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, 2021

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 Number 001-36713

LIBERTY BROADBAND CORPORATION

(Exact name of Registrant as specified in its charter)

State of Delaware (State or other jurisdiction of incorporation or organization)	**47-1211994** (I.R.S. Employer Identification No.)
12300 Liberty Boulevard **Englewood, Colorado** (Address of principal executive offices)	**80112** (Zip Code)

Registrant's telephone number, including area code: **(720) 875-5700**

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Series A common stock	LBRDA	The Nasdaq Stock Market LLC
Series C common stock	LBRDK	The Nasdaq Stock Market LLC
Series A Cumulative Redeemable preferred stock	LBRDP	The Nasdaq Stock Market LLC

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 (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

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

Large Accelerated Filer ☒ Accelerated Filer ☐ Non-accelerated Filer ☐ Smaller Reporting Company ☐ Emerging Growth Company☐

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

Indicate by check mark whether the registrant 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. ☒

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

The aggregate market value of the voting and non-voting common stock held by non-affiliates of Liberty Broadband Corporation computed by reference to the last sales price of such stock, as of the closing of trading on June 30, 2021, was $29.6 billion.

The number of outstanding shares of Liberty Broadband Corporation common stock as of January 31, 2022 was:

	Series A	Series B	Series C
Liberty Broadband Corporation common stock	22,988,925	2,544,548	142,339,312

Documents Incorporated by Reference

The Registrant's definitive proxy statement for its 2022 Annual Meeting of Stockholders is hereby incorporated by reference into Part III of this Annual Report on Form 10-K.

LIBERTY BROADBAND CORPORATION
2021 ANNUAL REPORT ON FORM 10-K

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PART I.

Item 1. Business.

General Development of Business

Liberty Broadband Corporation ("Liberty Broadband," "the Company," "us," "we," or "our") is primarily comprised of GCI Holdings, LLC ("GCI Holdings") (as of December 18, 2020), a wholly owned subsidiary, and an equity method investment in Charter Communications, Inc. ("Charter").

During May 2014, the board of directors of Liberty Media Corporation (for accounting purposes a related party of the Company) and its subsidiaries ("Liberty") authorized management to pursue a plan to spin-off to its stockholders common stock of a wholly-owned subsidiary, Liberty Broadband, and to distribute subscription rights to acquire shares of Liberty Broadband's common stock (the "Broadband Spin-Off"). Liberty Broadband was formed in 2014 as a Delaware corporation.

On December 18, 2020, pursuant to the Agreement and Plan of Merger, dated as of August 6, 2020, entered into by GCI Liberty, Inc. ("GCI Liberty"), Liberty Broadband, Grizzly Merger Sub 1, LLC, a wholly owned subsidiary of Liberty Broadband ("Merger LLC"), and Grizzly Merger Sub 2, Inc., a wholly owned subsidiary of Merger LLC ("Merger Sub"), Merger Sub merged with and into GCI Liberty (the "First Merger"), with GCI Liberty surviving the First Merger as an indirect wholly owned subsidiary of Liberty Broadband (the "Surviving Corporation"), and immediately following the First Merger, GCI Liberty (as the Surviving Corporation in the First Merger) merged with and into Merger LLC (the "Upstream Merger", and together with the First Merger, the "Combination"), with Merger LLC surviving the Upstream Merger as a wholly owned subsidiary of Liberty Broadband. Prior to the Combination, GCI Liberty consisted of a wholly owned subsidiary, GCI Holdings, an equity method investment in Liberty Broadband, an investment in Charter and other assets and liabilities.

As a result of the Combination, each holder of a share of Series A common stock and Series B common stock of GCI Liberty received 0.58 of a share of Series C common stock and Series B common stock, respectively, of Liberty Broadband. Additionally, each holder of a share of Series A Cumulative Redeemable Preferred Stock of GCI Liberty received one share of newly issued Liberty Broadband Series A Cumulative Redeemable Preferred Stock, which has substantially identical terms to GCI Liberty's former Series A Cumulative Redeemable Preferred Stock, including a mandatory redemption date of March 9, 2039. Cash was paid in lieu of issuing fractional shares of Liberty Broadband stock in the Combination. No shares of Liberty Broadband stock were issued with respect to shares of GCI Liberty capital stock held by (i) GCI Liberty as treasury stock, (ii) any of GCI Liberty's wholly owned subsidiaries or (iii) Liberty Broadband or its wholly owned subsidiaries.

In connection with the Broadband Spin-Off, Liberty and Liberty Broadband entered into certain agreements in order to govern certain of the ongoing relationships between the two companies after the Broadband Spin-Off and to provide for an orderly transition, including a services agreement and a facilities sharing agreement. Additionally, in connection with a prior transaction, GCI Liberty and Qurate Retail, Inc. ("Qurate Retail") (for accounting purposes a related party of the Company) entered into a tax sharing agreement, which was assumed by Liberty Broadband as a result of the Combination. The tax sharing agreement provides for the allocation and indemnification of tax liabilities and benefits between Qurate Retail and Liberty Broadband and other agreements related to tax matters.

Pursuant to the services agreement, Liberty provides Liberty Broadband with general and administrative services including legal, tax, accounting, treasury and investor relations support. In December 2019, the Company entered into an amendment to the services agreement with Liberty in connection with Liberty's entry into a new employment arrangement with Gregory B. Maffei, the Company's President and Chief Executive Officer. Under the amended services agreement, components of his compensation would either be paid directly to him by each of the Company, Liberty TripAdvisor Holdings, Inc. ("TripCo"), GCI Liberty, and Qurate Retail (collectively, the "Service Companies") or reimbursed to Liberty, in each case, based on allocations among Liberty and the Service Companies set forth in the amended services agreement. For the years ended December 31, 2021 and 2020, the allocation percentage for Liberty Broadband was 37% and 18%, respectively. Following the Combination, GCI Liberty no longer participates in the services agreement arrangement. The amended services agreement between Liberty and Mr. Maffei provides for a five year employment term which began on January 1, 2020 and ends December 31, 2024, with an aggregate annual base salary of $3 million (with no contracted increase), an aggregate one-time cash commitment bonus of $5 million (paid in December 2019), an aggregate annual target cash performance bonus of $17 million, aggregate annual equity awards of approximately $18 million and aggregate equity awards granted in connection with his entry into his new agreement of $90 million (the "upfront awards"). A portion of the grants made to our CEO in the years ended December 31, 2020 and 2019 related to our Company's allocable portion of these upfront awards.

Under the facilities sharing agreement, Liberty Broadband shares office space with Liberty and related amenities at Liberty's corporate headquarters. Liberty Broadband will reimburse Liberty for direct, out-of-pocket expenses incurred by Liberty in providing these services and for costs that will be negotiated semi-annually.

In December 2019, Chinese officials reported a novel coronavirus ("COVID-19") outbreak. COVID-19 has since spread through China and internationally. On March 11, 2020, the World Health Organization assessed COVID-19 as a global pandemic, causing many countries throughout the world to take aggressive actions, including imposing travel restrictions and stay-at-home orders, closing public attractions and restaurants, and mandating social distancing practices, which has caused a significant disruption to most sectors of the economy.

* * * * *

Certain statements in this Annual Report on Form 10-K constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, including statements regarding business, product and marketing strategies; new service and product offerings; revenue growth; future expenses; anticipated changes to regulations; the recognition of deferred revenue; the recoverability of our goodwill and other long-lived assets; competition; the performance, results of operations and cash flows of our equity affiliate, Charter; projected sources and uses of cash; renewal of licenses; the effects of regulatory developments; the impact of COVID-19; the Rural Healthcare Program; indebtedness and the anticipated impact of certain contingent liabilities related to legal and tax proceedings and other matters arising in the ordinary course of business. In particular, statements under Item 1. "Business," Item 1A. "Risk Factors," Item 2. "Properties," Item 7. "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Item 7A. "Quantitative and Qualitative Disclosures About Market Risk" contain forward-looking statements. Forward-looking statements inherently involve many risks and uncertainties that could cause actual results to differ materially from those projected in these statements. Where, in any forward-looking statement, we express an expectation or belief as to future results or events, such expectation or belief is expressed in good faith and believed to have a reasonable basis, but such statements necessarily involve risks and uncertainties and there can be no assurance that the expectation or belief will result or be achieved or accomplished. The following include some but not all of the factors that could cause actual results or events to differ materially from those anticipated:

- our, GCI Holdings and Charter's ability to obtain cash in sufficient amounts to service financial obligations and meet other commitments;
- our ability to use net operating loss carryforwards and disallowed business interest carryforwards;
- our, GCI Holdings, GCI, LLC and Charter's ability to obtain additional financing, or refinance existing indebtedness, on acceptable terms;
- the impact of our, GCI Holdings, GCI, LLC and Charter's significant indebtedness and our, GCI Holdings and Charter's ability to comply with any covenants in our and their respective debt instruments;
- general business conditions, unemployment levels and the level of activity in the housing sector and economic uncertainty or downturn, including the impact of the COVID-19 pandemic to sales opportunities from residential move activity, GCI Holdings and Charter's customers and vendors and local, state and federal governmental responses to the pandemic;
- competition faced by GCI Holdings and Charter;
- the ability of GCI Holdings and Charter to acquire and retain subscribers;
- the impact of governmental legislation and regulation including, without limitation, regulations of the Federal Communications Commission (the "FCC"), on GCI Holdings and Charter, their ability to comply with regulations, and adverse outcomes from regulatory proceedings;
- changes in the cost of programming expenses and the ability of GCI Holdings and Charter to pass on related costs to their customers;
- changes in the amount of data used on the networks of GCI Holdings and Charter;

- the ability of third-party providers to supply equipment, services, software or licenses;
- the ability of GCI Holdings and Charter to respond to new technology and meet customer demands for new products and services;
- changes in customer demand for the products and services of GCI Holdings and Charter and their ability to adapt to changes in demand;
- the ability of GCI Holdings and Charter to license or enforce intellectual property rights;
- natural or man-made disasters, terrorist attacks, pandemics; cyberattacks, network disruptions, service interruptions and system failures and the impact of related uninsured liabilities;
- the ability to hire and retain key personnel;
- the ability to procure necessary services and equipment from GCI Holdings' and Charter's vendors in a timely manner and at reasonable costs;
- risks related to the Investment Company Act of 1940;
- the outcome of any pending or threatened litigation; and
- changes to general economic conditions, including economic conditions in Alaska, and their impact on potential customers, vendors and third parties.

