES, INC.
CONSOLIDATED BALANCE SHEETS

	As of December 31,	
	2024	2023
	(Dollars in millions and shares in thousands)	
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	$ 1,889	2,234
Accounts receivable, less allowance of $59 and $67	1,231	1,318
Other	1,274	1,223
Total current assets	4,394	4,775
Property, plant and equipment, net of accumulated depreciation of $23,121 and $21,318	20,421	19,758
GOODWILL AND OTHER ASSETS		
Goodwill	1,964	1,964
Other intangible assets, net	4,806	5,470
Other, net	1,911	2,051
Total goodwill and other assets	8,681	9,485
TOTAL ASSETS	$ 33,496	34,018
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES		
Current maturities of long-term debt	$ 412	157
Accounts payable	749	1,134
Accrued expenses and other liabilities		
Salaries and benefits	716	696
Income and other taxes	272	251
Current operating lease liabilities	253	268
Interest	197	168
Other	179	213
Current portion of deferred revenue	861	647
Total current liabilities	3,639	3,534
LONG-TERM DEBT	17,494	19,831
DEFERRED CREDITS AND OTHER LIABILITIES		
Deferred income taxes, net	2,890	3,127
Benefit plan obligations, net	2,205	2,490
Deferred revenue	3,733	1,969
Other	3,071	2,650
Total deferred credits and other liabilities	11,899	10,236
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, $0.00 and $1.00 par value, authorized 2,200,000 and 2,200,000 shares, issued and outstanding 1,014,768 and 1,008,486 shares	19,149	1,008
Additional paid-in capital	—	18,126
Accumulated other comprehensive loss	(723)	(810)
Accumulated deficit	(17,962)	(17,907)
Total stockholders' equity	464	417
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$ 33,496	34,018

See accompanying notes to consolidated financial statements.

LUMEN TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Years Ended December 31,		
	2024	2023	2022
	(Dollars in millions)		
OPERATING ACTIVITIES			
Net loss	$ (55)	(10,298)	(1,548)
Adjustments to reconcile net loss to net cash provided by operating activities:			
Depreciation and amortization	2,956	2,985	3,239
Net loss (gain) on sale of businesses	17	121	(113)
Loss on disposal groups held for sale	—	—	40
Goodwill impairment	—	10,693	3,271
Impairment of long-lived assets	83	27	5
Deferred income taxes	(209)	8	(1,230)
Provision for uncollectible accounts	72	100	133
Net gain on early retirement of debt	(348)	(618)	(214)
Debt modification costs and related fees	(79)	—	—
Gain on sale of investment	(205)	—	—
Unrealized loss on investments	10	97	191
Stock-based compensation	29	52	98
Changes in current assets and liabilities:			
Accounts receivable	19	102	(158)
Accounts payable	(202)	(97)	98
Accrued income and other taxes	(189)	(1,185)	972
Other current assets and liabilities, net	304	(549)	(372)
Retirement benefits	(181)	(1)	46
Change in deferred revenue	1,763	230	6
Changes in other noncurrent assets and liabilities, net	655	500	252
Other, net	(107)	(7)	19
Net cash provided by operating activities	4,333	2,160	4,735
INVESTING ACTIVITIES			
Capital expenditures	(3,231)	(3,100)	(3,016)
Proceeds from sale of businesses	15	1,746	8,369
Proceeds from sale of property, plant and equipment, and other assets	366	165	120
Other, net	20	(12)	3
Net cash (used in) provided by investing activities	(2,830)	(1,201)	5,476
FINANCING ACTIVITIES			
Net proceeds from issuance of long-term debt	1,325	—	—
Payments of long-term debt	(2,678)	(185)	(8,093)
Net (payments of) proceeds from revolving line of credit	(200)	200	(200)
Dividends paid	(3)	(11)	(780)
Debt issuance and extinguishment costs and related fees	(283)	(14)	—
Repurchases of common stock	—	—	(200)
Other, net	(12)	(8)	(40)
Net cash used in financing activities	(1,851)	(18)	(9,313)
Net (decrease) increase in cash, cash equivalents and restricted cash	(348)	941	898
Cash, cash equivalents and restricted cash at beginning of period	2,248	1,307	409
Cash, cash equivalents and restricted cash at end of period	$ 1,900	2,248	1,307

Supplemental cash flow information:			
Income taxes refunded (paid), net	$ 242	(1,303)	(76)
Interest paid (net of capitalized interest of $176, $111 and $66)	(1,245)	(1,138)	(1,365)
Supplemental non-cash information regarding financing activities:			
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	$ 1,889	2,234	1,251
Cash and cash equivalents and restricted cash included in Assets held for sale	—	—	44
Restricted cash included in Other current assets	2	4	—
Restricted cash included in Other, net noncurrent assets	9	10	12
Total	$ 1,900	2,248	1,307

See accompanying notes to consolidated financial statements.

LUMEN TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

	Years Ended December 31,		
	2024	2023	2022
	(Dollars in millions except per share amounts)		
COMMON STOCK			
Balance at beginning of period	$ 1,008	1,002	1,024
Issuance of common stock through dividend reinvestment, incentive and benefit plans	8	6	11
Repurchases of common stock	—	—	(33)
Conversion to no-par stock value (Note 1)	18,133	—	—
Balance at end of period	19,149	1,008	1,002
ADDITIONAL PAID-IN CAPITAL			
Balance at beginning of period	18,126	18,080	18,972
Repurchases of common stock	—	—	(167)
Shares withheld to satisfy tax withholdings	(6)	(5)	(30)
Stock-based compensation and other, net	27	50	96
Dividends declared	—	1	(791)
Conversion to no-par stock value (Note 1)	(18,133)	—	—
Other	(14)	—	—
Balance at end of period	—	18,126	18,080
ACCUMULATED OTHER COMPREHENSIVE LOSS			
Balance at beginning of period	(810)	(1,099)	(2,158)
Other comprehensive income	87	289	1,059
Balance at end of period	(723)	(810)	(1,099)
ACCUMULATED DEFICIT			
Balance at beginning of period	(17,907)	(7,609)	(6,061)
Net loss	(55)	(10,298)	(1,548)
Balance at end of period	(17,962)	(17,907)	(7,609)
TOTAL STOCKHOLDERS' EQUITY	$ 464	417	10,374
DIVIDENDS DECLARED PER COMMON SHARE	$ —	—	0.75

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.

Note 1—Background and Summary of Significant Accounting Policies

General

We are a networking company with the goal of connecting people, data, and applications quickly, securely and effortlessly. We are unleashing the world's digital potential by providing 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 income (expense), 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 2023 and 2022. See Note 17—Segment Information for additional information. These changes had no impact on total operating revenue, total operating expenses or net loss 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; legal 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 from fiber capacity and conduit leases 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 design, planning and engineering fees, as well as certain activation and installation charges. If these advance payments 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 50 months for Mass Markets customers and 35 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 $94 million, $87 million and $62 million for the years ended December 31, 2024, 2023 and 2022, 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 $1 million and no book overdrafts included in accounts payable at December 31, 2024 and 2023, respectively.

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 is 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.

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 and 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 business 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. Prior to January 1, 2024, we depreciated the majority of our property, plant and equipment using the straight-line group method over the estimated useful lives of groups of assets. 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 used 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. Effective January 1, 2024, we re-established all of our assets individually, including accumulated depreciation, and began to depreciate all of our assets using the straight-line method over the estimated useful lives of the specific asset. 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 seven to 14 years, using the straight-line method, depending on the type of customer. We amortize capitalized software using the straight-line method primarily over estimated lives ranging up to seven years. We amortize our other intangible assets using the straight-line method over an estimated life of nine 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 change 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, 2024, 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 periods covered by this report when we operated the divested businesses. 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 completion 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 income (expense), net on our consolidated statements of operations.

Common Stock

On December 18, 2024, we amended our articles of incorporation to eliminate the par value of our common stock (which was, prior to such amendment, $1.00 per share) as approved by our shareholders at our 2024 annual shareholders meeting. We recognized the change by reclassifying the balance in Additional paid-in capital to Common stock on our consolidated balance sheet as of December 18, 2024. All changes in capitalization previously recognized as Additional paid-in capital will hereinafter be recognized in Common stock. This change had no other impact on our consolidated financial statements.

As of December 31, 2024, we had 41 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 ("NOLs") 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.

Change in Accounting Estimates

Effective January 1, 2024, we changed our method of depreciation and amortization for incumbent local exchange carriers ("ILEC") and certain competitive local exchange carriers ("CLEC") fixed assets from the group method of depreciation to straight-line by individual asset method. Historically, we have used the group method of depreciation for the property, plant and equipment and amortization of certain intangible capitalized software assets of our ILECs and certain CLECs. Under the group method, all like kind assets for each subsidiary were combined into common pools and depreciated under composite depreciation rates. Recent business divestitures and asset sales have significantly reduced our composite asset base. We believe the straight-line depreciation method for individual assets is preferable to the group method as it will result in a more precise estimate of depreciation expense and will result in a consistent depreciation method for all our subsidiaries. This change in the method of depreciation is considered a change in accounting estimate inseparable from a change in accounting principle and has resulted solely in prospective changes to our depreciation and amortization expense. This change in accounting estimate had an immaterial impact to our net loss and diluted loss per share for the year ended December 31, 2024.

Additionally, during the first quarter of 2024, we updated our analysis of economic lives of owned fiber network assets. As of January 1, 2024, we extended the estimated economic life and depreciation period of such assets from 25 years to 30 years to better reflect the physical life of the assets that we have experienced and absence of technological changes that would replace fiber. The change in accounting estimate decreased depreciation expense by approximately $63 million, $48 million net of tax for the year ended December 31, 2024, and resulted in an increase of $0.05, per diluted share for the year ended December 31, 2024.

Recently Adopted Accounting Pronouncements

Segments

On January 1, 2024, we adopted Accounting Standards Update ("ASU") 2023-07, “Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures.” This ASU is intended to improve reportable segment disclosure requirements primarily through enhanced disclosures about significant segment expenses. The ASU does not change how a public entity identifies its operating segments, aggregates them or applies quantitative thresholds to determine reportable segments. We did not early adopt this standard. Refer to Note 17—Segment Information for more information on the impact of this ASU on 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.” This ASU requires business entities to disclose information about certain types of government assistance they receive. Refer to Note 4—Revenue Recognition for more information on the impact of this ASU on our consolidated financial statements.

Investments

On January 1, 2024, we adopted ASU 2023-02, “Investments-Equity Method and Joint Ventures (Topic 323): Accounting for Investments in Tax Credit Structures Using the Proportional Amortization Method." This ASU allows 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. The adoption of this ASU did not have any impact on our consolidated financial statements.

On January 1, 2024, we adopted ASU 2022-03, “Fair Value Measurement (Topic 820): Fair Value Measurement of Equity Securities Subject to Contractual Sale Restrictions." This ASU clarifies 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. The adoption of this ASU did not have any impact on our consolidated financial statements.

Leases

On January 1, 2024, we adopted ASU 2023-01, “Leases (Topic 842): Common Control Arrangements.” This ASU requires all entities to amortize leasehold improvements associated with common control leases over the useful life to the common control group. The adoption of this ASU did not have any impact on our consolidated financial statements.

On January 1, 2022, we adopted ASU 2021-05, “Leases (Topic 842): Lessors—Certain Leases with Variable Lease Payments.” This ASU (i) amends the lease classification requirements for lessors, (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 this ASU did not have a material impact on our consolidated financial statements.

Reference Rate Reform

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." This ASU, which was effective upon issuance, extends the period of time preparers can utilize the reference rate reform relief guidance in Topic 848, by deferring 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. Based on our review of our key material contracts through December 31, 2024, this ASU does not have a material impact on our consolidated financial statements.

Supplier Finance Programs

On January 1, 2023, we adopted ASU 2022-04, “Liabilities-Supplier Finance Program (Subtopic 405-50): Disclosure of Supplier Finance Program Obligations.” This ASU requires a company that uses a supplier finance program in connection with the purchase of goods or services to 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 this ASU did not have a material impact on 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.” 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 this ASU did not have a material impact on our consolidated financial statements.

Adoption of Other ASUs

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.” This ASU became effective for us once the addition to the FASB Codification was made available in July 2023. 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. The adoption of this ASU did not have any impact on our consolidated financial statements.

Recently Issued Accounting Pronouncements

In November 2024, the FASB issued ASU 2024-04, "Debt—Debt with Conversion and Other Options (Subtopic 470-20): Induced Conversions of Convertible Debt Instruments." This ASU clarifies the requirements for determining whether certain settlements of convertible debt instruments should be accounted for as induced conversions rather than as debt extinguishments. This standard is effective for the annual period of fiscal 2026, and early adoption is permitted. As of December 31, 2024, we do not hold convertible debt instruments and do not expect this ASU will have any impact on our consolidated financial statements.

In November 2024, the FASB issued ASU 2024-03, "Disaggregation of Income Statement Expenses." This ASU requires additional footnote disclosure of the details of certain income statement expense line items as well as additional disclosure about selling expenses. This standard is effective for the annual period of fiscal 2027, and early adoption is permitted. The guidance is to be applied prospectively, with the option for retrospective application. We are currently evaluating the impact the adoption of this standard will have on our disclosures.

In December 2023, the FASB issued ASU 2023-09, “Income Taxes (Topic 740): Improvements to Income Tax Disclosures.” 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). This ASU 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 and are currently evaluating its impact on our consolidated financial statements, including our annual disclosure within our Income Taxes footnote.

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." 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, 2024, we do not hold crypto assets and do not expect this ASU to have any 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." This ASU incorporates certain SEC disclosure requirements into the FASB Codification. The amendments in the ASU are expected to clarify or improve disclosure and presentation requirements of a variety of FASB 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 FASB Codification with the SEC's regulations. This ASU will become effective for each amendment on the effective date of the SEC's corresponding disclosure rule changes. As of December 31, 2024, we do not expect this ASU to have any impact on 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." 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. This ASU will become effective for us in the first quarter of fiscal 2025 and early adoption is permitted. As of December 31, 2024, we do not expect this ASU to have any impact on our consolidated financial statements.

Note 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, to a fund advised by Stonepeak Partners LP 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. At the time of sale, Lumen estimated the fair value of these indemnifications to be $86 million, which was included in other long-term liabilities in our consolidated balance sheet and reduced our gain on the sale accordingly. See Note 14—Fair Value of Financial Instruments for detail related to the carrying value and fair value of these indemnifications as of December 31, 2024 and 2023.

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.

Portion of ILEC Business

On October 3, 2022, we and certain of our affiliates sold the portion of our 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. We retained the remainder of our ILEC business, which is conducted in 17 states, primarily in the Western United States.

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 from the purchaser for which we expect to pay approximately $373 million over a period of three years and the purchaser has committed to ordering services from us for which we expect to receive approximately $67 million 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 payment 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 ("EMEA") 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.

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.

Note 3—Goodwill, Customer Relationships and Other Intangible Assets

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

	As of December 31,	
	2024	2023
	(Dollars in millions)	
Goodwill[1]	$ 1,964	1,964
Indefinite-lived intangible assets	$ 9	9
Other intangible assets subject to amortization:		
Customer relationships[2], less accumulated amortization of $4,504 and $4,248	3,196	3,811
Capitalized software, less accumulated amortization of $4,067 and $4,045[3]	1,529	1,564
Patents and other, less accumulated amortization of $86 and $72[3]	72	86
Total other intangible assets, net	$ 4,806	5,470

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

(2) 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.

(3) Certain capitalized software with a gross carrying value of $352 million and $183 million and trade names with a gross carrying value of $153 million and $130 million became fully amortized during 2023 and 2022, respectively, and were retired during the first quarter of 2024 and 2023, respectively.

As of December 31, 2024 and December 31, 2023, the gross carrying amount of goodwill, customer relationships, indefinite-lived and other intangible assets was $15.4 billion and $15.8 billion, respectively.

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, 2024, 2023 and 2022 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 2024, 2023 or 2022. 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, 2024, 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 in November 2023, 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. Similarly, prior to its August 2022 divestiture, the 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 deployed in and relate to the operations of multiple reporting units. When we assess goodwill for impairment, we compare the estimated fair value of each reporting unit's equity to the carrying value of equity that we assign to the reporting unit. 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 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 market multiples of publicly-traded companies whose services are comparable to ours.

2024 Goodwill Impairment Analysis

At October 31, 2024, we performed our annual impairment analysis of the goodwill in our Mass Markets reporting unit by using a qualitative assessment to determine whether it was more likely than not that the fair value of the reporting unit was less than its carrying value. Factors considered in the qualitative assessment included, among other things, macroeconomic conditions, industry and market conditions, financial performance of the reporting unit and other relevant entity and reporting unit considerations. We concluded the estimated fair value of our reporting unit was greater than our carrying value of equity as of our testing date. Therefore, we concluded no impairment existed as of our annual assessment date in the fourth quarter of 2024.

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 1.5x and 3.5x and 4.8x and 8.4x, 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 1.5x and 4.3x and 4.6x and 10.5x, 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 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 1.8x and 4.6x and 4.7x and 10.8x, respectively. We selected a revenue and EBITDA multiple for each of our reporting units, resulting in an overall company revenue and EBITDA multiple of 2.5x and 5.5x, 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.

The following table shows the rollforward of goodwill assigned to our reportable segments from December 31, 2022 through December 31, 2024.

	Business	Mass Markets	Total
	(Dollars in millions)		
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
As of December 31, 2024[1]	$ —	1,964	1,964

(1) Goodwill at December 31, 2024, December 31, 2023 and December 31, 2022 is net of accumulated impairment losses of $21.7 billion, $21.7 billion and $11.0 billion, respectively.

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

As of December 31, 2024, the weighted average remaining useful lives of our finite-lived intangible assets were approximately five years in total, approximately six years for customer relationships and four years for capitalized software.

Total amortization expense for finite-lived intangible assets for each of the years ended December 31, 2024, 2023 and 2022 was $1.1 billion.

We estimate that future total amortization expense for finite-lived intangible assets will be as follows:

	(Dollars in millions)
2025	$ 926
2026	875
2027	788
2028	717
2029	488
2030 and thereafter	1,003
Total finite-lived intangible assets future amortization expense	$ 4,797

Note 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 existing and emerging products and services in which we are significantly investing, including our dark fiber and conduit, Edge Cloud, IP, managed security, software-defined wide area networks ("SD WAN"), 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 voice, and private line services; and
- *Other*, which includes equipment sales, managed and professional service 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, 2024		
	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	$ 1,733	(256)	1,477
Nurture	1,015	—	1,015
Harvest	441	—	441
Other	190	(1)	189
Total Large Enterprise Revenue	3,379	(257)	3,122
Mid-Market Enterprise			
Grow	841	(25)	816
Nurture	690	—	690
Harvest	320	(4)	316
Other	36	(5)	31
Total Mid-Market Enterprise Revenue	1,887	(34)	1,853
Public Sector			
Grow	596	(85)	511
Nurture	355	—	355
Harvest	389	(4)	385
Other	509	—	509
Total Public Sector Revenue	1,849	(89)	1,760
Wholesale			
Grow	1,048	(287)	761
Nurture	740	(19)	721
Harvest	1,079	(140)	939
Other	8	—	8
Total Wholesale Revenue	2,875	(446)	2,429
International and Other			
Grow	155	(4)	151

Nurture	161	—	161
Harvest	42	—	42
Other	15	—	15
Total International and Other	373	(4)	369
Business Segment by Product Category			
Grow	4,373	(657)	3,716
Nurture	2,961	(19)	2,942
Harvest	2,271	(148)	2,123
Other	758	(6)	752
Total Business Segment Revenue	10,363	(830)	9,533
Mass Markets Segment by Product Category			
Fiber Broadband	736	(13)	723
Other Broadband	1,167	(105)	1,062
Voice and Other	842	(31)	811
Total Mass Markets Revenue	2,745	(149)	2,596
Total Revenue	$ 13,108	(979)	12,129
Timing of revenue			
Goods and services transferred at a point in time			$ 136
Services performed over time			11,993
Total revenue from contracts with customers			$ 12,129

	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	$ 1,709	(179)	1,530
Nurture	1,172	—	1,172
Harvest	537	—	537
Other	200	(5)	195
Total Large Enterprise Revenue	3,618	(184)	3,434
Mid-Market Enterprise			
Grow	807	(28)	779
Nurture	829	—	829
Harvest	372	(4)	368
Other	36	(4)	32
Total Mid-Market Enterprise Revenue	2,044	(36)	2,008
Public Sector			
Grow	473	(81)	392
Nurture	399	—	399
Harvest	383	(1)	382
Other	534	—	534
Total Public Sector Revenue	1,789	(82)	1,707
Wholesale			
Grow	1,052	(251)	801
Nurture	827	(25)	802
Harvest	1,261	(165)	1,096
Other	12	—	12

Total Wholesale Revenue	3,152	(441)	2,711
International and Other			
Grow	453	(115)	338
Nurture	266	—	266
Harvest	126	—	126
Other	135	—	135
Total International and Other	980	(115)	865
Business Segment by Product Category			
Grow	4,494	(654)	3,840
Nurture	3,493	(25)	3,468
Harvest	2,679	(170)	2,509
Other	917	(9)	908
Total Business Segment Revenue	11,583	(858)	10,725
Mass Markets Segment by Product Category			
Fiber Broadband	637	(16)	621
Other Broadband	1,395	(126)	1,269
Voice and Other	942	(36)	906
Total Mass Markets Revenue	2,974	(178)	2,796
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	$ 1,653	(199)	1,454
Nurture	1,274	—	1,274
Harvest	690	(2)	688
Other	210	(7)	203
Total Large Enterprise Revenue	3,827	(208)	3,619
Mid-Market Enterprise			
Grow	768	(32)	736
Nurture	949	—	949
Harvest	494	(6)	488
Other	31	(2)	29
Total Mid-Market Enterprise Revenue	2,242	(40)	2,202
Public Sector			
Grow	445	(79)	366
Nurture	492	—	492
Harvest	466	(3)	463
Other	460	(2)	458
Total Public Sector Revenue	1,863	(84)	1,779
Wholesale			
Grow	991	(271)	720

Nurture	1,012	(23)	989
Harvest	1,551	(215)	1,336
Other	51	—	51
Total Wholesale Revenue	3,605	(509)	3,096
International and Other			
Grow	761	(176)	585
Nurture	401	—	401
Harvest	210	—	210
Other	190	—	190
Total International and Other	1,562	(176)	1,386
Business Segment by Product Category			
Grow	4,618	(757)	3,861
Nurture	4,128	(23)	4,105
Harvest	3,411	(226)	3,185
Other	942	(11)	931
Total Business Segment Revenue	13,099	(1,017)	12,082
Mass Markets Segment by Product Category			
Fiber Broadband	604	(18)	586
Other Broadband	2,163	(200)	1,963
Voice and Other	1,612	(135)	1,477
Total Mass Markets Revenue	4,379	(353)	4,026
Total Revenue	$ 17,478	(1,370)	16,108
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

(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,	
	2024	2023
	(Dollars in millions)	
Customer receivables, less allowance of $50 and $60	$ 1,193	1,256
Contract assets	19	29
Contract liabilities	733	698

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 one to five years depending on the service. Contract liabilities are included within Deferred revenue on our consolidated balance sheets. During the years ended December 31, 2024 and December 31, 2023, we recognized $443 million and $434 million, respectively, of revenue that was included in contract liabilities of $698 million and $715 million as of January 1, 2024 and 2023, respectively, including contract liabilities that were classified as held for sale.

Performance Obligations

As of December 31, 2024, we expect to recognize approximately $6.4 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, 2024, the transaction price related to unsatisfied performance obligation that are expected to be recognized in 2025, 2026 and thereafter was $2.9 billion, $1.7 billion and $1.8 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, 2024	
	Acquisition Costs	Fulfillment Costs
	(Dollars in millions)	
Beginning of period balance	$ 182	184
Costs incurred	151	176
Amortization	(130)	(138)
End of period balance	$ 203	222

	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)
Classified as held for sale	(4)	(25)
End of period balance	$ 182	184

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 50 months for Mass Markets customers and 35 months for Business customers. We include amortized fulfillment costs in Cost of services and products and amortized acquisition costs in Selling, general and administrative 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 under Current Assets on our consolidated balance sheets. We include the amount of deferred costs expected to be amortized beyond the next 12 months in Other under Deferred Credits and Other Liabilities 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 10 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, 2024 and 2023, Lumen recorded non-customer revenue of $83 million and $85 million, respectively, under government assistance programs, of which 18% and 17%, 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 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. In the third quarter of 2024, we relinquished rights to develop certain RDOF census blocks in four states, which resulted in (i) a reduction of the anticipated RDOF Phase I support payments to approximately $16 million for the year ending December 31, 2024 and $15 million each year thereafter through the program period and (ii) an expectation of payment to the federal government, which we anticipate will be approximately $10 million.

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, 2024 and 2023, Lumen participated in these types of programs primarily in the states of Nebraska, New Mexico and Minnesota.

Note 5—Leases

We primarily lease various office facilities, colocation facilities, equipment and transmission capacity to or from third parties. 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 at the commencement date. 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,		
	2024	2023	2022
	(Dollars in millions)		
Operating and short-term lease cost	$ 446	459	451
Finance lease cost:			
Amortization of right-of-use assets	25	32	37
Interest on lease liability	11	12	15
Total finance lease cost	36	44	52
Total lease cost	$ 482	503	503

We lease various equipment, office facilities, retail outlets, switching facilities and other network sites or components from third parties. 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.

On a regular basis, we rationalize our lease footprint. When we determine that we no longer need leased space, we may incur accelerated lease costs. Our accelerated lease costs in December 31, 2024, 2023 and 2022 were not material.

For the years ended December 31, 2024, 2023 and 2022, our gross rental expense, including the accelerated lease costs discussed above, was $482 million, $503 million and $503 million, respectively. We also received sublease rental income of $25 million for each of the years ended December 31, 2024, 2023 and 2022.

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, 2024	2023
Assets			
Operating lease assets	Other, net	$ 1,119	1,230
Finance lease assets	Property, plant and equipment, net of accumulated depreciation	236	260
Total leased assets		$ 1,355	1,490
Liabilities			
Current			
Operating	Current operating lease liabilities	$ 253	268
Finance	Current maturities of long-term debt	17	16
Noncurrent			
Operating	Other	959	1,040
Finance	Long-term debt	198	215
Total lease liabilities		$ 1,427	1,539
Weighted-average remaining lease term (years)			
Operating leases		7.7	8.2
Finance leases		11.4	11.3
Weighted-average discount rate			
Operating leases		8.90 %	7.59 %
Finance leases		4.40 %	4.98 %

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

	Years Ended December 31, 2024	2023
	(Dollars in millions)	
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows for operating leases	$ 427	461
Operating cash flows for finance leases	11	12
Financing cash flows for finance leases	17	25
Supplemental lease cash flow disclosures:		
Operating lease right-of-use assets obtained in exchange for new operating lease liabilities	$ 191	143
Right-of-use assets obtained in exchange for new finance lease liabilities	2	10

As of December 31, 2024, maturities of lease liabilities were as follows:

	Operating Leases	Finance Leases
	(Dollars in millions)	
2025	$ 340	27
2026	252	28
2027	204	28
2028	167	28
2029	131	26
Thereafter	592	140
Total lease payments	1,686	277
Less: interest	(474)	(62)
Total	1,212	215
Less: current portion	(253)	(17)
Long-term portion	$ 959	198

As of December 31, 2024, we had no material operating or finance leases that had not yet commenced.

Operating Lease Revenue

We lease various dark fiber and conduit, 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, 2024, 2023 and 2022, our gross rental income was approximately $1.0 billion, $1.0 billion and $1.2 billion, respectively, which represents 7% of our operating revenue for each of the years ended December 31, 2024, 2023 and 2022.

Note 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:

	Business	Mass Markets	Total
		(Dollars in millions)	
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[1]	(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
Provision for expected losses	26	46	72
Write-offs charged against the allowance	(32)	(58)	(90)
Recoveries collected	6	4	10
Balance at December 31, 2024	$ 36	23	59

(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, 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 in 2023. See Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses.

Note 7—Long-Term Debt and Credit Facilities

At December 31, 2024, most of our outstanding consolidated debt had been incurred by us or one of the following three subsidiaries, 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. ("Level 3 Financing"), including its parent guarantor Level 3 Parent, LLC, and certain subsidiary guarantors;
- Qwest Corporation ("Qwest"); and
- Qwest Capital Funding, Inc., including its parent guarantor, Qwest Communications International Inc.

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

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

	Interest Rates[1]	Maturities[1]	As of December 31, 2024	As of December 31, 2023
			(Dollars in millions)	
Senior Secured Debt: [2]				
Lumen Technologies, Inc.				
Series A Revolving Credit Facility	SOFR + 4.00%	2028	$ —	—
Series B Revolving Credit Facility	SOFR + 6.00%	2028	—	—
Term Loan A[3]	SOFR + 6.00%	2028	357	—
Term Loan B-1[4]	SOFR + 2.35%	2029	1,606	—
Term Loan B-2[4]	SOFR + 2.35%	2030	1,606	—
Term Loan B[5]	SOFR + 2.25%	2027	56	3,891
Other Facilities[6]	N/A	N/A	—	1,399
Superpriority Notes	4.125% - 10.000%	2029 - 2032	1,247	—
Former Parent Secured Notes[7]	N/A	N/A	—	1,250
Subsidiaries:				
Level 3 Financing, Inc.				
Term Loan B-1[8]	SOFR + 6.56%	2029	1,199	—
Term Loan B-2[8]	SOFR + 6.56%	2030	1,199	—
Former Level 3 Facility[9]	SOFR + 1.75%	2027	12	2,411
First Lien Notes[10]	10.500% - 11.000%	2029 - 2030	3,846	925
Second Lien Notes	3.875% - 10.000%	2029 - 2032	2,579	—
Former Level 3 Senior Notes[11]	N/A	N/A	—	1,500
Unsecured Senior Notes and Other Debt:				
Lumen Technologies, Inc.				
Senior notes[12]	4.000% - 7.650%	2025 - 2042	1,428	2,143
Subsidiaries:				
Level 3 Financing, Inc.				
Senior notes[13]	3.400% - 4.625%	2027 - 2029	964	3,940
Qwest Corporation				
Senior notes	6.500% - 7.750%	2025 - 2057	1,973	1,986
Former Term Loan[14]	N/A	N/A	—	215
Qwest Capital Funding, Inc.				
Senior notes	6.875% - 7.750%	2028 - 2031	192	192
Finance lease and other obligations	Various	Various	254	285
Unamortized discounts, net			(395)	(4)
Unamortized debt issuance costs			(217)	(145)
Total long-term debt			17,906	19,988
Less current maturities			(412)	(157)
Long-term debt, excluding current maturities			$ 17,494	19,831

N/A - Not applicable

(1) As of December 31, 2024. All references to "SOFR" refer to the Secured Overnight Financing Rate.