These forward-looking statements and such risks, uncertainties and other factors speak only as of the date of this Annual Report, and we expressly disclaim any obligation or undertaking to disseminate any updates or revisions to any forward-looking statement contained herein, to reflect any change in our expectations with regard thereto, or any other change in events, conditions or circumstances on which any such statement is based. When considering such forward-looking statements, you should keep in mind the factors described in Item 1A, "Risk Factors" and other cautionary statements contained in this Annual Report. Such risk factors and statements describe circumstances which could cause actual results to differ materially from those contained in any forward-looking statement.

This Annual Report includes information concerning Charter, a public company that files reports and other information with the Securities and Exchange Commission (the "SEC") in accordance with the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Information in this Annual Report concerning Charter has been derived from the reports and other information filed by it with the SEC. If you would like further information about Charter, the reports and other information it files with the SEC can be accessed on the Internet website maintained by the SEC at www.sec.gov. Those reports and other information are not incorporated by reference in this Annual Report.

Description of Business

The following table identifies the Company's more significant subsidiaries and minority investments:

Consolidated Subsidiaries
GCI Holdings

Equity Method Investments
Charter Communications, Inc. (Nasdaq: CHTR)

GCI Holdings, LLC

GCI Holdings, a wholly owned subsidiary of the Company, provides a full range of wireless, data, video, voice, and managed services to residential customers, businesses, governmental entities, and educational and medical institutions primarily in Alaska under the GCI brand. Due to the unique nature of the markets it serves, including harsh winter weather and remote geographies, its customers rely extensively on its systems to meet their communication and entertainment needs.

Since its founding in 1979 as a competitive long distance provider, GCI Holdings has consistently expanded its product portfolio and facilities to become the leading integrated communication services provider in markets it serves. Its facilities include redundant and geographically diverse digital undersea fiber optic cable systems linking its Alaska terrestrial networks to the networks of other carriers in the lower 48 contiguous states and a statewide wireless network.

Throughout its history, GCI Holdings has successfully added and expects to continue to add new products to its product portfolio. GCI Holdings has a demonstrated history of new product evaluation, development and deployment for its customers, and it continues to assess revenue-enhancing opportunities that create value for its customers. Where feasible and where economic analysis supports geographic expansion of its network coverage, it is currently pursuing or expects to pursue opportunities to increase the scale of its facilities, enhance its ability to serve existing customers' needs and attract new customers. Additionally, due to the unique market conditions in Alaska, GCI Holdings, and in some cases its customers, participate in several federally (and to a lesser extent locally) subsidized programs designed to financially support the implementation and purchase of telecommunications services in high cost areas. With these programs, GCI Holdings has been able to expand its network into previously undeveloped areas of Alaska and offer comprehensive communications services in many rural parts of the state where it would not otherwise be able to construct facilities within appropriate return-on-investment requirements.

GCI Holdings' revenue was comprised of the following:

	Years ended December 31,		
	2021	**2020**	**2019**
Data services	60%	56%	51%
Wireless services	27%	27%	22%
Video, voice and other services	13%	17%	27%

GCI Holdings sells new and enhanced services and products to its existing customer base to achieve increased revenue and penetration of its services. Through close coordination of its customer service and sales and marketing efforts, its customer service representatives suggest to its customers other services they can purchase or enhanced versions of services they already purchase. Many calls into the customer service centers or visits into one of the retail stores result in sales of additional services and products.

GCI Holdings has empowered its customer service representatives to handle most service issues and questions on a single call. GCI Holdings prioritizes its customer services to expedite handling of its most valuable customers' issues, particularly for its largest commercial customers. GCI Holdings believes its integrated approach to customer service, including service set-up, programming various network databases with the customer's information, installation, and ongoing service, allows it to provide a customer experience that fosters customer loyalty.

GCI Holdings continues to expand and evolve its integrated network for the delivery of its services. GCI Holdings' bundled strategy and integrated approach to serving customers creates efficiencies of scale and maximizes network utilization. By offering multiple services, GCI Holdings is better able to leverage its network assets and increase returns on its invested capital. GCI Holdings periodically evaluates its network assets and continually monitors technological developments that it can potentially deploy to increase network efficiency and performance.

GCI Holdings holds a number of federally registered service marks used by its business. It owns two utility patents issued in 2017 pertaining to device diagnostics and network connectivity. The Communications Act of 1934, as amended (the "Communications Act"), gives the FCC the authority to license and regulate the use of the electromagnetic spectrum for radio communications. GCI Holdings holds licenses for its satellite and microwave transmission facilities for provision of long-distance services. GCI Holdings holds various licenses for wireless spectrum. These licenses may be revoked and license renewal applications may be denied for cause. However, GCI Holdings expects these licenses to be renewed in due course when, at the end of the license period, a renewal application will be filed.

GCI Holdings has licenses for earth stations that are generally licensed for fifteen years. The FCC also issues a single blanket license for a large number of earth stations operating in specific frequency bands. Its operations may require additional licenses in the future.

GCI Holdings is certified through the Regulatory Commission of Alaska ("RCA") to provide local, long distance, and video service by Certificates of Public Convenience and Necessity (“CPCN”). These CPCNs are nonexclusive certificates defining each authorized service area. Although CPCNs have no stated expiration date, they may be revoked due to cause.

Network Services Facilities. GCI Holdings operates an advanced, diverse communications network providing data, mobile, video, voice, and managed services to consumer, business, government, and carrier customers throughout Alaska.

GCI Holdings serves urban and rural Alaska utilizing a combination of fiber, microwave, and satellite technologies. GCI Holdings is currently expanding its fiber network to the Aleutian Chain and expects to launch urban-level service in the region. GCI Holdings’ extensive use of microwave and satellite technologies also enables it to deliver connectivity to some of Alaska’s most-remote communities.

GCI Holdings owns and operates a statewide wireless network providing voice and data services to Alaskans. Its statewide wireless network provides fifth generation (“5G”) data service, 4G Long Term Evolution (“LTE”) voice and data service, EVDO, 3G UMTS/HSPA+, 2G CDMA, and 2G GSM/EDGE service. It continues to expand and upgrade these services to provide a modern network for Alaska.

GCI Holdings’ dedicated internet access and suite of managed services, including voice, WiFi, firewall, detection and response operate on the highest-capacity backbone in Alaska, with numerous peering partners in Seattle and Portland. The availability and quality of service, as well as statistical information on traffic loading, are continuously monitored for quality assurance. The management platform has the capability to remotely access network elements and service end-points, permitting changes in configuration without the need to physically be at the service end-point. This management platform allows GCI Holdings to offer network monitoring and management services to businesses and governmental entities.

GCI Holdings’ video businesses are located throughout Alaska and serve the majority of the population. Its facilities include hybrid-fiber-coax plant and head-end distribution equipment. The majority of its locations on the fiber routes are served from head-end distribution equipment in Anchorage. All of its cable systems are completely digital. In preparation for GCI Holdings’ progression to 10 gigabit internet, it is transitioning from traditional delivery methods to an Internet Protocol ("IP") video solution.

Charter Communications, Inc.

Introduction

Charter is a leading broadband connectivity company and cable operator serving more than 32 million customers in 41 states through its Spectrum brand. Over an advanced high-capacity, two-way telecommunications network, Charter offers a full range of state-of-the-art residential and business services including Spectrum Internet®, TV, Mobile and Voice. For small and medium-sized companies, Spectrum Business® delivers the same suite of broadband products and services coupled with special features and applications to enhance productivity, while for larger businesses and government entities, Spectrum Enterprise provides highly customized, fiber-based solutions. Spectrum Reach® delivers tailored advertising and production for the modern media landscape. Charter also distributes award-winning news coverage, sports and high-quality original programming to its customers through Spectrum Networks and Spectrum Originals.

Charter’s network, which it owns and operates, passes over 54 million households and small and medium businesses (“SMBs”) across the United States. Charter’s core strategy is to use its network to deliver high quality products at competitive prices, combined with outstanding customer service. This strategy, combined with simple, easy to understand pricing and packaging, is central to Charter’s goal of growing its customer base while selling more of its core connectivity services, which include both fixed and mobile Internet, video and voice services, to each customer. Charter executes this strategy by managing its operations in a consumer-friendly, efficient and cost-effective manner.

The capability and functionality of Charter’s network continues to grow in a number of areas, especially with respect to wireless connectivity. Charter’s Internet service offers consumers the ability to wirelessly connect to its network using WiFi technology. Charter estimates that over 400 million devices are wirelessly connected to its network through WiFi. In addition, Charter extends Internet connectivity to its customers beyond the home via its Spectrum Mobile™ product through Charter’s mobile virtual network operator (“MVNO”) partnership agreement with Verizon Communications Inc. ("Verizon"). Charter intends to use Citizens Broadband Radio Service (“CBRS”) Priority Access Licenses (“PALs”) that Charter purchased in 2020, along with unlicensed CBRS spectrum, to build its own 5G mobile data-only network on its existing infrastructure in targeted geographies where there is high outdoor cellular traffic volume. This effort, in combination with its expanding WiFi network and continued 5G enhancements within the MVNO partnership agreement, should position Charter’s mobile product for continued customer experience and cost structure improvements.