(2) As discussed further below in this Note, the debt listed under the caption "Senior Secured Debt" is either secured by assets of the issuer, guaranteed on a secured or unsecured basis by certain affiliates of the issuer, or both. As discussed further in footnotes 12 and 13 below, we reclassified in the table above certain notes that were guaranteed, secured, or both prior to the TSA Effective Date (as defined below) from "secured" to "unsecured" in light of amendments that released such security interests.

(3) Term Loan A had an interest rate of 10.573% as of December 31, 2024.

(4) Term Loan B-1 and B-2 each had an interest rate of 7.037% as of December 31, 2024.

(5) Term Loan B had an interest rate of 6.937% and 7.720% as of December 31, 2024 and December 31, 2023, respectively.

(6) Reflects revolving credit facility and term loan A and A-1 debt issued under the Former Parent Facilities (as defined below), which were due in 2025 and had interest rates of 7.464% and 7.470%, respectively, as of December 31, 2023.

(7) Former Parent Secured Notes were due in 2027 and had an interest rate of 4.000% as of December 31, 2023, prior to being cancelled on the TSA Effective Date (as defined below).

(8) The Level 3 Term Loan B-1 and B-2 each had an interest rate of 11.133% as of December 31, 2024.

(9) Reflects Level 3 Tranche B 2027 Term Loan issued under the Former Level 3 Facility (as defined below), which had an interest rate of 6.437% and 7.220% as of December 31, 2024 and December 31, 2023, respectively.

(10) Includes Level 3's 10.500% Senior Secured Notes due 2030 issued in early 2023, the terms of which have been amended to be consistent with Level 3's first lien notes issued on March 22, 2024.

(11) Former Level 3 Senior Notes were due in 2027 - 2029 and had an interest rates of 3.400% - 3.875% as of December 31, 2023, prior to being cancelled on the TSA Effective Date (as defined below).

(12) The total amount of these notes at December 31, 2024 includes the remaining aggregate principal amount due under the Former Parent Secured Notes, the terms of which were amended on March 22, 2024 to release the guarantees of such debt that could be released in accordance with their indentures and the security interests relating thereto.

(13) The total amount for these notes at December 31, 2024 includes the remaining aggregate principal amount due under the Former Level 3 Secured Notes, the terms of which were amended on March 22, 2024 to release the security interests relating thereto.

(14) The Qwest Corporation Term Loan was due in 2027 and had an interest rate of 7.970% as of December 31, 2023, prior to being cancelled on the TSA Effective Date (as defined below).

Long-Term Debt Maturities

Set forth below is the aggregate principal amount of our long-term debt as of December 31, 2024 (excluding unamortized discounts, net, and unamortized debt issuance costs) maturing during the following years.

	(Dollars in millions)
2025	$ 412
2026	96
2027	250
2028	738
2029	7,203
2030 and thereafter	9,819
Total long-term debt	$ 18,518

2024 Debt Transactions

Cash Tender Offers

Pursuant to cash tender offers that commenced on November 12, 2024 (the "Cash Tender Offers"), in November 2024 we reduced the aggregate principal amount of our consolidated indebtedness by approximately $393 million. In conjunction with the Cash Tender Offers, we recorded a gain of $33 million including an offset of immaterial third-party fees in our aggregate Net gain on early retirement of debt in Other income (expense), net in our consolidated statement of operations for the year ended December 31, 2024.

The following table sets forth the aggregate principal amount of each series of senior notes of Lumen and Level 3 Financing retired in exchange for cash in November 2024 in connection with the Cash Tender Offers:

Debt	Aggregate Principal Amount (in millions)
Lumen Technologies, Inc.	
5.625% Senior Notes, Series X, due 2025	$ 33
7.200% Senior Notes, Series D, due 2025	3
5.125% Senior Notes due 2026	5
4.000% Senior Secured Notes due 2027 (unsecured)	4
6.875% Debentures, Series G, due 2028	24
Level 3 Financing, Inc.	
3.400% Senior Secured Notes due 2027 (unsecured)	1
4.625% Senior Notes due 2027	48
4.250% Senior Notes due 2028	275
Total	$ 393

Exchange Offers

Pursuant to exchange offers that commenced on September 3, 2024 (the "Exchange Offers"), on September 24, 2024:

- Lumen Technologies issued approximately $438 million aggregate principal amount of its newly-issued 10.000% Secured Notes due 2032 (the "New Lumen Notes") and paid approximately $14 million cash (excluding accrued and unpaid interest payable with respect to the exchange) in exchange for approximately $491 million aggregate principal amount of four series of its outstanding senior unsecured notes, maturing between 2026 and 2029 (which were concurrently cancelled), and

- Level 3 Financing issued approximately $350 million aggregate principal amount of its newly-issued 10.000% Second Lien Notes due 2032 in exchange for $357 million aggregate principal amount of two series of its outstanding senior unsecured notes maturing in 2027 (which were concurrently cancelled).

These transactions reduced the aggregate principal amount of Lumen's consolidated indebtedness by approximately $60 million.

The Company determined that the Exchange Offers constituted a debt modification consistent with ASC 470 and recorded no gain or loss. In conjunction with the Exchange Offers, we recorded $17 million of fees to Selling, general and administrative expense in our consolidated statements of operations for the year ended December 31, 2024.

The following table sets forth the aggregate principal amount of each series of senior unsecured notes of Lumen and Level 3 Financing exchanged and retired on September 24, 2024 in connection with the Exchange Offers:

Debt	Aggregate Principal Amount (in millions)
Lumen Technologies, Inc.	
5.125% Senior Notes due 2026	$ 137
4.000% Senior Secured Notes due 2027 (unsecured)	188
6.875% Debentures, Series G, due 2028	80
4.500% Senior Notes due 2029	86
Level 3 Financing, Inc.	
3.400% Senior Secured Notes due 2027 (unsecured)	77
4.625% Senior Notes due 2027	280
Total	$ 848

Transaction Support Agreement Transactions

On March 22, 2024 (the "TSA Effective Date"), Lumen Technologies, Level 3 Financing, Qwest and a group of creditors holding a majority of our consolidated debt completed transactions contemplated under the amended and restated transaction support agreement ("TSA") that such parties entered into on January 22, 2024 (the "TSA Transactions"), including the termination, repayment or exchange of previous commitments and debt and the issuance of new term loan facilities, notes, and revolving credit facilities.

The following table sets forth the aggregate principal amount of each of Lumen's consolidated debt arrangements that were partially or fully paid in exchange for cash or newly-issued debt during the first quarter of 2024 in connection with the TSA Transactions:

	Aggregate Principal Amount (in millions)	
Debt	Repaid	Exchanged
Lumen Technologies, Inc.		
Term Loan A	$ 933	—
Term Loan A-1	266	—
Term Loan B	575	3,259
5.125% Senior Notes due 2026	116	147
4.000% Senior Notes due 2027	153	865
Level 3 Financing, Inc.		
Term Loan B	—	2,398
3.400% Senior Notes due 2027	—	668
3.875% Senior Notes due 2029	—	678
4.625% Senior Notes due 2027	—	606
4.250% Senior Notes due 2028	—	712
3.625% Senior Notes due 2029	—	458
3.750% Senior Notes due 2029	—	453
Qwest Corporation		
Term Loan B	215	—
Total	$ 2,258	10,244

The following table sets forth the aggregate principal balance as of December 31, 2024 of the debt issued by Lumen or Level 3 Financing in connection with the TSA Transactions:

New Debt Issuances[1]	Aggregate Principal Amount as of December 31, 2024 (in millions)
Lumen Technologies, Inc.	
Term Loan A[2]	$ 357
Term Loan B-1[2]	1,606
Term Loan B-2[2]	1,606
4.125% Superpriority Notes due 2029-2030	808
Level 3 Financing, Inc.	
Term Loan B-1	1,199
Term Loan B-2	1,199
10.500% First Lien Notes due 2029	668
11.000% First Lien Notes due 2029	1,575
4.875% Second Lien Notes due 2029	606
10.750% First Lien Notes due 2030	678
4.500% Second Lien Notes due 2030	712
3.875% Second Lien Notes due 2030	458
4.000% Second Lien Notes due 2031	453
Total	$ 11,925

(1) Except for Lumen's Term Loan A and $1.375 billion of Level 3 Financing's 11.000% First Lien Notes due 2029, all of the new debt listed in this table was issued in the first quarter of 2024 in exchange for previously-issued debt of Lumen or Level 3 Financing in connection with the TSA Transactions.

(2) Reflects approximately $66 million of term loan installment payments and paydowns made between the TSA Effective Date and December 31, 2024.

In evaluating the terms of the TSA Transactions, we determined that for certain of our creditors the new debt instruments were substantially different than pre-existing debt and therefore constituted a non-cash extinguishment of old debt for Lumen Technologies and Level 3 Financing of $744 million and $2.6 billion and the establishment of new debt for which we recorded a $275 million gain on extinguishment in the first quarter of 2024. This new debt was recorded at fair value generating a reduction to debt of $492 million which was included in our aggregate Net gain on early retirement of debt of $348 million, recognized in Other income (expense), net in our consolidated statement of operations for the year ended December 31, 2024. The remaining creditors' newly-issued debt was not substantially different under the terms of the TSA Transactions and was treated under modification accounting rules. In conjunction with the TSA Transactions, we paid $209 million in lender fees and $174 million in additional third-party costs. Of these amounts, we offset $157 million of lender fees against the gain on extinguishment and recorded $112 million in third-party costs to Selling, general and administrative expense in our consolidated statement of operations for the year ended December 31, 2024. In accordance with GAAP provisions for modification and extinguishment accounting, $52 million in lender fees and $62 million in third-party costs, respectively, were capitalized and will be amortized over the terms of the newly-issued indebtedness.

Repurchases of Debt Instruments

During 2024, we repurchased various debt instruments on the open market. These repurchases resulted in an aggregate net gain of $40 million which is included in our aggregate Net gain on early retirement of debt in Other income (expense), net in our consolidated statement of operations for the year ended December 31, 2024. The following table sets forth the aggregate principal amount of each series of notes and term loans repurchased during the year ended December 31, 2024:

Debt	Principal Amount Repurchased (in millions)
Lumen Technologies, Inc.	
Term Loan A	$ 2
Term Loan B-1	7
Term Loan B-2	7
5.625% Senior Notes, Series X, due 2025	70
7.200% Senior Notes, Series D, due 2025	13
6.875% Senior Notes, Series G, due 2028	7
4.500% Senior Notes due 2029	24
4.125% Superpriority Notes due 2029-2030	3
7.600% Senior Notes due 2039	5
7.650% Senior Notes due 2042	6
Level 3 Financing, Inc.	
4.250% Senior Notes due 2028	34
3.625% Senior Notes due 2029	81
3.750% Sustainability-Linked Senior Notes due 2029	86
3.875% Senior Secured Notes due 2029 (unsecured)	18
Qwest Corporation	
7.250% Senior Notes due 2025	13
Total	$ 376

2023 Debt Modification Transactions

Exchange Offers

Pursuant to exchange offers that commenced on March 16, 2023 (the “2023 Exchange Offers”), on March 31, 2023, Level 3 Financing 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 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	Aggregate principal (amounts in millions)
5.625% Senior Notes, Series X, due 2025	$ 49
7.200% Senior Notes, Series D, due 2025	21
5.125% Senior Notes due 2026	291
6.875% Debentures, Series G, due 2028	52
5.375% Senior Notes due 2029	275
4.500% Senior Notes due 2029	558
7.600% Senior Notes, Series P, due 2039	164
7.650% Senior Notes, Series U, due 2042	144
Total	$ 1,554

Credit Facility Borrowings and Repayments

During 2023, Lumen borrowed $925 million from, and made repayments of $725 million to, the Former Lumen Facilities.

2022 Borrowings and Repayments

During 2022, Lumen borrowed $2.4 billion from, and made repayments of $2.6 billion to, the Former Lumen Facilities.

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,		
	2024	2023	2022
	(Dollars in millions)		
Interest expense:			
Gross interest expense	$ 1,548	1,269	1,398
Capitalized interest	(176)	(111)	(66)
Total interest expense	$ 1,372	1,158	1,332

Lumen Credit Agreements

Superpriority Revolving/Term A Credit Agreement

On the TSA Effective Date, Lumen, as borrower, the lenders party thereto and Bank of America, as administrative agent and collateral agent, entered into the Superpriority Revolving/Term A Credit Agreement (the "RCF/TLA Credit Agreement"), providing for:

- a superpriority "first out" series A revolving credit facility with original commitments of approximately $489 million (the "Series A Revolving Credit Facility");
- a superpriority "second out" series B revolving credit facility with original commitments of approximately $467 million (the "Series B Revolving Credit Facility", and together with the Series A Revolving Credit Facility, the "Lumen Revolving Credit Facilities"); and

- a superpriority secured term loan facility in the amount of approximately $377 million (the "Lumen TLA").

Interest on borrowings under the RCF/TLA Credit Agreement is payable at the end of each interest period at a rate equal to, at Lumen's option:

- for the Series A Revolving Credit Facility, term SOFR (subject to a 2.00% floor) plus 4.00% for term SOFR loans or a base rate plus 3.00% for base rate loans;
- for the Series B Revolving Credit Facility, term SOFR (subject to a 2.00% floor) plus 6.00% for term SOFR loans or a base rate plus 5.00% for base rate loans; and
- for the Lumen TLA, term SOFR (subject to a 2.00% floor) plus a 6.00% for term SOFR loans or a base rate plus 5.00% for base rate loans.

Lumen may prepay amounts outstanding under the Series B Revolving Credit Facility or Lumen TLA at anytime without premium or penalty. If no amounts are outstanding under the Series B Revolving Credit Facility, Lumen may prepay amounts outstanding under the Series A Revolving Credit Facility without premium or penalty.

Both of the Lumen Revolving Credit Facilities mature on June 1, 2028 (in each case subject to a springing maturity in certain circumstances). The Lumen TLA matures on June 1, 2028 and requires Lumen to make quarterly amortization payments of 1.25% of the initial principal amount and certain specified mandatory prepayments upon the occurrence of certain transactions.

At December 31, 2024, no borrowings were outstanding under Lumen's (i) Series A Revolving Credit Facility, with commitments of approximately $489 million, or (ii) Series B Revolving Credit Facility, with commitments of approximately $465 million.

Superpriority Term B Credit Agreement

On the TSA Effective Date, Lumen, as borrower, the lenders party thereto, Wilmington Trust, National Association ("WTNA"), as administrative agent, and Bank of America, as collateral agent, entered into a Superpriority Term B Credit Agreement (the "TLB Credit Agreement"), providing for:

- a superpriority secured term loan facility in a principal amount of approximately $1.6 billion maturing April 15, 2029 (the "Lumen TLB-1"); and
- a superpriority secured term loan facility in a principal amount of approximately $1.6 billion maturing April 15, 2030 (the "Lumen TLB-2", and together with the Lumen TLB-1, the "Lumen TLB").

Interest on borrowings under the TLB Credit Agreement is payable at the end of each interest period at a rate equal to, at Lumen's option, adjusted term SOFR (subject to a 0% floor) plus 2.35% for term SOFR loans or a base rate plus 1.35% for base rate loans.

The Lumen TLB requires Lumen to make quarterly amortization payments of 0.25% of the initial principal amount and certain specified mandatory prepayments upon the occurrence of certain transactions. Amounts outstanding under the Lumen TLB may be prepaid at any time without premium or penalty.

Former Facilities

In connection with entering into the RCF/TLA Credit Agreement, all revolving commitments under Lumen's amended and restated credit agreement dated January 31, 2020 (the "Former Parent Facilities") were terminated and substantially all of the debt issued thereunder was repaid.

Level 3 Credit Agreements

Credit Agreement dated March 22, 2024

On the TSA Effective Date, Level 3 Financing, as borrower, Level 3 Parent, LLC. the lenders party thereto and WTNA, as administrative agent and collateral agent, entered into a credit agreement (the "New Level 3 Credit Agreement"), providing for:

- a secured term B-1 loan facility in the principal amount of approximately $1.2 billion maturing April 15, 2029; and
- a secured term B-2 loan facility in the principal amount of approximately $1.2 billion maturing April 15, 2030.

Interest on borrowings under the New Level 3 Credit Agreement is payable at the end of each interest period at a rate equal to, at Level 3 Financing's option, term SOFR (subject to a 2.00% floor) plus 6.56% for term SOFR loans or a base rate plus 5.56% for base rate loans.

Amounts outstanding under the New Level 3 Credit Agreement may be prepaid at any time, subject to a premium of (i) 2.00% of the aggregate principal amount if prepaid on or prior to the 12-month anniversary of the TSA Effective Date and (ii) 1.00% of the aggregate principal amount if prepaid after the 12-month anniversary of the TSA Effective Date and on or prior to the 24-month anniversary of the TSA Effective Date. The New Level 3 Facilities require Level 3 Financing to make certain specified mandatory prepayments upon the occurrence of certain transactions.

Former Facility

In connection with entering into the New Level 3 Credit Agreement, substantially all of the indebtedness issued under Level 3 Financing's amended and restated credit agreement dated as of November 29, 2019 (the "Former Level 3 Facility") was repaid.

Senior Notes of Lumen and its Subsidiaries

The Company's consolidated indebtedness at December 31, 2024 included:

- superpriority senior secured notes issued by Lumen;
- first and second lien secured notes issued by Level 3 Financing; and
- senior unsecured notes issued by Lumen, Level 3 Financing, Qwest, 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.

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.

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 may draw letters of credit under (i) an uncommitted $225 million revolving letter of credit facility and (ii) the Lumen Revolving Credit Facilities.

At December 31, 2024, we had $220 million of undrawn letters of credit outstanding, $217 million of which were issued under the Lumen Revolving Credit Facilities, $1 million of which were issued 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).

Certain Guarantees and Security Interests

Lumen's obligations under its RCF/TLA Credit Agreement are unsecured, but certain of Lumen's subsidiaries have provided an unconditional guarantee of payment of Lumen's obligations (such entities, the "Lumen Guarantors") and certain of such guarantees will be secured by a lien on substantially all of the assets of the applicable Lumen Guarantors. Level 3 Parent, LLC, Level 3 Financing and certain of Level 3 Financing's subsidiaries have provided an unconditional guarantee of payment of Lumen's obligations under its Series A Revolving Credit Facility of up to $150 million and under its Series B Revolving Credit Facility of up to $150 million, in each case secured by a lien on substantially all of their assets (such entities, the "Level 3 Collateral Guarantors"). The guarantee by the Level 3 Collateral Guarantors may be reduced or terminated under certain circumstances. Qwest Corporation and certain of its subsidiaries have provided an unsecured guarantee of collection of Lumen's obligations under the Lumen Revolving Credit Facilities and Lumen TLA (the "Qwest Guarantors").

Lumen's obligations under the TLB are unsecured. The term loans issued under this agreement are guaranteed by the Lumen Guarantors and the Qwest Guarantors on the same basis as those entities guarantee Lumen's obligations under its RCF/TLA Credit Agreement.

Level 3 Financing's obligations under the New Level 3 Credit Agreement are secured by a first lien on substantially all of its assets. In addition, the other Level 3 Collateral Guarantors have provided an unconditional guarantee of payment of Level 3 Financing's obligations under the New Level 3 Credit Agreement secured by a lien on substantially all of their assets.

Lumen's superpriority secured senior notes are guaranteed by the Lumen Guarantors and the Qwest Guarantors on the same basis as those entities guarantee Lumen's obligations under its RCF/TLA Credit Agreement (subject, in certain cases, to receipt of necessary regulatory approvals). Level 3 Financing's obligations under its first lien notes are secured by a first lien on substantially all of its assets (subject, in certain cases, to receipt of necessary regulatory approvals), and are guaranteed by the other Level 3 Collateral Guarantors (or, for certain such guarantors, for certain notes, will be guaranteed upon the receipt of required regulatory approvals) on the same basis as the guarantees provided by such entities under the New Level 3 Credit Agreement. Level 3 Financing's obligations under its second lien notes are secured by a second lien on substantially all of its assets, and are guaranteed by the other Level 3 Collateral Guarantors on the same basis as the guarantees provided by such entities under the New Level 3 Credit Agreement, except the lien securing such guarantees is a second lien.

Lumen's reimbursement obligations under its outstanding letters of credit are secured by guarantees issued by certain of its subsidiaries.

Level 3 Financing's obligations under its unsecured notes are guaranteed on an unsecured basis by the same affiliated entities that guarantee the New Level 3 Credit Agreement and Level 3 Financing's secured notes. The senior unsecured notes issued by Qwest Capital Funding, Inc. are guaranteed by its parent, Qwest Communications International Inc.

Covenants

Lumen

Under its Superpriority Revolving/Term Loan A Credit Agreement, Lumen may not permit:

(i) its maximum total net leverage ratio to exceed 5.75 to 1.00 as of the last day of each fiscal quarter, stepping down to 5.50 to 1.00 with respect to each fiscal quarter ending after December 31, 2024 and further stepping down to 5.25 to 1.00 with respect to each fiscal quarter ending after December 31, 2025; or

(ii) its interest coverage ratio as of the last day of any test period to be less than 2.00 to 1.00.

Lumen's superpriority credit agreements and superpriority senior secured notes 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 other persons.

Lumen's senior unsecured notes were issued under four separate indentures. These indentures restrict Lumen's ability to (i) incur, issue or create liens upon its property and (ii) consolidate with or merge into, or transfer or lease all or substantially all of its assets to, any other party.

Under certain circumstances in connection with a "change of control" of Lumen, Lumen 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.

Level 3 Financing

The New Level 3 Credit Agreement and Level 3 Financing's first and second lien secured notes 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 other persons. Also, under certain circumstances in connection with a "change of control" of Level 3 Parent, LLC or Level 3 Financing, 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.

Qwest Companies

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 the indentures governing Lumen's senior unsecured notes (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, 2024, Lumen Technologies 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 does not guarantee the debt of any unaffiliated parties, but, as noted above, as of December 31, 2024 certain of its key subsidiaries guaranteed (i) its debt outstanding under its superpriority credit agreements, its superpriority senior secured notes and its $225 million letter of credit facility and (ii) the outstanding term loans or senior secured 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 Events

As of February 15, 2025, (i) Lumen Technologies redeemed approximately $132 million aggregate principal amount of its unsecured senior notes and (ii) Level 3 Financing redeemed approximately $70 million aggregate principal amount of its unsecured senior notes, both in exchange for cash.

Note 8—Accounts Receivable

The following table presents details of our accounts receivable balances:

	As of December 31,	
	2024	2023
	(Dollars in millions)	
Trade and purchased receivables	$ 1,181	1,181
Earned and unbilled receivables	63	165
Other	46	39
Total accounts receivable	1,290	1,385
Less: allowance for credit losses	(59)	(67)
Accounts receivable, less allowance	$ 1,231	1,318

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.

Note 9—Property, Plant and Equipment

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

	Depreciable Lives	As of December 31, 2024	2023
		(Dollars in millions)	
Land	N/A	$ 630	646
Fiber, conduit and other outside plant [1]	15-45 years	17,348	15,217
Central office and other network electronics[2]	3-10 years	16,616	15,741
Support assets[3]	3-30 years	6,804	6,714
Construction in progress[4]	N/A	2,144	2,758
Gross property, plant and equipment		43,542	41,076
Accumulated depreciation		(23,121)	(21,318)
Net property, plant and equipment		$ 20,421	19,758

(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.

During 2024, we initiated marketing of our Broomfield, Colorado office buildings to locate a buyer and have classified those buildings as held for sale, resulting in an impairment loss of $80 million. During the second quarter of 2023, we 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.

We recorded depreciation expense of $1.9 billion, $1.9 billion and $2.1 billion for the years ended December 31, 2024, 2023 and 2022, respectively.

Asset Retirement Obligations

As of December 31, 2024 and 2023, 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, 2024	2023
	(Dollars in millions)	
Balance at beginning of period	$ 157	156
Accretion expense	12	6
Liabilities settled	(12)	(9)
Change in estimate	—	4
Balance at end of period	$ 157	157

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

Note 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.

During April 2024, we further reduced our workforce by approximately 6% as a part of our efforts to change our workforce composition to reflect our ongoing transformation and cost reduction opportunities that align with our shapeshifting and focus on our strategic priorities. As a result of this plan, we incurred severance and related costs of approximately $103 million during the second quarter of 2024. We have not incurred, and do not expect to incur, any material impairment or exit costs related to either of these plans.

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:

	Years Ended December 31,	
	2024	2023
	(Dollars in millions)	
Balance at beginning of period	$ 18	11
Accrued to expense	130	74
Payments, net	(136)	(67)
Balance at end of period	$ 12	18

Note 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.

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 $615 million and $736 million as of December 31, 2024 and 2023, respectively.

We made a voluntary contribution of $170 million to the trust for the Combined Pension Plan in 2024. We made no voluntary cash contributions to the Combined Pension Plan in 2023. 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 $4 million and $5 million of benefits directly to participants of our non-qualified pension plans in 2024 and 2023, respectively.

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 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. Based on current laws and circumstances, we do not believe we are required to make any contributions to the Combined Pension Plan in 2025 and we do not expect to make voluntary contributions to the trust for the Combined Pension Plan in 2025. We estimate that in 2025 we will pay approximately $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 Parent, LLC qualified defined benefit post-retirement plan. This plan was fully funded as of December 31, 2024 and 2023. 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 $30 million and $33 million for the years ended December 31, 2024 and 2023, 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 certain participants to receive benefits at no or reduced cost and other participants 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 $1.7 billion and $1.9 billion as of December 31, 2024 and 2023, 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 2024, nor 2023. Benefits are paid directly by us with available cash. In 2024, we paid $185 million of post-retirement benefits, net of participant contributions and direct subsidies. In 2025, we currently expect to pay directly $186 million of post-retirement benefits, net of participant contributions and direct subsidies.

We anticipate our expected health care cost trend to range from 6.20% to 7.90% in 2025 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:			
2025	$ 569	188	(2)
2026	490	184	(2)
2027	473	180	(2)
2028	450	173	(2)
2029	433	166	(1)
2030 - 2034	1,899	720	(5)

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		
	2024	2023	2022	2024	2023	2022
Actuarial assumptions at beginning of year:						
Discount rate	5.16% - 5.35%	5.45% - 5.69%	2.29% - 3.12%	5.17% - 5.42%	5.43% - 5.75%	2.19% - 5.78%
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 %	6.50 %	5.50 %	3.00 %	3.00 %	4.00 %
Initial health care cost trend rate	N/A	N/A	N/A	7.50% / 5.40%	7.20% / 5.00%	5.00% / 5.75%
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	2031	2030	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 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,		
	2024	2023	2022
	(Dollars in millions)		
Service cost	$ 24	25	44
Interest cost	251	270	194
Expected return on plan assets	(272)	(287)	(385)
Realized to gain on sale of businesses	—	—	546
Special termination benefits charge	—	2	—
Recognition of prior service credit	(7)	(7)	(10)
Recognition of actuarial loss	108	104	122
Net periodic pension expense	$ 104	107	511

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

	Post-Retirement Plans Years Ended December 31,		
	2024	2023	2022
	(Dollars in millions)		
Service cost	$ 4	5	10
Interest cost	94	103	72
Realized to gain on sale of businesses	—	—	(32)
Recognition of prior service cost	(8)	(8)	8
Recognition of actuarial loss	(17)	(20)	(4)
Special termination benefits	2	—	—
Net periodic post-retirement benefit expense	$ 75	80	54

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 income (expense), net on our consolidated statements of operations for the years ended December 31, 2024, 2023 and 2022. 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 our net periodic post-retirement benefit expense in 2024 of $2 million and in our net periodic pension expense in 2023 of $2 million, both 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. As of December 31, 2024, the settlement threshold was not reached. In the event of workforce reductions in the future, the annual lump sum payments may trigger settlement accounting.

Benefit Obligations

The actuarial assumptions used to compute the funded status for the plans are based upon information available as of December 31, 2024 and 2023 and are as follows:

	Combined Pension Plan As of December 31,		Post-Retirement Benefit Plans As of December 31,	
	2024	2023	2024	2023
Actuarial assumptions at end of year:				
Discount rate	5.62 %	5.21 %	5.60 %	5.20 %
Rate of compensation increase	3.25 %	3.25 %	N/A	N/A
Initial health care cost trend rate	N/A	N/A	7.90% / 6.20%	7.50% / 5.40%
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	2031

N/A - Not applicable

The Society of Actuaries did not release any revised mortality tables or projection scales in 2024, 2023, or 2022.