Products and Services

Charter offers its customers subscription-based Internet services, video services, and mobile and voice services. Charter’s services are offered to residential and commercial customers on a subscription basis, with prices and related charges based on the types of service selected, whether the services are sold as a “bundle” or on an individual basis, and based on the equipment necessary to receive Charter’s services. Bundled services are available to substantially all of Charter’s passings, and approximately 53% of Charter’s residential customers subscribe to a bundle of services, including some combination of Charter’s Internet, video and/or voice products.

The following table from Charter's Form 10-K for the year ended December 31, 2021 summarizes Charter's customer statistics for Internet, video, voice and mobile as of December 31, 2021 and 2020 (in thousands except per customer data and footnotes).

	Approximate as of December 31,	
	2021 (a)	2020 (a)
Customer Relationships (b)		
Residential	29,926	29,079
SMB	2,143	2,051
Total Customer Relationships	32,069	31,130
Monthly Residential Revenue per Residential Customer (c)	$ 113.61	$ 111.15
Monthly SMB Revenue per SMB Customer (d)	$ 165.50	$ 165.60
Internet		
Residential	28,137	27,023
SMB	1,952	1,856
Total Internet Customers	30,089	28,879
Video		
Residential	15,216	15,639
SMB	617	561
Total Video Customers	15,833	16,200
Voice		
Residential	8,621	9,215
SMB	1,282	1,224
Total Voice Customers	9,903	10,439
Mobile Lines		
Residential	3,448	2,320
SMB	116	55
Total Mobile Lines	3,564	2,375
Enterprise Primary Service Units ("PSUs") (e)	272	259

(a) Charter calculates the aging of customer accounts based on the monthly billing cycle for each account. On that basis, as of December 31, 2021 and 2020, customers include approximately 150,700 and 168,400 customers, respectively, whose accounts were over 60 days past due, approximately 39,900 and 17,800 customers, respectively, whose accounts were over 90 days past due, and approximately 43,500 and 11,100 customers, respectively, whose accounts were over 120 days past due. The increase in the past due accounts is predominately due to pre-existing balances for customers participating in the Emergency Broadband Benefit program through which a customer's monthly payment is subsidized by the federal government.

(b) Customer relationships include the number of customers that receive one or more levels of service, encompassing Internet, video and voice services, without regard to which service(s) such customers receive. Customers who reside in residential multiple dwelling units ("MDUs") and that are billed under bulk contracts are counted based on the number of billed units within each bulk MDU. Total customer relationships exclude enterprise and mobile-only customer relationships.

(c) Monthly residential revenue per residential customer is calculated as total residential annual revenue divided by twelve divided by average residential customer relationships during the respective year and excludes mobile revenue and customers.

(d) Monthly SMB revenue per SMB customer is calculated as total SMB annual revenue divided by twelve divided by average SMB customer relationships during the respective year and excludes mobile revenue and customers.

(e) Enterprise PSUs represent the aggregate number of fiber service offerings counting each separate service offering at each customer location as an individual PSU.

Residential Services

Connectivity Services

Charter provides its customers with a suite of connectivity services including fixed Internet, WiFi and mobile internet which when bundled together provides Charter's customers with a differentiated Internet connectivity experience while saving consumers and businesses money.

Charter's standard entry level fixed Internet download speed is at least 200 megabits per second ("Mbps") in 85% of its footprint and 100 Mbps across the remainder of its footprint, which among other things, allows several people within a single household to stream high definition ("HD") video content while simultaneously using its Internet service for other purposes. Additionally, leveraging DOCSIS 3.1 technology, Charter offers Spectrum Internet Gig speed service (Internet speeds up to 1 gigabit per second ("Gbps")) across its footprint.

Charter also offers an in-home WiFi product that provides its Internet customers with high performance wireless routers and a managed WiFi service to maximize their fixed wireless Internet experience. During 2021, Charter completed its roll out of the Advanced Home WiFi ("AHW") service which is now available across nearly all of its residential footprint along with the deployment of WiFi 6 routers capable of delivering speeds over 1 Gbps. With AHW, customers enjoy a cloud-optimized WiFi connection and have the ability to view and control their WiFi network through the Spectrum application ("My Spectrum App"). The service enables parental control schedules to be set for children's devices or limit access entirely to unknown devices attempting to access the network. Customers also have the option to add Spectrum WiFi pods to AHW. WiFi pods are small, discreet and powerful access points that plug into electrical outlets in the home, providing broader and more consistent WiFi coverage. In 2022, Charter will begin rolling out Spectrum Security Shield across the residential footprint which protects all devices in the home using network-based security. This free security suite provides end point protection to computers in the home, enabling protection against computer viruses, spyware and threats from malicious actors across the Internet.

In 2021, Charter brought the capabilities of the AHW service to MDUs as Advanced Community WiFi ("ACW"). With ACW, tenants will receive the same visibility and control over their apartment's WiFi networks through the My Spectrum App, while building managers will be able to see and manage the entire building's network through a purpose-built property service portal.

The Spectrum Mobile service is offered to customers subscribing to Charter's fixed Internet service, and runs on Verizon's mobile network, combined with Spectrum WiFi. Charter offers nationwide 5G service at no incremental cost to its mobile customers enabling them to stream content several times faster and reducing latency when connecting to apps or webpages where 5G coverage exists. In addition, Charter continues to focus on improving the customer experience and integrating its mobile and fixed Internet products, providing greater WiFi access, speeds and performance using more than 500,000 of its out of home WiFi access points across its footprint combined with over 20 million out of home WiFi access points of its industry partners providing near nationwide coverage.

Charter provides wireline voice communications services using voice over Internet protocol ("VoIP") technology to transmit digital voice signals over its network. Charter's voice services include unlimited local and long distance calling to the United States, Canada, Mexico and Puerto Rico, voicemail, call waiting, caller ID, call forwarding and other features and offers international calling either by the minute, or through packages of minutes per month. For customers that subscribe to both Charter's voice and video offerings, caller ID on TV is also available in most areas. In early 2021, Charter launched Call Guard, a new advanced caller ID and robocall blocking solution, for its residential and SMB voice customers. Call Guard reduces customer frustration and improves security by blocking malicious calls while ensuring customers continue to receive the legitimate automated calls they need from schools or healthcare providers.

Video Services

Charter provides its customers with a choice of video programming services on a variety of platforms including through a digital set-top box or an IP device. Video customers have access to a variety of programming packages with over 375 channels of in home and approximately 350 channels out of home allowing its customers to access the programming they want, when they want it, on any device. Charter's video customers also have access to programmer authenticated applications such as Fox Now, Showtime and ESPN and direct to consumer applications such as Netflix, YouTube and HBO Max on certain set-top boxes. Charter's video service also includes access to an interactive programming guide with parental controls and in virtually all of its footprint, video on demand ("VOD") or pay-per-view services. VOD service allows customers to select from approximately 80,000 titles at any time including original content which is exclusive for a period of time through Spectrum Originals such as Joe Pickett and Temple. VOD programming options may be accessed at no additional cost if the content is associated with a customer's linear subscription, or for a fee on a transactional basis. VOD services are also offered on a subscription basis included in a digital tier premium channel subscription or for a monthly fee. Pay-per-view channels allow customers to pay on a per-event basis to view a single showing of a one-time special sporting event, music concert, or similar event on a commercial-free basis. Charter also offers digital video recorder ("DVR") service that enables customers to digitally record programming and to pause and rewind live programming on set-top boxes and cloud DVR service, which allows customers to schedule, record and watch their favorite programming anytime from connected IP devices as well as SpectrumTV.com.

Customers are increasingly accessing their subscription video content through Charter's highly rated Spectrum TV® application via connected IP devices via its IP network. Access to the Spectrum TV application is included in all Spectrum TV video plans and allows users to stream content across a growing number of platforms as well as accessing their full TV lineup, watching on demand content and the ability to program their DVR from anywhere. Customers are also able to purchase their video services within the Spectrum TV application.

Commercial Services

Charter offers scalable broadband communications solutions for businesses and carrier organizations of all sizes, selling Internet access, data networking, fiber connectivity to cellular towers and office buildings, video entertainment services and business telephone services.

Small and Medium Business

Spectrum Business offers Internet, voice and video services to SMBs over its hybrid fiber coaxial network. In addition, Charter offers its Spectrum Mobile service to SMB customers. Spectrum Business includes a full range of video programming and entry-level Internet speeds of 200 Mbps downstream and 10 Mbps upstream in virtually all of its markets. Additionally, customers can upgrade their Internet speeds by purchasing Internet Ultra (600 Mbps downstream) or Internet Gig. Spectrum Business also includes a set of business services including static IP and business WiFi, e-mail and security, and multi-line telephone services with more than 35 business features including web-based service management, that are generally not available to residential customers. Charter also offers Wireless Internet Backup to its SMB customers throughout its footprint. Wireless Internet Backup is designed to enhance and protect Internet service for SMBs in the event of a network disruption.