The short-term and long-term interest crediting rates during 2024 for cash balance components of the Combined Pension Plan were 4.3% 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,		
	2024	2023	2022
		(Dollars in millions)	
Change in benefit obligation:			
Benefit obligation at beginning of year	$ 5,212	5,295	9,678
Plan spin-off	—	—	(2,552)
Service cost	24	25	37
Interest cost	251	270	154
Special termination benefits charge	—	2	—
Actuarial (gain) loss	(119)	114	(1,432)
Benefits paid from plan assets	(552)	(494)	(590)
Benefit obligation at end of year	$ 4,816	5,212	5,295

	Post-Retirement Benefit Plans Years Ended December 31,		
	2024	2023	2022
	(Dollars in millions)		
Change in benefit obligation			
Benefit obligation at beginning of year	$ 1,919	1,995	2,781
Benefit obligation transferred to purchaser upon sale of business	—	—	(26)
Service cost	4	5	10
Interest cost	94	103	72
Participant contributions	27	32	37
Direct subsidy receipts	2	2	2
Plan amendments	—	—	(41)
Actuarial (gain) loss	(84)	14	(591)
Benefits paid by company	(214)	(228)	(249)
Benefits paid from plan assets	—	(4)	—
Special termination benefits charge	2	—	—
Benefit obligation at end of year	$ 1,750	1,919	1,995

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, $1 million and $5 million at December 31, 2024, 2023 and 2022, 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,		
	2024	2023	2022
	(Dollars in millions)		
Change in plan assets			
Fair value of plan assets at beginning of year	$ 4,476	4,715	8,531
Plan spin-off	—	—	(2,239)
Return on plan assets	107	255	(987)
Benefits paid from plan assets	(552)	(494)	(590)
Contributions	170	—	—
Fair value of plan assets at end of year	$ 4,201	4,476	4,715

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 while minimizing the risk of large losses in funded status. 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 40% of plan assets is targeted to long-duration investment grade bonds and interest rate sensitive derivatives and 60% 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 2025, 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 ERISA (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, 2024, we used the following valuation techniques to measure fair value for assets. There were no changes to these methodologies during 2024:

- 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, 2024. 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 As of December 31, 2024			
	Level 1	Level 2	Level 3	Total
	(Dollars in millions)			
Assets				
Investment grade bonds (a)	$ 372	1,391	—	1,763
High yield bonds (b)	—	26	4	30
Emerging market bonds (c)	70	34	—	104
U.S. stocks (d)	260	2	1	263
Non-U.S. stocks (e)	14	—	1	15
Cash equivalents and short-term investments (o)	6	2	—	8
Total investments, excluding investments valued at NAV	$ 722	1,455	6	2,183
Other receivables				27
Investments valued at NAV				2,359
Liabilities				
Repurchase agreements & other obligations (n)	$ —	(361)	—	(361)
Derivatives (m)	(1)	(6)	—	(7)
Total pension plan assets				$ 4,201

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 receivable, pending trades and accrued expenses.

	Fair Value of Combined Pension Plan Assets As of 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
Investments valued at NAV				2,192
Liabilities				
Repurchase agreements (n)	$ —	(375)	—	(375)
Derivatives (m)	(1)	—	—	(1)
Total pension plan assets				$ 4,476

The table below presents the fair value of plan assets valued at NAV by category for our Combined Pension Plan at December 31, 2024 and 2023.

	Fair Value of Plan Assets Valued at NAV	
	Combined Pension Plan As of December 31,	
	2024	2023
	(Dollars in millions)	
Investment grade bonds (a)	$ 72	105
High yield bonds (b)	340	110
Emerging market bonds (c)	69	—
U.S. stocks (d)	6	51
Non-U.S. stocks (e)	529	412
Emerging market stocks (f)	4	10
Private equity (g)	253	272
Private debt (h)	398	421
Market neutral hedge funds (i)	85	77
Directional hedge funds (j)	108	124
Real estate (k)	218	265
Multi-asset strategies (l)	—	27
Cash equivalents and short-term investments (o)	277	318
Total investments valued at NAV	$ 2,359	2,192

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 buyout 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 performing and distressed credits.

(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* represent 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,	
	2024	2023
	(Dollars in millions)	
Derivative instruments:		
Exchange-traded U.S. equity futures	$ 212	60
Exchange-traded Treasury and other interest rate futures	795	1,136
Exchange-traded Foreign currency futures	—	1
Interest rate swaps	149	214
Credit default swaps	124	72
Index swaps	701	94
Foreign exchange forwards	47	57
Options	15	32

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	Non-U.S. Stocks	Total
	(Dollars in millions)			
Balance at December 31, 2022	$ 4	1	—	5
Dispositions	(2)	—	—	(2)
Actual return on plan assets	2	—	—	2
Balance at December 31, 2023	4	1	—	5
Acquisition	—	—	1	1
Actual return on plan assets	—	—	—	—
Balance at December 31, 2024	$ 4	1	1	6

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, 2024, the investment program produced actual gains on Combined Pension Plan assets of $107 million as compared to expected returns of $272 million, for a difference of $165 million. For the year ended December 31, 2023, the investment program produced actual gains on Combined Pension Plan assets of $255 million as compared to the expected returns of $287 million, for a difference of $32 million. 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,	
	2024	2023	2024	2023
	(Dollars in millions)			
Benefit obligation	$ (4,816)	(5,212)	(1,750)	(1,919)
Fair value of plan assets	4,201	4,476	1	1
Unfunded status	(615)	(736)	(1,749)	(1,918)
Current portion of unfunded status	—	—	(186)	(193)
Non-current portion of unfunded status	$ (615)	(736)	(1,563)	(1,725)

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, 2023, items recognized as a component of net periodic benefits expense in 2024, additional items deferred during 2024 and cumulative items not recognized as a component of net periodic benefits expense as of December 31, 2024. 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,				
	2023	Recognition of Net Periodic Benefits Expense	Deferrals	Net Change in AOCL	2024
	(Dollars in millions)				
Accumulated other comprehensive (loss) income					
Pension plans:					
Net actuarial (loss) gain	$ (1,819)	108	(48)	60	(1,759)
Settlement charge	383	—	—	—	383
Prior service benefit (cost)	10	(7)	—	(7)	3
Deferred income tax benefit (expense)	381	(25)	14	(11)	370
Total pension plans	(1,045)	76	(34)	42	(1,003)
Post-retirement benefit plans:					
Net actuarial gain (loss)	337	(17)	84	67	404
Prior service benefit (cost)	29	(8)	—	(8)	21
Curtailment loss	4	—	—	—	4
Deferred income tax (expense) benefit	(94)	6	(21)	(15)	(109)
Total post-retirement benefit plans	276	(19)	63	44	320
Total accumulated other comprehensive (loss) income	$ (769)	57	29	86	(683)

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)

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 $281 million, $288 million and $296 million for the years ended December 31, 2024, 2023 and 2022, respectively. Union-represented employee benefits are based on negotiated collective bargaining agreements. Employees contributed $79 million, $89 million, $101 million for the years ended December 31, 2024, 2023 and 2022, 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, 2024 and 2023, the assets of the plan included approximately 8 million and 9 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 $82 million, $87 million and $91 million for the years ended December 31, 2024, 2023 and 2022, 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.

Note 12—Stock-based Compensation

We maintain an equity incentive program that allows our Board of Directors (through its Human Resources and 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 other equity-based awards.

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 four 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 extent to which the performance conditions are satisfied. 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 extent to which the performance conditions are satisfied. All stock awards granted in 2024 were subject to service vesting conditions only.

The following table summarizes activity involving restricted stock and restricted stock unit awards for the year ended December 31, 2024:

	Number of Shares	Weighted-Average Grant Date Fair Value
	(in thousands)	
Non-vested at December 31, 2023	28,052	$ 6.82
Granted	14,274	1.69
Vested	(8,579)	6.70
Forfeited	(5,587)	12.25
Non-vested at December 31, 2024	28,160	3.18

During 2024, we granted 14.3 million shares of restricted stock and restricted stock unit awards at a weighted-average price of $1.69. 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. The total fair value of restricted stock and restricted stock unit awards that vested during 2024, 2023 and 2022, was $27 million, $21 million and $98 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, 2024, 2023 and 2022, was $29 million, $52 million and $98 million, respectively. Our tax benefit recognized in the consolidated statements of operations for our stock-based payment arrangements for the years ended December 31, 2024, 2023 and 2022, was $7 million, $12 million and $25 million, respectively. At December 31, 2024, there was $28 million of total unrecognized compensation expense related to our stock-based payment arrangements, which we expect to recognize over a weighted-average period of 1.4 years.

Note 13—Loss Per Common Share

Basic and diluted loss per common share for the years ended December 31, 2024, 2023 and 2022 were calculated as follows:

	Years Ended December 31,		
	2024	2023	2022
	(Dollars in millions, except per share amounts, shares in thousands)		
Loss (numerator)			
Net loss	$ (55)	(10,298)	(1,548)
Net loss applicable to common stock for computing basic loss per common share	(55)	(10,298)	(1,548)
Net loss as adjusted for purposes of computing diluted loss per common share	$ (55)	(10,298)	(1,548)
Shares (denominator):			
Weighted-average number of shares:			
Outstanding during period	1,014,554	1,006,787	1,028,069
Non-vested restricted stock	(26,874)	(23,706)	(20,552)
Weighted average shares outstanding for computing basic loss per common share	987,680	983,081	1,007,517
Incremental common shares attributable to dilutive securities:			
Shares issuable under convertible securities	—	—	—
Shares issuable under incentive compensation plans	—	—	—
Number of shares as adjusted for purposes of computing diluted loss per common share	987,680	983,081	1,007,517
Basic loss per common share	$ (0.06)	(10.48)	(1.54)
Diluted loss per common share[1]	$ (0.06)	(10.48)	(1.54)

(1) For the years ended December 31, 2024, December 31, 2023, and December 31, 2022, we excluded from the calculation of diluted loss per share 7.3 million shares, 0.3 million shares 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 due to our net loss position.

Our calculation of diluted loss per common share excludes non-vested restricted stock awards that are anti-dilutive based upon the terms of the award and due to the lower stock price resulting in more assumed repurchases and greater antidilution. Such shares were 16.0 million, 22.5 million and 13.8 million for 2024, 2023 and 2022, respectively.

Note 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, 2024 and 2023, as well as the input level used to determine the fair values indicated below:

		As of December 31, 2024		As of December 31, 2023	
	Input Level	Carrying Amount	Fair Value	Carrying Amount	Fair Value
		(Dollars in millions)			
Long-term debt, excluding finance lease and other obligations	2	$ 17,652	17,127	19,703	13,304
Indemnifications related to the sale of the Latin American business[1]	3	87	84	86	86

(1) Non-recurring fair value recorded in connection with the sale of our Latin American business was measured as of August 1, 2022. See Note 2—Divestitures of the Latin American, ILEC and EMEA Businesses for further details.

Note 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. All such 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 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	
Year Ended December 31, 2022	$ 22

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.

Note 16—Income Taxes

The components of the income tax (benefit) expense are as follows:

	Years Ended December 31,		
	2024	2023	2022
	(Dollars in millions)		
Income tax (benefit) expense:			
Federal			
Current	$ 87	7	838
Deferred	(251)	(2)	(332)
State			
Current	(29)	(6)	283
Deferred	15	55	(191)
Foreign			
Current	2	—	32
Deferred	1	7	(73)
Total income tax (benefit) expense	$ (175)	61	557

Income tax (benefit) expense was allocated as follows:

	Years Ended December 31,		
	2024	2023	2022
	(Dollars in millions)		
Income tax (benefit) expense in the consolidated statements of operations:			
Attributable to income	$ (175)	61	557
Stockholders' equity:			
Tax effect of the change in accumulated other comprehensive loss	$ 26	(21)	297

The following is a reconciliation from the statutory federal income tax rate to our effective income tax rate:

	Years Ended December 31,		
	2024	2023	2022
	(Percentage of pre-tax loss)		
Statutory federal income tax rate	21.0 %	21.0 %	21.0 %
State income taxes, net of federal income tax benefit	4.1 %	(0.2)%	(8.8)%
Goodwill impairment	— %	(21.9)%	(68.9)%
Change in liability for unrecognized tax position	(16.8)%	(0.1)%	(0.2)%
Legislative changes to Global Intangible Low-Taxes Income ("GILTI")	(1.2)%	— %	— %
Nondeductible executive stock compensation	(4.9)%	— %	(0.1)%
Change in valuation allowance	2.3 %	1.3 %	0.9 %
Net foreign income taxes	(2.3)%	— %	3.0 %
Research and development credits	6.5 %	0.1 %	1.1 %
Divestitures of businesses[1]	— %	(0.4)%	(4.0)%
Indemnification refunds	11.2 %	— %	— %
Cancellation of debt income	59.3 %	— %	— %
Other, net	(3.1)%	(0.4)%	(0.2)%
Effective income tax rate	76.1 %	(0.6)%	(56.2)%

(1) Includes GILTI incurred as a result of the sale of our Latin American business.

The effective tax rate for the year ended December 31, 2024 includes a $135 million favorable impact from the exclusion of cancellation of debt income ("CODI") under Section 108 of the Internal Revenue Code. 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 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,	
	2024	2023
	(Dollars in millions)	
Deferred tax assets		
Post-retirement and pension benefit costs	$ 583	659
Net operating loss carryforwards	649	794
Other employee benefits	22	23
Other	744	511
Gross deferred tax assets	1,998	1,987
Less valuation allowance	(343)	(399)
Net deferred tax assets	1,655	1,588
Deferred tax liabilities		
Property, plant and equipment, primarily due to depreciation differences	(3,447)	(3,332)
Goodwill and other intangible assets	(1,002)	(1,271)
Gross deferred tax liabilities	(4,449)	(4,603)
Net deferred tax liability	$ (2,794)	(3,015)

Of the $2.8 billion and $3.0 billion net deferred tax liability at December 31, 2024 and 2023, respectively, $2.9 billion and $3.1 billion is reflected as a long-term liability and $96 million and $112 million is reflected as a net noncurrent deferred tax asset, in other, net on our consolidated balance sheets at December 31, 2024 and 2023, respectively.

Income taxes receivable as of December 31, 2024 and 2023, were $483 million and $273 million, respectively.

For U.S. tax purposes, the Company is required to recognize CODI on the difference between the adjusted issue price of the debt exchanged and the fair market value of the new debt issued. As a result of the 2023 Exchange Offers, the Company realized approximately $663 million of CODI for U.S. tax purposes. See Note 7—Long-Term Debt and Credit Facilities to our consolidated financial statements in Item 8 of Part II of this report for discussion of the 2023 Exchange Offers. The Internal Revenue Code provides that a debtor may exclude CODI from taxable income to the extent certain exceptions apply but must reduce certain of its tax attributes by the amount of the excluded CODI. For the year ended December 31, 2023, the Company excluded approximately $663 million of CODI from taxable income under Section 108 of the Code and, accordingly, the Company's tax attributes have been reduced by a corresponding amount.

At December 31, 2024, we had federal NOLs of approximately $570 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 NOLs 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. If unused, the NOLs will expire between 2027 and 2031.

At December 31, 2024, we had state NOLs of $12 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, 2024, we established a valuation allowance of $343 million as it is more likely than not that this amount of NOLs will not be utilized prior to expiration. Our valuation allowance at December 31, 2024 and 2023 is primarily related to NOLs. This valuation allowance decreased by $56 million during 2024, primarily due to changes in our state NOL carryforwards.

A reconciliation of the change in our gross unrecognized tax benefits (excluding both interest and any related federal benefit) for the years ended December 31, 2024 and 2023 is as follows:

	2024	2023
	(Dollars in millions)	
Unrecognized tax benefits at beginning of year	$ 1,424	1,318
Decrease in tax positions of prior periods netted against deferred tax assets	(4)	(411)
Decrease in tax positions taken in the current year	(64)	(73)
Increase in tax positions taken in the prior year	65	752
Decrease due to payments/settlements	—	(1)
Decrease from the lapse of statute of limitations	(158)	(52)
Decrease related to divestitures of businesses	—	(109)
Unrecognized tax benefits at end of year	$ 1,263	1,424

As of December 31, 2024, the total amount of unrecognized tax benefits that, if recognized, would impact the effective income tax rate was $404 million. The unrecognized tax benefits also include tax positions that, if recognized, would result in adjustments to other tax accounts, primarily deferred taxes, which 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 (benefit) expense. We had accrued interest (presented before related tax benefits) of approximately $217 million and $100 million at December 31, 2024 and 2023, 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 NOLs 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 $395 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, 2024. In addition, in 2021, the Organization for Economic Co-operation and Development (“OECD”) issued Pillar Two model rules introducing a new global minimum corporate tax of 15% and the OECD and the majority of its participating countries continue to work toward the enactment of such tax. While the U.S. has not adopted Pillar Two legislation, various other governments around the world have enacted such legislation that is effective for tax periods after December 31, 2023. These global minimum tax rules have increased our administrative and compliance burdens, but the impact to our financial statements for the year ended December 31, 2024 was immaterial. We anticipate further legislative activity and administrative guidance throughout 2025 and continue to monitor evolving global tax legislation.