Enterprise

Spectrum Enterprise offers tailored communications products and managed service solutions to larger businesses and government entities (local, state and federal), as well as high-capacity last-mile network connectivity services to mobile and wireline carriers on a wholesale basis. The Spectrum Enterprise product portfolio includes connectivity services such as Internet Access (fiber, wireless and coax delivered); Wide Area Network ("WAN") solutions (Ethernet, SD-WAN and cloud connectivity) that privately and securely connect geographically dispersed customer locations and cloud service providers; and Managed Services which address a wide range of enterprise networking (e.g. routing, WiFi) and security (e.g. firewall, DDoS protection) challenges. To meet the communications needs of these more sophisticated customers, Spectrum Enterprise also offers an array of voice trunking services and unified messaging communications and collaboration solutions. In addition, for industries such as hospitality, education and healthcare where specialized video solutions are demanded, Spectrum Enterprise offers a wide range of solutions designed to meet those requirements. Spectrum Enterprise serves businesses nationally by combining its large serviceable footprint with a robust portfolio of fiber lit buildings and a significant wholesale partner network. As a result, these customers benefit by obtaining advanced solutions from a single provider who is committed to an exceptional customer experience and who delivers compelling value by simplifying procurement and offering competitive pricing potentially reducing their costs.

Advertising Services

Charter's advertising sales division, Spectrum Reach, offers local, regional and national businesses the opportunity to advertise in individual and multiple service areas on cable television networks, various streaming services and numerous advanced advertising platforms. Charter receives revenue from the sale of local advertising across various platforms for networks such as TBS, CNN and ESPN and on its Sprectrum TV application. Charter inserts local advertising on up to 100 channels in over 90 markets. Charter's large footprint provides opportunities for advertising customers to address broader regional audiences from a single provider and thus reach more customers with a single transaction. Charter's size also provides scale to invest in new technology to create more targeted and addressable advertising capabilities.

Available advertising time is generally sold by Charter's advertising sales force. In some service areas, Charter has formed advertising interconnects or entered into representation agreements with other video distributors, including, among others, Verizon, AT&T Inc. ("AT&T"), and Comcast Corporation, under which Charter sells advertising on behalf of those operators. In other service areas, Charter enters into representation agreements under which another operator in the area will sell advertising on its behalf. These arrangements enable Charter and its partners to deliver linear commercials across wider geographic areas, replicating the reach of local broadcast television stations to the extent possible. In addition, Charter enters into interconnect agreements from time to time with other cable operators, which, on behalf of a number of video operators, sells advertising time to national and regional advertisers in individual or multiple service areas.

Additionally, Charter sells the advertising inventory of its owned and operated local sports and news channels, of its regional sports networks that carry Los Angeles Lakers' basketball games and other sports programming and of SportsNet LA, a regional sports network that carries Los Angeles Dodgers' baseball games and other sports programming.

In 2021, Charter continued to expand its deployment of household addressability ("HHA"), which allows for more precise targeting within various parts of its footprint. Additionally, in conjunction with other MVPDs, Spectrum Reach enables affiliated cable networks to deploy HHA on their own inventory in Charter's footprint, charging them an enablement fee. Charter also continues to further enhance its Ad Portal, which allows small businesses to purchase local cable advertising and/or creative services via its web portal with no sales personnel interaction at a price within their budgets. Charter's fully deployed Audience App, which uses its proprietary set-top box viewership data (all anonymized and aggregated), allows Charter to create data-driven linear TV campaigns for local advertisers. Streaming TV, which is largely comprised of Spectrum TV application impressions, as well as those from numerous over-the-top streaming content providers, is part of its suite of advanced advertising products available to the marketplace. Finally, Spectrum Reach is now employing multi-screen deterministic attribution services for television and streaming services that lets advertisers know the effectiveness of their advertising on Spectrum Reach's platform.

Other Services

Regional Sports Networks

Charter has an agreement with the Los Angeles Lakers for rights to distribute all locally available Los Angeles Lakers' games through 2033. Charter broadcasts those games on its regional sports network, Spectrum SportsNet. American Media Productions, LLC ("American Media Productions"), an unaffiliated third party, owns SportsNet LA, a regional sports network carrying the Los Angeles Dodgers' baseball games and other sports programming. In accordance with agreements with American Media Productions, Charter acts as the network's exclusive affiliate and advertising sales representative and has certain branding and programming rights with respect to the network. In addition, Charter provides certain production and technical services to American Media Productions. The affiliate, advertising, production and programming agreements continue through 2038. Charter also owns 26.8% of Sterling Entertainment Enterprises, LLC (doing business as SportsNet New York), a New York City-based regional sports network that carries New York Mets' baseball games as well as other regional sports programming.

News Networks

Charter manages 34 local news channels, including Spectrum News NY1® and LA1, 24-hour news channels focused on New York City and Los Angeles, respectively. Charter's local news channels connect the diverse communities and neighborhoods Charter serves providing 24/7 hyperlocal content, focusing on news, programming and storytelling that addresses the deeper needs and interests of its customers. Charter also provides the Spectrum News application where customers can read, watch and listen to news stories by its Spectrum News journalists and local partner publications on their mobile device.

Pricing of Charter's Products and Services

Charter's revenue is principally derived from the monthly fees customers pay for the services Charter provides. Charter typically charges a one-time installation fee which is sometimes waived or discounted in certain sales channels during certain promotional periods.

Charter's Spectrum pricing and packaging ("SPP") generally offers a standardized price for each tier of service, bundle of services, and add-on service in a service area. Charter also has specialized offerings to enhance affordability of its Internet product for qualified low-income households which include its Spectrum Internet Assist product which offers a 30 Mbps service and a free modem for a low cost. In addition, some of Charter's customers are eligible for a subsidy through the FCC Affordable Connectivity Program which provides eligible low-income households with up to $30 per month towards Internet service.

Charter's mobile customers can choose one of two simple ways to pay for data. Customers can choose from unlimited or by-the-gig data usage plans and can easily switch between mobile data plans during the month. All plans include 5G service, free nationwide talk and text, and simple pricing that includes all taxes and fees. In October 2021, Charter implemented new multi-line unlimited data plans at lower prices for customers with two or more lines, at least one of which is an unlimited line. Customers can also purchase mobile devices and accessory products and have the option to pay for devices under interest-free monthly installment plans. Charter's device portfolio includes 5G models from Apple, Google and Samsung and Charter offers trade-in options along with a bring-your-own device program which lowers the costs for its customers switching to Spectrum Mobile from other mobile operators.

Charter's Network Technology

Charter's network includes three key components: a national backbone, regional/metro networks and a "last-mile" network. Both its national backbone and regional/metro network components utilize a redundant IP ring/mesh architecture. The national backbone component provides connectivity from regional demarcation points to nationally centralized content, connectivity and services. The regional/metro network components provide connectivity between the regional demarcation points and headends within a specific geographic area and enable the delivery of content and services between these network components.

Charter's last-mile network utilizes a hybrid fiber coaxial cable ("HFC") architecture, which combines the use of fiber optic cable with coaxial cable. In most systems, Charter delivers its signals via fiber optic cable from the headend to a group of nodes, and uses coaxial cable to deliver the signal from individual nodes to the homes served by that node. For Charter's Spectrum Enterprise customers, fiber optic cable is extended to the customer's site. For certain new build and MDU sites, Charter increasingly brings fiber to the customer site. Charter's design standard allows spare fiber strands to each node to be utilized for additional residential traffic capacity, and enterprise customer needs as they arise. Charter believes that this hybrid network design provides high capacity and signal quality.

HFC architecture benefits include:

- bandwidth capacity to enable traditional and two-way video and broadband services;
- dedicated bandwidth for two-way services;
- signal quality and high service reliability;
- a powered network enabling WiFi and Charter's future 5G small cell access points; and
- the ability to upgrade capacity at a lower incremental capital cost relative to its competitors.

Charter's systems provide a two-way all-digital platform, leveraging DOCSIS 3.1 technology and bandwidth of 750 megahertz or greater, to approximately 100% of its estimated passings. This bandwidth-rich network enables Charter to offer a large selection of HD channels and Spectrum Internet Gig and encrypted signals facilitate self-installs resulting in lower installation costs and truck rolls. Charter believes as demand for data continues to grow, with its deployed DOCSIS 3.1 technology, Charter has the ability to increase speeds and reliability by allocating more of its plant bandwidth to both upstream and downstream IP services in a variety of ways, including moving its video services to MPEG-4 compression, moving more HD video content to switched digital video and more efficiently packaging its traditional linear video services. Charter is also evaluating additional network enhancements to increase the capacity of its network for next generation products and services that give Charter the ability to offer multi-gigabit downstream speeds and up to one Gbps upstream speeds all in advance of migrating towards the next standard, DOCSIS 4.0, which Charter is currently developing with key vendors and industry participants. In 2022, Charter will continue to deploy high splits in its service areas which are a capital efficient means of enhancing Charter's network, as they use current DOCSIS 3.1 customer premise equipment and reduce the need for node splits, which were required as average consumer bandwidth utilization increased.

Charter owns 210 CBRS PALs and intends to use these licenses along with unlicensed CBRS spectrum to build its own 5G data-only mobile network on targeted 5G small cell sites leveraging its HFC network to provide power and data connectivity to the majority of the sites. These 5G small cells, combined with improving WiFi capabilities, increase speed and reliability along with improving Charter's cost structure. Charter is focused on scaling its systems to actively manage traffic on Spectrum Mobile devices using its MVNO, network through WiFi and future 5G mobile network. In addition, Charter plans on deploying some targeted 5G small cell sites which will help it learn how to pace its broader multi-year 5G mobile network build-out based on disciplined cost reduction targets.

In 2021, Charter continued its rural broadband construction initiative in which it intends to expand its network and offer reliable broadband services of up to one Gbps to more than one million estimated passings in unserved areas in states where it currently operates. Charter expects to invest over $5 billion over the next several years, a portion of which it expects to offset with government funding including $1.2 billion of support won in the Rural Digital Opportunity Fund ("RDOF") auction and other federal, state and municipal grants that are available or that it expects to become available. In addition to construction in areas subsidized by various government grants, which could be material, Charter expects to continue rural construction in areas near its current plant and in areas surrounding subsidized construction where synergies can be achieved. These investments will allow Charter to generate long-term infrastructure-style returns by further taking advantage of the efficiencies of the scale and quality of its network and construction capabilities while offering its high quality products and services to more homes and businesses. Charter expects these newly-served homes will be enabled to engage in distance learning, remote work, telemedicine and other bandwidth-heavy applications that require high speed broadband connectivity. Newly-served rural areas will also benefit from Charter's high-value SPP structure including its voice and mobile offerings, as well as its comprehensive selection of video products. The successful and timely execution of such fiber-based construction is dependent on a variety of external factors, including the make-ready and utility pole permitting processes. With fewer homes and businesses in these areas, broadband providers need to access multiple poles per home, as opposed to multiple homes per pole in higher-density settings. As a result, pole applications, pole replacement rules and their affiliated issue resolution processes are all factors that can have a significant impact on construction timing and speed to completion. The RDOF auction rules and other subsidy grants establish construction milestones for the build-out utilizing subsidized funding. Failure to meet those milestones could subject Charter to financial penalties.

Management, Customer Operations and Marketing

Charter's operations are centralized, with senior executives responsible for coordinating and overseeing operations, including establishing company-wide strategies, policies and procedures. Sales and marketing, field operations, customer operations, network operations, engineering, advertising sales, human resources, legal, government relations, information technology and finance are all directed at the corporate level. Regional and local field operations are responsible for customer premise service transactions and maintaining and constructing that portion of Charter's network which is located outdoors. Charter's field operations strategy includes completing a significant portion of its activity with its employees which Charter finds drives consistent and higher quality services. In 2021, Charter's in-house field operations workforce handled approximately 80% of its customer premise service transactions.

Charter continues to focus on improving the customer experience through enhanced product offerings, reliability of services, and delivery of quality customer service. As part of Charter's operating strategy, Charter insources most of its customer operations workload. Charter's in-house call centers handle nearly all of Charter's total customer service calls. Charter manages its customer service call centers centrally to ensure a consistent, high quality customer experience. In addition, Charter routes calls by call type to specific agents that only handle such call types, enabling agents to become experts in addressing specific customer needs, creating a better customer experience. Service from Charter's call centers continues to become more efficient as a result of new tool enhancements that give its front-line customer service agents more context and real-time information about the customer and their services which allows them to more effectively troubleshoot and resolve issues. Charter's call center agent desktop interface tool enables virtualization of all call centers thereby better serving its customers. Virtualization allows calls to be routed across Charter's call centers regardless of the location origin of the call, reducing call wait times, and saving costs. Charter continues to migrate its call centers to full virtualization and expects all of its call centers to be fully virtualized by late 2022.

Charter also provides customers with the opportunity to interact with it in the manner they choose through self-service options on its customer website and mobile device applications, or via telephonic communication, online chat, and social media. Charter's customer websites and mobile applications enable customers to pay their bills, manage their accounts, order and activate new services and utilize self-service help and support. In addition, Charter's self-install program has enabled product installations to continue despite COVID-19 social distancing challenges and has been beneficial for customers who need flexibility in the timing of their installation.

Charter sells its residential and commercial services using national brand platforms known as Spectrum, Spectrum Business, Spectrum Enterprise and Spectrum Reach. These brands reflect Charter's comprehensive approach to industry-leading products, driven by speed, performance and innovation. Charter's marketing strategy emphasizes the sale of its bundled services through targeted direct response marketing programs to existing and potential customers, and increases awareness and the value of the Spectrum brand. Charter's marketing organization creates and executes marketing programs intended to grow customer relationships, increase the number of services it sells per relationship, retain existing customers and cross-sell additional products to current customers. Charter monitors the effectiveness of its marketing efforts, customer perception, competition, pricing, and service preferences, among other factors, in order to increase its responsiveness to customers and to improve sales and customer retention. Charter's marketing organization manages all residential and SMB sales channels including inbound, direct sales, on-line, outbound telemarketing and stores.

Programming

Charter believes that offering a wide variety of video programming choices influences a customer's decision to subscribe and retain its cable video services. Charter obtains basic and premium programming, usually pursuant to written contracts, from a number of suppliers. Media corporation and broadcast station group consolidation has, however, resulted in fewer suppliers and additional selling power on the part of programming suppliers.

Programming is usually made available to Charter for a license fee, which is generally paid based on the number of customers to whom it makes that programming available. Programming license fees may include "volume" discounts and financial incentives to support the launch of a channel and/or ongoing marketing support, as well as discounts for channel placement or service penetration. For home shopping channels, Charter typically receives a percentage of the revenue attributable to its customers' purchases. Charter also offers VOD and pay per view channels of movies and events that are subject to a revenue split with the content provider. Although an insignificant amount of Charter's programming budget, recently Charter has begun entering into agreements to co-produce or exclusively license original content which gives it the right to provide its customers with certain exclusive content for a period of time.

Charter's programming costs have historically increased in excess of customary inflationary and cost-of-living type increases. Charter expects programming costs per customer to increase due to a variety of factors including, annual increases pursuant to Charter's programming contracts, contract renewals with programmers and the carriage of incremental programming, including new services and VOD programming. Increases in the cost of sports programming and the amounts paid for broadcast station retransmission consent have been the largest contributors to the growth in Charter's programming costs over the last few years. Additionally, the demands of large media companies who link carriage of their most popular networks to carriage and cost increases of their less popular networks and who require Charter to carry their most popular networks to a large percentage of its video subscribers, have limited Charter's flexibility in creating more tailored and cost-sensitive programming packages for consumers.

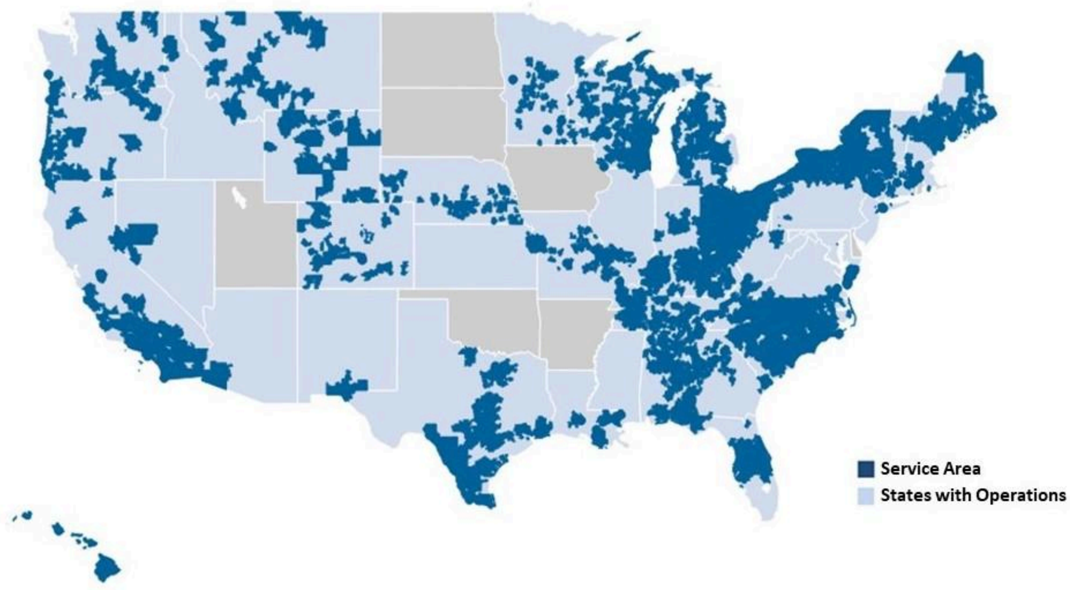
Federal law allows commercial television broadcast stations to make an election between "must-carry" rights and an alternative "retransmission-consent" regime. When a station opts for retransmission-consent, Charter is not allowed to carry the station's signal without that station's permission. Continuing demands by owners of broadcast stations for cash payments at substantial increases over amounts paid in prior years in exchange for retransmission consent will increase Charter's programming costs or require Charter to cease carriage of popular programming, potentially leading to a loss of customers in affected service areas.

Over the past several years, increases in Charter's video service rates have not fully offset the increases in its programming costs, and with the impact of increasing competition and other marketplace factors, Charter does not expect the increases in its video service rates to fully offset the increase in its programming costs per customer for the foreseeable future. Although Charter passes along a portion of amounts paid for retransmission consent to the majority of its customers, Charter's inability to fully pass programming cost increases on to its video customers has had, and is expected in the future to have, an adverse impact on Charter's cash flow and operating margins associated with its video product. In order to mitigate reductions of Charter's operating margins due to rapidly increasing programming costs, Charter continues to review its pricing and programming packaging strategies.

Charter's programming contracts are generally for a fixed period of time, usually for multiple years, and are subject to negotiated renewal. The contracts set to expire in any particular year vary. Charter will seek to renew these agreements on terms that it believes are favorable. There can be no assurance, however, that these agreements will be renewed on favorable or comparable terms. To the extent that Charter is unable to reach agreements with certain programmers on terms that Charter believes are reasonable, Charter has been, and may in the future be, forced to remove such programming channels from its line-up, which may result in a loss of customers.

Footprint

Charter operates in geographically diverse areas which are managed centrally on a consolidated level. The map below highlights its footprint as of December 31, 2021.