Note 17—Segment Information

Our business is managed based on customer-facing sales channels to align with how we support our customers. Our chief operating decision maker ("CODM"), who is the CEO of the Company, makes decisions and assesses the performance of the Company reviewing two segments: Business and Mass Markets. Our reportable segments have not been aggregated.

Under our Business segment we provide products and services to meet the needs of our enterprise and wholesale customers under five distinct sales channels: Large Enterprise, Mid-Market Enterprise, Public Sector, Wholesale and International and Other. 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 headcount and non-headcount operating expenses. 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 CODM uses adjusted EBITDA as the key indicator in assessing performance and allocating resources for both the Business segment and Mass Markets segment.

The following tables summarize our segment results for 2024, 2023 and 2022 based on the segment categorization we were operating under at December 31, 2024.

	Year Ended December 31, 2024	
	Business	Mass Markets
	(Dollars in millions)	
Segment revenue	$ 10,363	2,745
Segment expense		
Cost of services and products	3,063	69
Headcount costs	1,237	651
Non-headcount costs	652	572
Total expense	4,952	1,292
Total segment adjusted EBITDA	$ 5,411	1,453

	Year Ended December 31, 2023	
	Business	Mass Markets
	(Dollars in millions)	
Segment revenue	$ 11,583	2,974
Segment expense		
Cost of services and products	3,248	79
Headcount costs	1,473	768
Non-headcount costs	807	610
Total expense	5,528	1,457
Total segment adjusted EBITDA	$ 6,055	1,517

	Year Ended December 31, 2022	
	Business	Mass Markets
	(Dollars in millions)	
Segment revenue	$ 13,099	4,379
Segment expense		
Cost of services and products	3,436	121
Headcount costs	1,584	945
Non-headcount costs	879	703
Total expense	5,899	1,769
Total segment adjusted EBITDA	$ 7,200	2,610

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 (i) specific cost of service expenses incurred as a direct result of providing services and products to segment customers, (ii) headcount costs, which primarily includes salaries, commissions, and group insurance, and (iii) non-headcount costs, which primarily includes legal and other professional fees, marketing and advertising expenses, other network related expenses, and external commissions. 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 for the years ended December 31, 2024, 2023 and 2022:

	Years Ended December 31,		
	2024	2023	2022
	(Dollars in millions)		
Total segment adjusted EBITDA	$ 6,864	7,572	9,810
Depreciation and amortization	(2,956)	(2,985)	(3,239)
Goodwill impairment	—	(10,693)	(3,271)
Other unallocated expense	(3,419)	(3,426)	(3,107)
Stock-based compensation	(29)	(52)	(98)
Operating income (loss)	460	(9,584)	95
Total other expense, net	(690)	(653)	(1,086)
Loss before income taxes	(230)	(10,237)	(991)
Income tax (benefit) expense	(175)	61	557
Net loss	$ (55)	(10,298)	(1,548)

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.

Note 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.

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, 2024 and December 31, 2023, we had accrued $78 million and $84 million, respectively, in the aggregate for our litigation and non-income tax contingencies, which is included in Other under Current Liabilities or Other under Deferred Credits and Other Liabilities in our consolidated balance sheets as of such dates. We cannot at this time estimate the reasonably possible loss or range of loss, if any, in excess of our $78 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, a reference to a "putative" class action means a class has been alleged, but not certified, in that matter.

Principal Proceedings

Houser Shareholder Suit

Lumen and certain of its current and former officers and directors 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 original complaint asserted claims on behalf of a putative class of former Level 3 Communications, Inc. ("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, including information about strategic revenue, customer loss rates, and customer account issues, among other items. The original complaint sought damages, costs and fees, rescission, rescissory damages, and other equitable relief. In May 2020, the court dismissed the original complaint. The 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. The plaintiffs filed an amended complaint asserting the same claims and prayer for relief, and we filed a motion to dismiss. The court granted our motion to dismiss in May 2023 and the plaintiffs appealed that dismissal. In August 2024, the appellate court set aside the trial court's dismissal. In October 2024, we filed a petition with the Colorado Supreme Court seeking a review of the appellate court's decision.

Quantum Fiber Disclosure Litigation

In re Lumen Technologies, Inc. Securities Litigation. On March 3, 2023, a purported shareholder of Lumen filed a putative class action complaint originally captioned Voigt et al. v. Lumen Technologies, et al. (now captioned In re Lumen Technologies, Inc. Securities Litigation, 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 and former officers violated the federal securities laws by omitting or misstating material information related to Lumen's expansion of its Quantum Fiber business. The court appointed a lead plaintiff who filed an amended complaint, seeking money damages, attorneys' fees and costs, and other relief. On October 30, 2024, the court granted the motion to dismiss we filed against the amended complaint. The plaintiff filed and then withdrew an appeal.

Associated Derivative Litigation. On August 5, 2024, a purported shareholder of Lumen filed a shareholder derivative complaint on behalf of Lumen captioned Slack v. Allen, et al., Case 3:24-cv-01043-TAD-KMM, in the U.S. District Court for the Western District of Louisiana. The complaint alleges claims for breach of fiduciary duty, violations of the federal securities laws, and other causes of action against current and former officers and directors of Lumen allegedly responsible for 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. Substantially similar derivative cases have been filed as follows: (i) on August 20, 2024, Capistrano v. Storey, et al., Case 3:24-cv-01130-TAD-KMM, in the U.S. District Court for the Western District of Louisiana; and on (ii) October 11, 2024, Ostrow v. Johnson, et al., Case 2024-3706, in the 4th Judicial District Court for the Parish of Ouachita, State of Louisiana, subsequently removed on October 11, 2024, to the U.S. District Court for the Western District of Louisiana as Case 3:24-cv-01399-TAD-KMM. The plaintiff in the Ostrow case voluntarily dismissed that proceeding.

Lead-Sheathed Cable Litigation

Disclosure Litigation. In re Lumen Technologies, Inc. Securities Litigation II. On September 15, 2023, a purported shareholder of Lumen filed a putative class action complaint originally captioned Glauber, et al. v. Lumen Technologies (now captioned In re Lumen Technologies, Inc. Securities Litigation II, Case 3:23-cv-01290), in the U.S. District Court for the Western District of Louisiana. The complaint alleged that Lumen and certain of its current and 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 court appointed lead plaintiffs who filed an amended complaint, seeking money damages, attorneys' fees and costs, and other relief.

Derivative Litigation. On June 11, 2024, a purported shareholder of Lumen filed a shareholder derivative complaint on behalf of Lumen captioned Brown v. Johnson, et al., Case 3:24-cv-00798-TAD-KDM, in the U.S. District Court for the Western District of Louisiana. The complaint alleges claims for breach of fiduciary duty, violations of the federal securities laws, and other causes of action against current and former officers and directors of Lumen relating to placement or presence of lead-sheathed telecommunications cables. The complaint seeks damages, injunctive relief, and attorneys' fees. Substantially similar derivative cases have been filed as follows: (i) on August 9, 2024, Pourarian v. Johnson, et al., Case 3:24-cv-01071-TAD-KMM in the U.S. District Court for the Western District of Louisiana; (ii) on September 9, 2024, Capistrano v. Johnson, et al., Case 3:24-cv-01234-TAD-KMM in the U.S. District Court for the Western District of Louisiana; (iii) on September 16, 2024, Vogel v. Perry, et al., Case 2024-3360 in the 4th Judicial District Court for the Parish of Ouachita, State of Louisiana, subsequently removed on September 17, 2024 to the U.S. District Court for the Western District of Louisiana as Case 3:24-cv-01274-TAD-KMM; and (iv) on September 25, 2024, Murray v. Allen, et al., Case 3:24-cv-01320 in the U.S. District Court for the Western District of Louisiana.

Environmental Litigation

Parish of St. Mary. On July 9, 2024, a putative class action complaint was filed in the 16th Judicial District Court for the Parish of St. Mary, State of Louisiana, Case 138575, asserting claims on behalf of all parishes, municipalities, and citizens owning real properties in the State of Louisiana that have been affected by lead-sheathed telecommunications cables installed by AT&T and Lumen or their predecessors. The complaint seeks damages and injunctive relief under Louisiana state law. The case was removed to the United States District Court Western District of Louisiana Lafayette Division, Case 6:24-CV-01001-RRS-DJA. On December 6, 2024, the plaintiffs voluntarily dismissed the class action complaint without prejudice. On December 13, 2024, St. Mary’s Parish along with other parishes, municipalities, and two individuals served a notice of intent to file citizen suit under the Louisiana Environmental Quality Act, asserting claims identical to the class action which the plaintiffs voluntarily dismissed.

Blum. On November 6, 2023, a putative class action complaint was filed in the 16th Judicial District Court for the Parish of St. Mary, State of Louisiana, Case 137935, asserting claims on behalf of all citizens owning real properties in the State of Louisiana that have been affected by lead-sheathed telecommunications cables installed by AT&T, BellSouth, Verizon, and Lumen or their predecessors. The complaint seeks damages and injunctive relief under Louisiana state law. The case has been removed to Federal Court in the United States District Court Western District of Louisiana Lafayette Division, Case 6:23-CV-01748.

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.

FCRA Litigation

In November 2014, a putative class action complaint captioned Bultemeyer v. CenturyLink, Inc. was filed in the United States District Court for the District of Arizona, Case CV-14-02530-PHX-SPL, alleging violations of the Fair Credit Reporting Act (the "FCRA"). In February 2017, the case was dismissed for lack of standing. The plaintiff appealed and the 9th Circuit reversed and remanded. Class certification was contested and ultimately granted in 2023. The 9th Circuit denied Lumen's request to appeal the class certification ruling. A jury trial was conducted in September 2024. The jury found that CenturyLink willfully violated the FCRA and awarded each class member $500 for statutory damages and $2,000 for punitive damages. If the verdict is not set aside in connection with post-trial motion practice, Lumen will appeal to the 9th Circuit. We have not accrued a contingent liability for this matter. While liability is possible, we have not determined it to be probable, and damages exposure, if any, is uncertain.

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. 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 several state attorneys general.

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 initiated formal investigations. In November 2020, following the FCC's release of a public report on the outage, we negotiated a settlement which was disclosed 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 Washington Utilities and Transportation Commission ("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, the WUTC issued an order imposing a penalty of approximately $1 million. That decision is now pending appeal to the Washington State of Court of Appeals.

Latin American Tax Litigation and Claims

In connection with the 2022 divestiture of our Latin American business, the purchaser assumed responsibility for the Brazilian tax claims described in our prior periodic reports filed with the SEC. We agreed to indemnify the purchaser for amounts paid with respect to the Brazilian tax claims. The value of this indemnification and others associated with the Latin American business divestiture are 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 certain specified 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 U.S. 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.

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 2023-cv-3048, and Wallace, et al. v. Qwest Corp., et al., Case 2023-cv-30488, both of which have been consolidated with Kupfner et al v Public Service Company of Colorado, et al., Case 2022-cv-30195. The consolidated proceeding is pending in Colorado District Court, Boulder, Colorado, Preliminary estimates of potential damage claims exceed $2 billion.

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 narrowed the issues to be resolved by jury. On August 21, 2024, a jury decided the remaining issues, and consequently all claims asserted, in Lumen's favor. The plaintiff has filed a Notice of Appeal and Lumen submitted a cross-appeal as to the original motion to dismiss and motion for summary judgment.

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, tax issues, or environmental law issues, grievance hearings before labor regulatory agencies, miscellaneous third-party tort actions, or commercial disputes.

We are currently defending several patent infringement lawsuits asserted against us by non-practicing entities 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.

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 outcomes of these other proceedings described under this heading are 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 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 we currently consider immaterial may ultimately affect us materially.

Right-of-Way

At December 31, 2024, our future rental commitments and Right-of-Way ("ROW") agreements were as follows:

	(Dollars in millions)
2025	$ 204
2026	72
2027	71
2028	67
2029	54
2030 and thereafter	717
Total future minimum payments	$ 1,185

Purchase Commitments

We have several commitments to a variety of vendors for services to be used in the ordinary course of business totaling $2.4 billion at December 31, 2024. Of this amount, we and our subsidiaries expect to purchase $795 million in 2025, $1.2 billion in 2026 through 2027, $256 million in 2028 through 2029 and $164 million in 2030 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, 2024.

Note 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,	
	2024	2023
	(Dollars in millions)	
Prepaid expenses	$ 372	395
Income tax receivable	483	273
Materials, supplies and inventory	146	209
Contract assets	16	19
Contract acquisition costs	102	107
Contract fulfillment costs	109	102
Assets held for sale	24	104
Other	22	14
Total other current assets	$ 1,274	1,223

Current Liabilities

Included in accounts payable at December 31, 2024 and 2023 were $248 million and $274 million, respectively, associated with capital expenditures.

Other Income (Expense), Net

Other income (expense), net reflects certain items not directly related to our core operations, including gains and losses from non-operating asset dispositions. For the year ended December 31, 2024, Other income (expense), net included a gain on sale of investment of $205 million.

Note 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, which expired on November 2, 2024. During the years ended December 31, 2024 and 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.

Note 21—Accumulated Other Comprehensive Loss

Information Relating to 2024

The table below summarizes changes in accumulated other comprehensive loss recorded on our consolidated balance sheet by component for the year ended December 31, 2024:

	Pension Plans	Post-Retirement Benefit Plans	Foreign Currency Translation Adjustment and Other	Total
	(Dollars in millions)			
Balance at December 31, 2023	$ (1,045)	276	(41)	(810)
Other comprehensive (loss) income before reclassifications	(34)	63	1	30
Amounts reclassified from accumulated other comprehensive income (loss)	76	(19)	—	57
Net current-period other comprehensive income	42	44	1	87
Balance at December 31, 2024	$ (1,003)	320	(40)	(723)

The table below presents further information about our reclassifications out of accumulated other comprehensive loss by component for the year ended December 31, 2024:

Year Ended December 31, 2024	(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	$ 91	Other income (expense), net
Prior service cost	(15)	Other income (expense), net
Total before tax	76	
Income tax benefit	(19)	Income tax (benefit) expense
Net of tax	$ 57	

[1] See Note 11—Employee Benefits for additional information on our net periodic benefit (expense) income related to our pension and post-retirement plans.

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 income (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 income (expense), net
Prior service cost	(15)	Other income (expense), net
Total before tax	67	
Income tax benefit	(16)	Income tax (benefit) expense
Net of tax	$ 51	

Year Ended December 31, 2023	Reclassification out of Accumulated Other Comprehensive Loss	Affected line item in Consolidated Balance Sheets and Consolidated Statement of Operations
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.