Ownership Interests

We own an approximate 30.9% economic ownership interest in Charter, based on shares of Charter's Class A common stock issued and outstanding as of December 31, 2021.

Upon the closing of the Time Warner Cable merger, the Second Amended and Restated Stockholders Agreement, dated as of May 23, 2015, by and among Charter, Liberty Broadband and Advance/Newhouse Partnership, as amended (the "Stockholders Agreement"), became fully effective. Pursuant to the Stockholders Agreement, Liberty Broadband's equity ownership in Charter (on a fully diluted basis) is capped at the greater of 26% or the voting cap ("Equity Cap"). As of December 31, 2021, due to Liberty Broadband's voting interest exceeding the current voting cap of 25.01%, our voting control of the aggregate voting power of Charter is 25.01%. Under the Stockholders Agreement, Liberty Broadband has agreed to vote (subject to certain exceptions) all voting securities beneficially owned by it, or over which it has voting discretion or control that are in excess of the voting cap in the same proportion as all other votes cast by public stockholders of Charter with respect to the applicable matter.

In February 2021, Liberty Broadband was notified that its ownership interest, on a fully diluted basis, had exceeded the Equity Cap set forth in the Stockholders Agreement. On February 23, 2021, Charter and Liberty Broadband entered into a letter agreement in order to implement, facilitate and satisfy the terms of the Stockholders Agreement with respect to the Equity Cap. Pursuant to this letter agreement, following any month during which Charter purchases, redeems or buys back shares of its Class A common stock, and prior to certain meetings of Charter's stockholders, Liberty Broadband will be obligated to sell to Charter, and Charter will be obligated to purchase, such number of shares of Class A common stock as is necessary (if any) to reduce Liberty Broadband's percentage equity interest, on a fully diluted basis, to the Equity Cap (such transaction, a "Charter Repurchase"). The per share sale price for each share of Charter will be equal to the volume weighted average price paid by Charter in its repurchases, redemptions and buybacks of its common stock (subject to certain exceptions) during the month prior to the Charter Repurchase (or, if applicable, during the relevant period prior to the relevant meeting of Charter stockholders). Under the terms of the letter agreement, Liberty Broadband sold 6,077,664 shares of Charter Class A common stock to Charter for $4.2 billion during the year ended December 31, 2021 to maintain our fully diluted ownership percentage at 26%. Subsequent to December 31, 2021, Liberty Broadband sold 535,092 shares of Charter Class A common stock to Charter for $341 million.

Under the Stockholders Agreement, we have the right to designate three directors to the Charter board of directors, subject to certain exclusions and requirements. Charter has agreed to cause the appointment of at least one of our designees to serve on the nominating and corporate governance, finance, audit and compensation and benefits committees of the board, provided they meet the independence and other qualifications for membership on those committees.

Regulatory Matters

The following summary addresses the key regulatory and legislative developments affecting the cable industry and Charter and GCI Holdings' services for both residential and commercial customers. Cable systems and related communications networks and services are extensively regulated by the federal government (primarily the FCC), certain state governments, and many local governments. A failure to comply with these regulations could subject both Charter and GCI Holdings to substantial penalties. The following summary of regulatory issues does not purport to describe all existing and proposed federal, state, and local laws and regulations, or judicial and regulatory proceedings that affect these businesses. These businesses can be dramatically impacted by changes to the existing regulatory framework, whether triggered by legislative, administrative, or judicial rulings. Congress and the FCC have frequently revisited the subject of communications regulation, and they are likely to do so again in the future. Charter and GCI Holdings could be materially disadvantaged in the future if they are subject to new laws, regulations or regulatory actions that do not equally impact key competitors. For example, Internet-delivered streaming video services compete with traditional video service, but they are not subject to the same level of federal, state, and local regulation. There is no assurance that the already extensive regulation of cable systems and communications networks will not be expanded in the future. In addition, Charter is subject to Charter-specific conditions regarding certain business practices as a result of the FCC's approval of Charter's merger in 2016 with Time Warner Cable Inc. ("TWC") and acquisition of Bright House Networks, LLC ("Bright House").

Video Service and Products

Must Carry/Retransmission Consent

There are two alternative legal methods for carriage of local broadcast television stations on cable systems. Federal "must carry" regulations require cable systems to carry local broadcast television stations upon the request of the local broadcaster. Alternatively, federal law includes "retransmission consent" regulations, by which commercial television stations can prohibit cable carriage unless the cable operator first negotiates for "retransmission consent," which may be conditioned on significant payments or other concessions. Popular stations routinely invoke "retransmission consent" and demand substantial compensation increases in their negotiations with cable operators, thereby significantly increasing operating costs. The current rules do not require any cable operator to carry multiple digital programming streams from a single broadcast television station, but should the FCC change this policy, additional cable capacity would need to be devoted to carrying additional broadcast television programming streams, a step that could require the removal of other programming services.

Pole Attachments

The Communications Act requires most utilities owning utility poles to provide cable systems with access to poles and conduits and also subjects the rates charged for this access to either federal or state regulation. The federally regulated rates now applicable to pole attachments used for cable or telecommunications service, including when offered together with Internet services, are substantially similar. The FCC's approach does not directly affect the rate in states that self-regulate, but many of those states have substantially the same rate for all communications attachments.

For the state of Alaska, in which GCI Holdings' subsidiaries operate, the RCA does not use the federal formula and instead has adopted its own formula that has been in place since 1987. This formula could be subject to further revisions upon petition to the RCA. In addition, in 2011, the FCC adopted an order to rationalize different pole attachment rates among types of services, and in 2015, took further steps to bring telecommunications and cable pole attachment rates into parity. Though the general purpose of the rule changes was to ensure pole attachment rates as low and as uniform as possible, GCI Holdings does not expect the rules to have an impact on the terms under which it accesses poles. GCI Holdings cannot predict the likelihood of the RCA changing its formula, adopting the federal formula, or relinquishing its oversight of pole attachments to the FCC, any of which could increase the cost of its operations.

Other FCC Regulatory Matters

The Communications Act and FCC regulations cover a variety of additional areas applicable to its video services, including, among other things: (1) licensing of systems and facilities, including the grant of various spectrum licenses; (2) equal employment opportunity obligations; (3) customer service standards; (4) technical service standards; (5) mandatory blackouts of certain network and syndicated programming; (6) restrictions on political advertising; (7) restrictions on advertising in children's programming; (8) ownership restrictions; (9) maintenance of public files; (10) emergency alert systems; (11) inside wiring and exclusive contracts for MDU complexes; (12) disability access, including requirements governing video-description and closed-captioning; (13) competitive availability of cable equipment; (14) the provision of up to 15% of video channel capacity for commercial leased access by unaffiliated third parties; (15) public, education and government entity access requirements; and (16) cable rate regulation. Each of these regulations restricts Charter and GCI Holdings' business practices to varying degrees and may impose additional costs on Charter and GCI Holdings' operations.

The FCC regulates spectrum usage in ways that could impact Charter and GCI Holdings' operations, including for microwave backhaul, broadcast, unlicensed WiFi and CBRS. These businesses' ability to access and use such spectrum that may become available in the future is uncertain and may be limited by further FCC auction or allocation decisions. New spectrum obtained by other parties could also lead to additional wireless competition to these businesses' existing and future services.

It is possible that Congress or the FCC will expand or modify its regulation of cable systems or the services delivered over cable systems and competing services in the future, and Charter and GCI Holdings cannot predict at this time how that might impact their businesses.

Copyright

The carriage of television and radio broadcast signals by cable systems are subject to a federal compulsory copyright license. In exchange for filing certain reports and contributing a percentage of their revenue to a federal copyright royalty pool that varies depending on the size of the system, the number of distant broadcast television signals carried, and the location of the cable system, cable operators can obtain blanket permission to retransmit copyrighted material included in broadcast signals. The copyright law provides copyright owners the right to audit payments under the compulsory license, and the Copyright Office is currently considering modifications to the license's royalty calculations and reporting obligations. The possible modification or elimination of this license is the subject of continuing legislative proposals and administrative review and could adversely affect Charter and GCI Holdings' ability to obtain desired broadcast programming. Copyright clearances for non-broadcast programming services are arranged through private negotiations.

Franchise Matters

Charter and GCI Holdings' cable systems generally are operated pursuant to nonexclusive franchises, permits, and similar authorizations granted by a municipality or other state or local government entity in order to utilize and cross public rights-of-way. Cable franchises generally are granted for fixed terms and in many cases include monetary penalties for noncompliance and may be terminable if the franchisee fails to comply with material provisions. The specific terms and conditions of cable franchises vary significantly between jurisdictions. They generally contain provisions governing cable operations, franchise fees, system construction, maintenance, technical performance, customer service standards, supporting and carrying public access channels, and changes in the ownership of the franchisee. Although local franchising authorities have considerable discretion in establishing franchise terms, certain federal protections benefit cable operators. For example, federal law imposes a 5% cap on franchise fees. In 2019, the FCC clarified that the value of in-kind contribution requirements set forth in cable franchises is subject to the statutory cap on franchise fees, and it reaffirmed that state and local authorities are barred from imposing franchise fees on non-cable services, such as Internet services, provided by cable operators over cable systems. Those rules were upheld by a federal court in 2021, but the court limited the amount of the in-kind services that could be considered to be a franchise fee to the operator's marginal costs of providing such services rather than the market value of such services. Some franchise authorities have petitioned the Supreme Court to review this decision.

A number of states have adopted franchising laws that provide for statewide franchising. Generally, state-wide cable franchises are issued for a fixed term, streamline many of the traditional local cable franchise requirements and eliminate local negotiation. The RCA is the franchising authority for all of Alaska, and issues certificates of public convenience and necessity ("CPCNs") for communities. GCI Holdings believes that it has generally met the terms of its CPCNs, which do not require periodic renewal, and has provided quality levels of service. Military franchise requirements also affect its ability to provide video services to military bases.