Note 22—Labor Union Contracts

As of December 31, 2024, approximately 21% of our employees were represented by the Communications Workers of America ("CWA") or the International Brotherhood of Electrical Workers ("IBEW"). Approximately 10% of our represented employees are subject to collective bargaining agreements that are scheduled to expire over the 12 month period ending December 31, 2025.

Note 23—Dividends

The declaration of dividends is solely at the discretion of our Board of Directors.

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 or 2024.

Our Board declared the following dividends payable in 2022:

Date Declared	Record Date	Dividend Per Share	Total Amount	Payment Date
			(in millions)	
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

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 leadership team, including our Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure. Our 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, 2024. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded our disclosure controls and procedures were effective, as of December 31, 2024, 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

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 2024 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 our 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, our management concluded that our internal control over financial reporting was effective at December 31, 2024. The effectiveness of our internal control over financial reporting at December 31, 2024 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 of the Company has prepared and is responsible for the integrity and objectivity of our consolidated financial statements for the year ended December 31, 2024. 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, including the identification of the Company's executive officers as required by Item 401(b) of Regulation S-K, is incorporated by reference to the Proxy Statement. With respect to the Company's executive officers, the Company notes that the employment of Chad Ho, then our Chief Legal Officer and Secretary, ended on February 7, 2025.

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 filed or furnished as part of this report are listed below.

Exhibit No. [1][2]	Description	Filed or Furnished with this Form 10-K	Incorporated by Reference		
			Filer and File No.[3]	Form	Date[4]
2.1	Agreement, dated as of February 8, 2023, by and among certain affiliates of Registrant, and Colt Technology Services Group Limited.		Registrant	10-K	12/31/22
3.1	Composite Articles of Incorporation of Registrant, as amended through December 18, 2024.	X			
3.2	Bylaws of Registrant, as amended and restated through May 17, 2023.		Registrant	8-K	5/17/23
4.1	Description of Registrant's securities registered under Section 12 of the Securities Exchange Act of 1934, as amended.	X			
4.2	Form of Registrant's common stock certificate.		Registrant	8-K	1/26/21
4.3	Second Amended and Restated Section 382 Rights Agreement by and between Registrant and Computershare Trust Company, N.A., dated as of November 15, 2023.		Registrant	10-K	12/31/23
4.4	Instruments relating to Registrant's Senior Secured Credit Facilities.				
	a. Superpriority Revolving/Term A Credit Agreement, dated as of March 22, 2024, among Lumen Technologies, Inc., as borrower, the lenders and issuing banks party thereto and Bank of America, N.A., as administrative agent and collateral agent.		Registrant	8-K	3/28/24
	b. Superpriority Term B Credit Agreement, dated as of March 22, 2024, among Lumen Technologies, Inc., as borrower, the lenders party thereto, Wilmington Trust, National Association, as administrative agent, and Bank of America, N.A., as collateral agent.		Registrant	8-K	3/28/24
	i. Amendment No. 1, dated as of August 26, 2024, to the Superpriority Term B Credit Agreement dated as of March 22, 2024, among Lumen Technologies, Inc., as borrower, the lenders party thereto, Wilmington Trust, National Association, as administrative agent, and Bank of America, N.A., as collateral agent.		Registrant	10-Q	9/30/24
4.5	Instruments relating to Registrant's Predecessor Credit Facilities				
	a. 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.		Registrant	8-K	1/31/20

Exhibit No. [1][2]	Description	Filed or Furnished with this Form 10-K	Incorporated by Reference		
			Filer and File No.[3]	Form	Date[4]
	b. 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.		Registrant	8-K	1/31/20
	c. 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.		Registrant	10-Q	3/31/23
	d. Amendment Agreement, dated as of February 15, 2024, by and among the Registrant, Bank of America, N.A., as administrative agent and collateral agent, and the lenders party thereto, amending the parties' Amended and Restated Credit Agreement dated as of January 31, 2020.		Registrant	10-K	12/31/23
	e. Amendment Agreement, dated as of March 22, 2024, among Lumen Technologies, Inc., as borrower, the guarantors party thereto, the issuing banks party thereto, the lenders party thereto and Bank of America, N.A., as administrative agent and collateral agent, to the Amended and Restated Credit Agreement, dated as of January 31, 2020, among Lumen Technologies, Inc., as borrower, the issuing banks party thereto, the lenders party thereto and Bank of America, N.A., as administrative agent, collateral agent and swingline lender.		Registrant	8-K	3/28/24
4.6	Instruments relating to Registrant's senior debt securities.				
	a. 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.		Registrant	10-K	12/31/14
	(i) Form of 7.2% Senior Notes, Series D, due 2025.		Registrant	10-K	12/31/95
	(ii) Form of 6.875% Debentures, Series G, due 2028.		Registrant	10-K	12/31/97
	(iii) 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.		Registrant	8-K	9/22/09

Exhibit No. [1][2]	Description	Filed or Furnished with this Form 10-K	Incorporated by Reference		
			Filer and File No.[3]	Form	Date[4]
	(iv) 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.		Registrant	8-K	3/12/12
	(v) 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.		Registrant	8-K	3/19/15
	b. Indenture, dated December 16, 2019, between Registrant and Regions Bank, as Trustee.		Registrant	8-K	12/16/19
	(i) 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.		Registrant	8-K	12/16/19
	c. 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.		Registrant	8-K	1/24/20
	d. Indenture, dated November 27, 2020, among Registrant, as Issuer, and Regions Bank, as Trustee, designating and outlining the terms and conditions of Registrant, Inc. 4.500% Senior Notes due 2029.		Registrant	8-K	11/27/20
	e. 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.		Registrant	8-K	6/15/21
	f. Indenture, dated as of March 22, 2024, among Lumen Technologies, Inc., the guarantors party thereto, Wilmington Trust, National Association, as trustee, registrar and paying agent, and Bank of America, N.A., as collateral agent, relating to the Registrant's 4.125% Superpriority Secured Notes due 2029.		Registrant	8-K	3/28/24

Exhibit No. [1][2]	Description	Filed or Furnished with this Form 10-K	Incorporated by Reference		
			Filer and File No.[3]	Form	Date[4]
	(i) Supplemental Indenture, dated October 31, 2024, among Lumen Technologies, Inc., as issuer, the guarantors party thereto, Wilmington Trust, National Association, as trustee, and Bank of America, N.A., as collateral agent, adding an additional guarantor of the Registrant's 4.125% Superpriority Senior Secured Notes due 2029.		Registrant	10-Q	9/30/24
	(ii) Second Supplemental Indenture, dated December 30, 2024, among Lumen Technologies, Inc., as issuer, the guarantors party thereto, Wilmington Trust, National Association, as trustee, and Bank of America, N.A., as collateral agent, adding an additional guarantor of the Registrant's 4.125% Superpriority Senior Secured Notes due 2029.	X			
	g. Indenture, dated as of March 22, 2024, among Lumen Technologies, Inc., the guarantors party thereto, Wilmington Trust, National Association, as trustee, registrar and paying agent, and Bank of America, N.A., as collateral agent, relating to the Registrant's 4.125% Superpriority Secured Notes due 2030.		Registrant	8-K	3/28/24
	(i) Supplemental Indenture, dated October 31, 2024, among Lumen Technologies, Inc., as issuer, the guarantors party thereto, Wilmington Trust, National Association, as trustee, and Bank of America, N.A., as collateral agent, adding an additional guarantor of the Registrant's 4.125% Superpriority Senior Secured Notes due 2030.		Registrant	10-Q	9/30/24
	(ii) Second Supplemental Indenture, dated December 30, 2024, among Lumen Technologies, Inc., as issuer, the guarantors party thereto, Wilmington Trust, National Association, as trustee, and Bank of America, N.A., as collateral agent, adding an additional guarantor of the Registrant's 4.125% Superpriority Senior Secured Notes due 2030.	X			
	h. Indenture, dated September 24, 2024, among Lumen Technologies, Inc., as issuer, the guarantors party thereto, Regions Bank, as trustee, and Bank of America, N.A., as collateral agent, designating and outlining the terms and conditions of the Registrant's 10.000% Senior Notes due 2032 issued thereunder.		Registrant	8-K	9/24/24

Exhibit No. [1][2]	Description	Filed or Furnished with this Form 10-K	Incorporated by Reference		
			Filer and File No.[3]	Form	Date[4]
	(i) First Supplemental Indenture, dated December 30, 2024, among Lumen Technologies, Inc., as issuer, the guarantors party thereto, Regions Bank, as trustee, and Bank of America, N.A., as collateral agent, adding an additional guarantor of the Registrant's 10.000% Senior Secured Notes due 2032.	X			
4.7	Instruments relating to indebtedness of subsidiaries of Qwest Communications International, Inc.				
	a. 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.		Qwest	10-K	12/31/02
	(i) 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.		Qwest	10-K	12/31/02
	b. 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.		Registrant	10-Q	3/31/12
	(i) 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.		Qwest	10-K	12/31/02
	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, under which the 6.875% Notes due 2028 and 7.750% Notes due 2031 of U S WEST Capital Funding, Inc. were issued.		Qwest Parent	8-K	11/18/98

Exhibit No. [1][2]	Description	Filed or Furnished with this Form 10-K	Incorporated by Reference		
			Filer and File No.[3]	Form	Date[4]
	(i) 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.		Qwest Parent	10-Q	6/30/00
	d. 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.		Qwest	10-K	12/31/99
	(i) 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.		Qwest	8-A	8/22/16
	(ii) 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.		Qwest	8-A	4/27/17
4.8	Instruments relating to indebtedness of the financing subsidiary of Level 3 Parent, LLC.				
	a. 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.		Level 3	8-K	9/26/19
	(i) 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.		Level 3	10-K	12/31/20

Exhibit No. [1][2]	Description		Filed or Furnished with this Form 10-K	Incorporated by Reference		
				Filer and File No.[3]	Form	Date[4]
	(ii)	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.		Level 3	10-K	12/31/20
	(iii)	Third Supplemental Indenture, dated as of March 22, 2024, among Level 3 Parent, LLC, Level 3 Financing, Inc., the guarantors party thereto, and the Bank of New York Mellon Trust Company, N.A., as trustee and note collateral agent, relating to the 4.625% Senior Notes due 2027 of Level 3 Financing, Inc.		Level 3	8-K	3/28/24
	(iv)	Fourth Supplemental Indenture, dated as of August 28, 2024, among Level 3 Parent, LLC, Level 3 Financing, Inc., the guarantors party thereto, and the Bank of New York Mellon Trust Company, N.A., as trustee and note collateral agent, relating to the 4.625% Senior Notes due 2027 of Level 3 Financing, Inc.		Level 3	10-Q	9/30/24
	b.	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 the 3.400% Senior Secured Notes due 2027 Level 3 Financing, Inc.		Level 3	8-K	12/4/19
	(i)	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.		Level 3	10-K	12/31/20

Exhibit No. [1][2]	Description	Filed or Furnished with this Form 10-K	Incorporated by Reference		
			Filer and File No.[3]	Form	Date[4]
	(ii) 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.		Level 3	10-Q	9/30/23
	(iii) 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 the 3.400% Senior Secured Notes due 2027 of Level 3 Financing, Inc.		Level 3	10-K	12/31/23
	(iv) Third Supplemental Indenture, dated as of March 22, 2024, among Level 3 Parent, LLC, Level 3 Financing, Inc., the guarantors party thereto, and the Bank of New York Mellon Trust Company, N.A., as trustee and note collateral agent, relating to the 3.400% Senior Secured Notes due 2027 of Level 3 Financing, Inc.		Level 3	8-K	3/28/24
	(v) Fourth Supplemental Indenture, dated as of August 28, 2024, among Level 3 Parent, LLC, Level 3 Financing, Inc., the guarantors party thereto, and the Bank of New York Mellon Trust Company, N.A., as trustee and note collateral agent, relating to the 3.400% Senior Secured Notes due 2027 of Level 3 Financing, Inc.		Level 3	10-Q	9/30/24
	c. 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 the 3.875% Senior Secured Notes due 2029 of Level 3 Financing, Inc.		Level 3	8-K	12/4/19

Exhibit No. [1][2]	Description		Filed or Furnished with this Form 10-K	Incorporated by Reference		
				Filer and File No.[3]	Form	Date[4]
	(i)	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.		Level 3	10-K	12/31/20
	(ii)	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.		Level 3	10-Q	9/30/23
	(iii)	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 the 3.875% Senior Secured Notes due 2029 of Level 3 Financing, Inc.		Level 3	10-K	12/31/23
	(iv)	Third Supplemental Indenture, dated as of March 22, 2024, among Level 3 Parent, LLC, Level 3 Financing, Inc., the guarantors party thereto, and the Bank of New York Mellon Trust Company, N.A., as trustee and note collateral agent, relating to the 3.875% Senior Secured Notes due 2029 of Level 3 Financing, Inc.		Level 3	8-K	3/28/24
	(v)	Fourth Supplemental Indenture, dated as of August 28, 2024, among Level 3 Parent, LLC, Level 3 Financing, Inc., the guarantors party thereto, and the Bank of New York Mellon Trust Company, N.A., as trustee and note collateral agent, relating to the 3.875% Senior Secured Notes due 2029 of Level 3 Financing, Inc.		Level 3	10-Q	9/30/24

Exhibit No. [1][2]	Description	Filed or Furnished with this Form 10-K	Incorporated by Reference		
			Filer and File No.[3]	Form	Date[4]
	d. 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.		Level 3	8-K	6/15/20
	(i) 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.		Level 3	10-K	12/31/20
	(ii) 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.		Level 3	10-K	12/31/20
	(iii) Third Supplemental Indenture, dated as of March 22, 2024, among Level 3 Parent, LLC, Level 3 Financing, Inc., the guarantors party thereto, and the Bank of New York Mellon Trust Company, N.A., as trustee and note collateral agent, relating to the 4.250% Senior Notes due 2028 of Level 3 Financing, Inc.		Level 3	8-K	3/28/24
	(iv) Fourth Supplemental Indenture, dated as of August 28, 2024, among Level 3 Parent, LLC, Level 3 Financing, Inc., the guarantors party thereto, and the Bank of New York Mellon Trust Company, N.A., as trustee and note collateral agent, relating to the 4.250% Senior Notes due 2028 of Level 3 Financing, Inc.		Level 3	10-Q	9/30/24

Exhibit No. [1][2]	Description	Filed or Furnished with this Form 10-K	Incorporated by Reference		
			Filer and File No.[3]	Form	Date[4]
	e. 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.		Level 3	8-K	8/12/20
	(i) 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.		Level 3	10-K	12/31/20
	(ii) 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.		Level 3	10-K	12/31/20
	(iii) Third Supplemental Indenture, dated as of March 22, 2024, among Level 3 Parent, LLC, Level 3 Financing, Inc., the guarantors party thereto, and the Bank of New York Mellon Trust Company, N.A., as trustee and note collateral agent, relating to the 3.625% Senior Notes due 2029 of Level 3 Financing, Inc.		Level 3	8-K	3/28/24
	(iv) Fourth Supplemental Indenture, dated as of August 28, 2024, among Level 3 Parent, LLC, Level 3 Financing, Inc., the guarantors party thereto, and the Bank of New York Mellon Trust Company, N.A., as trustee and note collateral agent, relating to the 3.625% Senior Notes due 2029 of Level 3 Financing, Inc.		Level 3	10-Q	9/30/24