The Communications Act provides for an orderly franchise renewal process in which granting authorities may not unreasonably deny renewals. If Charter fails to obtain renewals of franchises representing a significant number of its customers, it could have a material adverse effect on Charter's consolidated financial condition, results of operations, or its liquidity. Similarly, if a franchising authority's consent is required for the purchase or sale of a cable system, the franchising authority may attempt to impose more burdensome requirements as a condition for providing its consent.

Data Services and Products

General. There is no one entity or organization that governs the global operation of the Internet. Each facilities-based network provider that is interconnected with the global Internet controls operational aspects of its own network. Certain functions, such as IP addressing, domain name routing, and the definition of the TCP/IP protocol, are coordinated by an array of quasi-governmental, intergovernmental, and non-governmental bodies. The legal authority of these bodies is not precisely defined.

The vast majority of users connect to the Internet over facilities of existing communications carriers. Those communications carriers are subject to varying levels of regulation at both the federal and state level. Thus, non-Internet-specific regulatory decisions exercise a significant influence over the economics of the Internet market.

Many aspects of the coordination and regulation of Internet activities and the underlying networks over which those activities are conducted are evolving. Internet-specific and non-Internet-specific changes in the regulatory environment, including changes that affect communications costs or increase competition from Incumbent Local Exchange Carriers ("ILECs") or other communications services providers, could adversely affect the costs and the prices for Internet-based services.

The FCC originally classified broadband Internet access services, such as those Charter and GCI Holdings offer, as an "information service," which exempted the service from traditional communications common carrier laws and regulations. In 2015, the FCC reclassified broadband Internet access services as "telecommunications service" and, on that basis, imposed a number of "net neutrality" rules governing the provision of broadband service. In an order released in 2018, the FCC reversed its 2015 decision and eliminated the 2015 rules, other than a transparency requirement, which obligates Charter and GCI Holdings to disclose performance statistics and other service information to consumers. It is possible that the FCC might again revise its approach to broadband Internet access, or that Congress might enact legislation affecting the rules applicable to the service. The application of new legal requirements to both Charter and GCI Holdings' Internet services could adversely affect their respective businesses.

The 2018 FCC order reclassifying Internet access services also ruled that state regulators may not impose obligations similar to federal network neutrality obligations that the FCC eliminated but this blanket prohibition was vacated by the D.C. Circuit Court of Appeals in 2019. The court left open the possibility that individual state laws could be deemed preempted on a case by case basis if it is shown that they conflict with federal law. California and Vermont have adopted rules similar to the network neutrality requirements that the FCC eliminated. On January 28, 2022, the Ninth Circuit Court of Appeals affirmed the district court's denial of a preliminary injunction against enforcement of the California rules. California has also adopted other regulations on Internet services, including network resiliency rules to assure backup power is available after natural disasters and other outages. New York adopted legislation that would have required Internet service providers to offer a discounted Internet service to qualifying low-income consumers, but a federal district judge enjoined enforcement as likely to be deemed rate regulation of Internet service that would be preempted by federal law. Charter and GCI Holdings cannot predict what other legislation and regulations may be adopted by states or how challenges to such requirements will be resolved.

In recent years, federal and state governments have offered billions of dollars in subsidies to companies deploying broadband to areas deemed to be "unserved" or "underserved," using funds from the FCC's RDOF auction in 2020, The American Rescue Plan Act of 2021 ("ARPA"), and The Infrastructure Investment and Jobs Act of 2021 (the "Infrastructure Act"). Government efforts to subsidize areas that Charter and GCI Holdings already serve and to promote 5G wireless broadband services create regulatory imbalances that could adversely affect these businesses.

Charter and GCI Holdings have opposed such subsidies when directed to areas that are already served and have sought and expect to continue to seek subsidies for their own broadband construction in unserved and underserved areas including RDOF, ARPA, Capital Projects Fund, National Telecommunications and Information Administration grants and the Infrastructure Act. Charter was the winning bidder for RDOF awards in the amount of $1.2 billion over ten years that will partially fund, along with its substantial additional investment, the construction of new broadband infrastructure to more than one million estimated passings. These awards include a number of regulatory requirements, such as serving as the carrier of last resort and completing increasingly larger portions of the network construction by certain dates. If Charter fails to meet these obligations, Charter could be subject to substantial government penalties.

Aside from the FCC's generally applicable regulations, Charter made certain commitments to comply with the FCC's order in connection with the FCC's approval of Charter's merger with TWC and acquisition of Bright House that are discussed below in "Description of Business – Regulatory Matters – Commitments Related to the 2016 Merger with TWC and Acquisition of Bright House.

Rural Health Care ("RHC") Program. The Universal Service Fund ("USF") RHC Program provides funding to eligible healthcare providers for telecommunications and broadband services. The RHC Telecommunications Program subsidizes the rates for telecommunications services provided to rural health care providers based on the difference between the urban and rural rates for such services. The Healthcare Connect Fund Program provides support for high-capacity broadband connectivity to eligible health care providers. In connection with receiving these subsidies, GCI Holdings prepares annual cost studies in support of the rates it charges, and submits these studies to the FCC for review.

<u>FCC Rate Reduction.</u> In November 2017, the Universal Service Administrative Company ("USAC") requested further information in support of the rural rates charged to a number of GCI Holdings' RHC customers in connection with the funding requests for the year that runs July 1, 2017 through June 30, 2018. On October 10, 2018, GCI Holdings received a letter from the FCC's Wireline Competition Bureau ("Bureau") notifying it of the Bureau's decision to reduce the rural rates charged to RHC

customers for the funding year that ended on June 30, 2018 by approximately 26% resulting in a reduction of total support payments of $28 million. The FCC also informed GCI Holdings that the same cost methodology used for the funding year that ended on June 30, 2018 would be applied to rates charged to RHC customers in subsequent funding years. In response to the Bureau's letter, GCI Holdings filed an Application for Review with the FCC.

On October 20, 2020, the Bureau issued two separate letters approving the cost-based rural rates GCI Holdings historically applied when recognizing revenue for services provided to its RHC customers for the funding years that ended on June 30, 2019 and June 30, 2020. GCI Holdings collected approximately $175 million in accounts receivable relating to these two funding years during the year ended December 31, 2021. GCI Holdings also filed an Application for Review of these determinations. Subsequently, GCI identified rates for similar services provided by a competitor that would justify higher rates for certain GCI satellite services in the funding years that ended on June 30, 2018, June 30, 2019, and June 30, 2020. GCI submitted that information to the Bureau on September 7, 2021. The Applications for Review remain pending.

On June 25, 2020, GCI Holdings submitted cost studies with respect to a number of its rates for services provided to its RHC customers for the funding year ended June 30, 2021, which require approval by the Bureau. GCI Holdings further updated those studies on November 12, 2020, to reflect the completion of the bidding season for that funding year. On May 24, 2021, the FCC approved the cost studies submitted by GCI Holdings for the funding year ended June 30, 2021. Subsequently, on August 16, 2021, GCI submitted a request for approval of rates for 17 additional sites, which remains pending.

RHC Program Funding Cap. The RHC program has a funding cap for each individual funding year that is annually adjusted for inflation, and which the FCC can increase by carrying forward unused funds from prior funding years. In recent years, including the current year, this funding cap has not limited the amount of funding received by participants; however, management continues to monitor the funding cap and its potential impact on funding in future years.

Enforcement Bureau and Related Inquiries. On March 23, 2018, GCI Holdings received a letter of inquiry and request for information from the Enforcement Bureau of the FCC relating to the period beginning January 1, 2015 and including all future periods, to which it is in the process of responding. This includes inquiry into the rates charged by GCI Holdings, and presently it is unable to assess the ultimate outcome of this rate inquiry. Other aspects related to the Enforcement Bureau's review of GCI Holdings' compliance with program rules are discussed separately below. The ongoing uncertainty in program funding, as well as the uncertainty associated with the rate review, could have an adverse effect on its business, financial position, results of operations or liquidity.

In the fourth quarter of 2019, GCI Holdings became aware of potential RHC Program compliance issues related to certain of GCI Holdings' currently active and expired contracts with certain of its RHC customers. The Company and its external experts performed significant and extensive procedures to determine whether GCI Holdings' currently active and expired contracts with its RHC customers would be deemed to be in compliance with the RHC Program rules. GCI Holdings notified the FCC of the potential compliance issues in the fourth quarter of 2019.

On May 28, 2020, GCI Holdings received a second letter of inquiry from the Enforcement Bureau in the same matter noted above. This second letter, which was in response to a voluntary disclosure made by GCI Holdings to the FCC, extended the scope of the original inquiry to also include various questions regarding compliance with the records retention requirements related to the (i) original inquiry and (ii) RHC Program.

On December 17, 2020, GCI Holdings received a Subpoena Duces Tecum from the FCC's Office of the Inspector General requiring production of documents from January 1, 2009 to the present related to a single RHC customer and related contracts, information regarding GCI Holdings' determination of rural rates for a single customer, and to provide information regarding persons with knowledge of pricing practices generally.

On April 21, 2021, representatives of the Department of Justice ("DOJ") informed GCI Holdings that a qui tam action has been filed in the Western District of Washington arising from the subject matter under review by the Enforcement Bureau. The DOJ is investigating whether GCI Holdings submitted false claims and/or statements in connection with GCI's participation in the FCC's RHC Program. On July 14, 2021, the DOJ issued a Civil Investigative Demand with regard to the qui tam action.