Exhibit No. [1][2]	Description	Filed or Furnished with this Form 10-K	Incorporated by Reference		
			Filer and File No.[3]	Form	Date[4]
	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.		Level 3	8-K	1/13/21
	(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.		Level 3	10-K	12/31/21
	(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.		Level 3	10-K	12/31/21
	(iii) Third Supplemental Indenture, dated as of March 22, 2024, among Level 3 Parent, LLC, Level 3 Financing, Inc., the guarantors party thereto, and the Bank of New York Mellon Trust Company, N.A., as trustee and note collateral agent, relating to the 3.750% Sustainability-Linked Senior Notes due 2029 of Level 3 Financing, Inc.		Level 3	8-K	3/28/24
	(iv) Fourth Supplemental Indenture, dated as of August 28, 2024, among Level 3 Parent, LLC, Level 3 Financing, Inc., the guarantors party thereto, and the Bank of New York Mellon Trust Company, N.A., as trustee and note collateral agent, relating to the 3.750% Sustainability-Linked Senior Notes due 2029 of Level 3 Financing, Inc.		Level 3	10-Q	9/30/24

Exhibit No. [1][2]	Description	Filed or Furnished with this Form 10-K	Incorporated by Reference		
			Filer and File No.[3]	Form	Date[4]
	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 the 10.500% Senior Secured Notes due 2030 of Level 3 Financing, Inc.		Level 3	8-K	3/31/23
	(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.		Level 3	10-Q	9/30/23
	(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 the 10.500% Senior Secured Notes due 2030 of Level 3 Financing, Inc.		Level 3	10-K	12/31/23
	(iii) Third Supplemental Indenture, dated as of March 22, 2024, among Level 3 Parent, LLC, Level 3 Financing, Inc., the guarantors party thereto, and the Bank of New York Mellon Trust Company, N.A., as trustee and note collateral agent, relating to the 10.500% Senior Secured Notes due 2030 of Level 3 Financing, Inc.		Level 3	8-K	3/28/24
	h. Indenture, dated as of March 22, 2024, among Level 3 Financing, Inc., as issuer, Level 3 Parent, LLC, the other guarantors party thereto and Wilmington Trust, National Association, as trustee and collateral agent, relating to the 10.500% First Lien Notes due 2029 of Level 3 Financing, Inc.		Level 3	8-K	3/28/24

Exhibit No. [1][2]	Description	Filed or Furnished with this Form 10-K	Incorporated by Reference		
			Filer and File No.[3]	Form	Date[4]
	(i) Supplemental Indenture, dated October 31, 2024, among Level 3 Parent, LLC, as guarantor, Level 3 Financing, Inc., as issuer, the guarantors party thereto, and Wilmington Trust, National Association, as trustee and collateral agent, adding additional guarantors of the 10.500% First Lien Notes due 2029 of Level 3 Financing, Inc.		Level 3	10-Q	9/30/24
	i. Indenture, dated as of March 22, 2024, among Level 3 Financing, Inc., as issuer, Level 3 Parent, LLC, the other guarantors party thereto and Wilmington Trust, National Association, as trustee and collateral agent, relating to the 11.000% First Lien Notes due 2029 of Level 3 Financing, Inc.		Level 3	8-K	3/28/24
	(i) Supplemental Indenture, dated October 31, 2024, among Level 3 Parent, LLC, as guarantor, Level 3 Financing, Inc., as issuer, the guarantors party thereto, and Wilmington Trust, National Association, as trustee and collateral agent, adding additional guarantors of the 11.000% First Lien Notes due 2029 of Level 3 Financing, Inc.		Level 3	10-Q	9/30/24
	j. Indenture, dated as of March 22, 2024, among Level 3 Financing, Inc., as issuer, Level 3 Parent, LLC, the other guarantors party thereto and Wilmington Trust, National Association, as trustee and collateral agent, relating to the 10.750% First Lien Notes due 2030 of Level 3 Financing, Inc.		Level 3	8-K	3/28/24
	(i) Supplemental Indenture, dated October 31, 2024, among Level 3 Parent, LLC, as guarantor, Level 3 Financing, Inc., as issuer, the guarantors party thereto, and Wilmington Trust, National Association, as trustee and collateral agent, adding additional guarantors of the 10.750% First Lien Notes due 2030 of Level 3 Financing, Inc.		Level 3	10-Q	9/30/24
	k. Indenture, dated as of March 22, 2024, among Level 3 Financing, Inc., as issuer, Level 3 Parent, LLC, the other guarantors party thereto and Wilmington Trust, National Association, as trustee and collateral agent, relating to the 4.875% Second Lien Notes due 2029 of Level 3 Financing, Inc.		Level 3	8-K	3/28/24

Exhibit No. [1][2]	Description	Filed or Furnished with this Form 10-K	Incorporated by Reference		
			Filer and File No.[3]	Form	Date[4]
	(i) Supplemental Indenture, dated October 31, 2024, among Level 3 Parent, LLC, as guarantor, Level 3 Financing, Inc., as issuer, the guarantors party thereto, and Wilmington Trust, National Association, as trustee and collateral agent, adding additional guarantors of the 4.875% Second Lien Notes due 2029 of Level 3 Financing, Inc.		Level 3	10-Q	9/30/24
	l. Indenture, dated as of March 22, 2024, among Level 3 Financing, Inc., as issuer, Level 3 Parent, LLC, the other guarantors party thereto and Wilmington Trust, National Association, as trustee and collateral agent, relating to the 4.500% Second Lien Notes due 2030 Level 3 Financing, Inc.		Level 3	8-K	3/28/24
	(i) Supplemental Indenture, dated October 31, 2024, among Level 3 Parent, LLC, as guarantor, Level 3 Financing, Inc., as issuer, the guarantors party thereto, and Wilmington Trust, National Association, as trustee and collateral agent, adding additional guarantors of the 4.500% Second Lien Notes due 2030 of Level 3 Financing, Inc.		Level 3	10-Q	9/30/24
	m. Indenture, dated as of March 22, 2024, among Level 3 Financing, Inc., as issuer, Level 3 Parent, LLC, the other guarantors party thereto and Wilmington Trust, National Association, as trustee and collateral agent, relating to the 3.875% Second Lien Notes due 2030 Level 3 Financing, Inc.		Level 3	8-K	3/28/24
	(i) Supplemental Indenture, dated October 31, 2024, among Level 3 Parent, LLC, as guarantor, Level 3 Financing, Inc., as issuer, the guarantors party thereto, and Wilmington Trust, National Association, as trustee and collateral agent, adding additional guarantors of the 3.875% Second Lien Notes due 2030 of Level 3 Financing, Inc.		Level 3	10-Q	9/30/24
	n. Indenture, dated as of March 22, 2024, among Level 3 Financing, Inc., as issuer, Level 3 Parent, LLC, the other guarantors party thereto and Wilmington Trust, National Association, as trustee and collateral agent, relating to the 4.000% Second Lien Notes due 2031 of Level 3 Financing, Inc.		Level 3	8-K	3/28/24

Exhibit No. [1][2]	Description	Filed or Furnished with this Form 10-K	Incorporated by Reference		
			Filer and File No.[3]	Form	Date[4]
	(i) Supplemental Indenture, dated October 31, 2024, among Level 3 Parent, LLC, as guarantor, Level 3 Financing, Inc., as issuer, the guarantors party thereto, and Wilmington Trust, National Association, as trustee and collateral agent, adding additional guarantors of the 4.000% Second Lien Notes due 2031 of Level 3 Financing, Inc.		Level 3	10-Q	9/30/24
	o. Indenture, dated September 24, 2024, among Level 3 Financing, Inc., as issuer, Level 3 Parent, LLC, as a guarantor, certain other guarantors party thereto, U.S. Bank Trust Company, National Association, as trustee, and Wilmington Trust, National Association, as collateral agent, designating and outlining the terms and conditions of 10.000% Second Lien Notes due 2032 issued thereunder by Level 3 Financing, Inc.		Level 3	8-K	9/24/24
	p. Fourteenth Amendment Agreement, dated as of March 22, 2024, among Level 3 Parent, LLC, Level 3 Financing, Inc., as borrower, the guarantors party thereto, the lenders party thereto and Merrill Lynch Capital Corporation, as administrative agent and collateral agent, to the Amended and Restated Credit Agreement, dated as of November 29, 2019, among Level 3 Parent, LLC, Level 3 Financing, Inc., as borrower, the lenders party thereto and Merrill Lynch Capital Corporation, as administrative agent and collateral agent.		Level 3	8-K	3/28/24
	q. Credit Agreement, dated as of March 22, 2024, among Level 3 Parent, LLC, Level 3 Financing, Inc., as borrower, the lenders party thereto and Wilmington Trust, National Association, as administrative agent and collateral agent.		Level 3	8-K	3/28/24
10.1	Second Amended and Restated 2018 Equity Incentive Plan, as amended and restated through May 17, 2023.		Registrant	8-K	5/17/23
10.2	2024 Equity Incentive Plan of Lumen Technologies, Inc.		Registrant	S-8	5/16/24
	a. Form of Restricted Stock Agreement for annual equity grants to non-management directors beginning in 2018.		Registrant	10-Q	6/30/18
	b. Form of Restricted Stock Agreement for annual time-based equity grants to certain executive officers.		Registrant	10-K	12/31/21

Exhibit No. [1][2]	Description	Filed or Furnished with this Form 10-K	Incorporated by Reference		
			Filer and File No.[3]	Form	Date[4]
	c. Form of Restricted Stock Agreement for annual performance-based equity grants to certain executive officers.		Registrant	10-K	12/31/21
	d. Form of Restricted Stock Agreement for annual time-based equity grants to Kate Johnson.		Registrant	10-K	12/31/22
10.3	Supplemental Defined Benefit Pension Plan, effective as of January 1, 2012.		Registrant	10-K	12/31/11
10.4	Short-Term Incentive Plan (through 2024).		Registrant	10-K	2/23/23
10.5	Short-Term Incentive Plan (effective January 1, 2025).	X			
10.6	Form of Indemnification Agreement entered into between Registrant and each of its directors on or after February 24, 2016.		Registrant	8-K	2/29/16
10.7	Form of Indemnification Agreement entered into between Registrant and each of its officers on or after February 24, 2016.		Registrant	8-K	2/29/16
10.8	Change of Control Agreement, by and between Kate Johnson and Registrant.		Registrant	10-K	12/31/22
10.9	Form of Change of Control Agreement, on or after January 1, 2011, between Registrant and each of its other executive officers.		Registrant	10-K	12/31/10
10.10	Form of Change of Control Agreement between Registrant and its non-CEO California-based executive officers.		Registrant	10-Q	6/30/24
10.11	Lumen Executive Severance Plan, amended and restated effective October 10, 2017 (with updated exhibits and branding as of October 2020, effective through 2024).		Registrant	10-K	12/31/21
10.12	Lumen Executive Severance Plan, as amended and restated effective January 1, 2025.	X			
10.13	Retirement Benefit Plan	X			
10.14	Amended and Restated CenturyLink, Inc. Bonus Life Insurance Plan for Executive Officers, dated as of April 3, 2008.		Registrant	10-Q	3/31/08
	a. First Amendment to Plan.		Registrant	10-Q	9/30/10
10.15	Registrant's Supplemental Savings Plan, as amended and restated.		Registrant	10-Q	3/31/22
10.16	Non-Employee Director Compensation Plan, effective August 16, 2023.	X			
10.17	Non-Employee Director Deferred Compensation Plan, effective April 18, 2019 (updated for branding as of October 2020).		Registrant	10-K	12/31/21
10.18	Offer Letter dated September 12, 2022, between Registrant and Kate Johnson.[5]		Registrant	8-K	9/13/22

Exhibit No. [1][2]	Description	Filed or Furnished with this Form 10-K	Incorporated by Reference		
			Filer and File No.[3]	Form	Date[4]
10.19	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.		Registrant	8-K	1/25/24
19	Insider Trading Plan of Registrant	X			
21	Subsidiaries of Registrant.	X			
23	Independent Registered Public Accounting Firm Consent.	X			
31.1	Certification of the Chief Executive Officer of Lumen Technologies, Inc. furnished pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	X			
31.2	Certification of the Chief Financial Officer of Lumen Technologies, Inc. furnished pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	X			
32.1	Certification of the Chief Executive Officer of Lumen Technologies, Inc. pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.	X			
32.2	Certification of the Chief Financial Officer of Lumen Technologies, Inc. pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.	X			
97	Registrant's Policy Relating to Recovery of Erroneously Awarded Compensation, adopted August 16, 2023.	X			
101	Financial statements from the annual report on Form 10-K of Registrant for the period ended December 31, 2024, formatted in Inline XBRL: (i) the Consolidated Statements of Operations, (ii) the Consolidated Statements of Comprehensive Income (Loss), (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.	X			
104	Cover page formatted as Inline XBRL and contained in Exhibit 101.	X			

(1) Certain of the items in Sections 4.6, 4.7 and 4.8 may (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.

(2) Exhibits 10.1 to 10.19 are management contracts or compensatory plans or arrangements.

(3) For purposes of this column, (i) "Registrant" means Lumen Technologies, Inc. (File No. 001-07784), formerly named CenturyLink, Inc., CenturyTel, Inc. and Century Telephone Enterprises, Inc., (ii) "Qwest" means Qwest Corporation (File No. 001-03040), (iii) "Qwest Parent" means Qwest Communications International, Inc. (File No. 001-15577), and (iv) "Level 3" means Level 3 Parent, LLC (File No. 001-35134), successor-in-interest to Level 3 Communications, Inc.

(4) Represents (i) the date appearing on the cover page of each applicable 10-K or 10-Q report and (ii) the date of filing with respect to all other reports.

(5) 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 20, 2025

By: **Lumen Technologies, Inc.**

/s/ Andrea Genschaw

Andrea Genschaw

Chief Accounting Officer and 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.

Signature	Title	Date
/s/ Kate Johnson Kate Johnson	President and Chief Executive Officer (Principal Executive Officer)	February 20, 2025
/s/ Chris Stansbury Chris Stansbury	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	February 20, 2025
/s/ Andrea Genschaw Andrea Genschaw	Chief Accounting Officer and Controller (Principal Accounting Officer)	February 20, 2025
/s/ T. Michael Glenn T. Michael Glenn	Non-Executive Chairman of the Board	February 20, 2025
/s/ Quincy L. Allen Quincy L. Allen	Director	February 20, 2025
/s/ Martha Helena Bejar Martha Helena Bejar	Director	February 20, 2025
/s/ Peter C. Brown Peter C. Brown	Director	February 20, 2025
/s/ Chris Capossela Chris Capossela	Director	February 20, 2025
/s/ Kevin P. Chilton Kevin P. Chilton	Director	February 20, 2025
/s/ Steven T. "Terry" Clontz Steven T. "Terry" Clontz	Director	February 20, 2025
/s/ Jim Fowler Jim Fowler	Director	February 20, 2025
/s/ Hal Stanley Jones Hal Stanley Jones	Director	February 20, 2025
/s/ Diankha Linear Diankha Linear	Director	February 20, 2025
/s/ Laurie Siegel Laurie Siegel	Director	February 20, 2025