GCI Holdings continues to work with the FCC and the DOJ to resolve all enforcement inquiries discussed above. With respect to the ongoing inquiries from the FCC's Enforcement Bureau and the FCC's Office of the Inspector General, GCI Holdings recognized a liability of approximately $12 million in 2019 for contracts that were deemed probable of not complying with the RHC Program rules. GCI Holdings also identified certain contracts where additional loss was reasonably possible and such loss could range from zero to $44 million. An accrual was not made for the amount of the reasonably possible loss in accordance with the applicable accounting guidance. GCI Holdings could also be assessed fines and penalties, but such amounts could not be reasonably estimated. With respect to the ongoing inquiries from the DOJ regarding the qui tam action, the Company is unable to assess the ultimate outcome of this action given the confidentiality of the qui tam process and is unable to determine whether any type of fine or penalty would ultimately be assessed as is permitted under the applicable law.

Revision of Support Calculations. On August 20, 2019, the FCC released an order changing the manner in which support issued under the RHC Program will be calculated and approved. Some of these changes will become effective beginning with the funding year ended June 30, 2021, while others will apply beginning with the funding year ending June 30, 2022. On October 21, 2019, GCI Holdings appealed the order to the United States Court of Appeals for the District of Columbia Circuit. On December 6, 2019, that appeal was held in abeyance for nine months due to pending Petitions for Reconsideration filed by other parties at the FCC and on September 25, 2020, the period of abeyance was extended through March 8, 2021. At the direction of the FCC, USAC has released a database that purports to determine a median rate which will cap the amount of support available for each service sold under the program, starting in the funding year ending June 30, 2022. GCI Holdings has sought FCC review of various aspects of the database implementation. On September 30, 2020, USAC released a refreshed version of the database incorporating limited changes submitted by interested parties. On January 19, 2021, the Bureau issued an Order that waives the requirement to use the database for health care providers in Alaska for the two funding years ending June 30, 2022 and June 30, 2023. The Order requires GCI Holdings to determine its rural rates based on previously approved rates or under reinstitution of the rules currently in effect through the funding year ended on June 30, 2021. On April 8, 2021, the Bureau issued an Order further extending the January 19, 2021 waiver to carriers nationwide and eliminating the ability or requirement to use the database to establish the healthcare provider payments for services subsidized by the RHC Telecom Program.

Schools and Libraries Program. In 2014, the FCC adopted orders modernizing the USF Schools and Libraries Program ("E-Rate"), which aids schools and libraries in obtaining affordable broadband. These orders, among other things, increased the annual E-Rate cap by approximately $1.5 billion, designated funds for internal connections within schools and libraries, and eliminated funding for certain legacy services, such as voice, to increase the availability of 21st century connectivity to support digital learning in schools nationwide. These orders did not have a material effect on the overall E-Rate support available to GCI Holdings' schools and libraries customers, and therefore did not materially affect its revenue from such customers. See Item 1A. Risk Factors for additional risks related to GCI Holdings' participation in this USF program.

Other Federal Activities. Congress and certain federal agencies are considering ways to streamline federal permitting obligations and are in the process of providing significant additional financial support for broadband services in areas that are difficult to serve. GCI Holdings continues to monitor these activities and cannot predict at this time whether those efforts will make a material difference to its ability to deploy broadband infrastructure.

Wireline Voice Services and Products

General. The FCC has never classified the VoIP wireline telephone services that Charter and GCI Holdings offer as "telecommunications services" that are subject to traditional federal common carrier regulation, but instead has imposed some of these regulatory requirements on a case-by-case basis, such as requirements relating to 911 emergency services ("E911"), Communications Assistance for Law Enforcement Act ("CALEA") (the statute governing law enforcement access to and surveillance of communications), USF contributions, customer privacy and Customer Proprietary Network Information protections, number portability, network outage reporting, rural call completion, disability access, regulatory fees, back-up power, robocall mitigation, and discontinuance of service. It is possible that the FCC or Congress will impose additional requirements on VoIP telephone services in the future.

Charter and GCI Holdings' VoIP telephone services are subject to certain state and local regulatory fees such as E911 fees and contributions to state universal service funds. Additionally, to comply with RDOF program requirements, Charter has chosen in the RDOF areas to offer certain of its VoIP telephone services, such as its federal or state Lifeline services, subject to traditional federal and state common carrier regulations. Except where Charter has chosen to offer VoIP telephone services in such a manner it believes that its VoIP telephone services should be governed primarily by federal regulation – e.g., some state regulations also apply to its VoIP service including consumer protection and 911 rules. A federal appellate court affirmed Charter's successful challenge to Minnesota's attempt to generally apply telephone regulation to its VoIP services, but that ruling is limited to the seven states in the 8th circuit. Some states have attempted to subject cable VoIP services to state level regulation. California has imposed reporting and other obligations on Charter's VoIP services, including backup power requirements. Charter has registered with or obtained certificates or authorizations from the FCC and the state regulatory authorities in those states in which Charter offers competitive voice services in order to ensure the continuity of its services. However, it is unclear whether and how these and other ongoing regulatory matters ultimately will be resolved. State regulatory commissions and legislatures may continue to consider imposing regulatory requirements on Charter's fixed telephone services.

As an interexchange carrier, GCI Holdings is subject to regulation by the FCC and the RCA as a non-dominant provider of interstate, international, and intrastate long-distance services. As a state-certificated competitive local exchange carrier, GCI Holdings is subject to regulation by the FCC and the RCA as a non-dominant provider of local communications services. However, as of November 2019, the Alaska Legislature eliminated the RCA's regulation of rates but retained its certificate authority for intrastate long-distance and local communications services. Military franchise requirements also affect GCI Holdings' ability to provide communications services to military bases.

Universal Service for Rural and High Cost Areas. The USF provides support to Eligible Telecommunications Carriers ("ETCs") related to their provision of facilities-based wireline telephone service in high cost areas. Under the Alaska High Cost Order issued by the FCC in 2016, GCI Holdings receives this support for its incumbent local exchange carrier operations, which are ETCs under FCC regulations and RCA Orders. This support is frozen at the 2011 levels for High Cost Loop Support and Interstate Common Line Support, with certain adjustments. The support has a ten-year term, from January 1, 2017 to December 31, 2026. Without ETC status, GCI Holdings would not qualify for USF support in these areas, and its net cost of providing local telephone services in these areas would be materially adversely affected. See "Description of Business – Regulatory Matters - Wireless Services and Products - Universal Service" for information on USF reform. Pursuant to the Alaska High Cost Order, GCI Holdings must meet certain performance requirements with respect to the offering of broadband services in its incumbent local exchange carrier areas. The FCC directed the Bureau to reassess those performance commitments before December 31, 2021, and the Bureau approved revised performance commitments on December 23, 2021. If GCI Holdings fails to meet these performance requirements, it will be subject to repayment of a portion of the high cost support received, as specified in the Alaska High Cost Order. Although GCI Holdings formerly received high cost support for service provided by its competitive local exchange carrier operations, the phase-down of that support pursuant to the Alaska High Cost Order concluded on December 31, 2018.

Rural Exemption and Interconnection. A Rural Telephone Company is exempt from compliance with certain material interconnection requirements under Section 251(c) of the Communications Act of 1934, as amended by the Telecommunications Act of 1996, including the obligation to negotiate Section 251(b) and (c) interconnection requirements in good faith, unless and until a state regulatory commission lifts such "rural exemption" or otherwise finds it does not apply. All ILECs in Alaska are Rural Telephone Companies except Alaska Communications Systems Group, Inc. in its Anchorage study area. GCI Holdings participated in numerous proceedings regarding the rural exemptions of various ILECs in order to achieve the necessary interconnection agreements with the remaining ILECs. In other cases, the interconnection agreements were reached by negotiation without regard to the implications of the ILEC's rural exemption.

GCI Holdings has negotiated and will continue to negotiate interconnection provisions as necessary. GCI Holdings has entered all of the major Alaskan markets with local access services.

See "Description of Business — Competition — Voice Services and Products Competition" for more information.

Access Charges and Other Regulated Fees. The FCC regulates the fees that local telephone companies charge long-distance companies for access to their local networks. In 2011, the FCC released rules to restructure and reduce over time terminating interstate access charges, along with a proposal to adopt similar reforms applicable to originating interstate access charges. The details of implementation in general and between different classes of technology continue to be addressed by the FCC, and could affect the economics of some aspects of GCI Holdings' business. GCI Holdings cannot predict at this time the impact of this implementation or future implementation of adopted reforms, but GCI Holdings does not expect it to have a material adverse impact on its operations.

Unbundled Network Elements. Although GCI Holdings primarily provides communications services over its own facilities, the ability to obtain access to other providers' networks is an important element of its local access services business. Changes in applicable regulations and the wholesale offerings of suppliers could affect GCI Holdings' ability to provide service.

Wireless Services and Products

General. The FCC regulates the licensing, construction, interconnection, operation, acquisition, and transfer of wireless network systems in the United States pursuant to the Communications Act. GCI Holdings' wireless licensee subsidiaries are subject to regulation by the FCC, and must comply with certain build-out and other license conditions, as well as with the FCC's specific regulations governing wireless services. The FCC imposes significant regulation on licensees of wireless spectrum with respect to how radio spectrum is used by licensees, the nature of services licensees may offer and how such services may be offered, and the resolution of issues of interference between spectrum bands. The FCC does not currently regulate rates for services offered by commercial mobile radio service providers (the official legal description for wireless service providers).

Commercial mobile radio service wireless systems are subject to Federal Aviation Administration and FCC regulations governing the location, lighting, construction, modification, and registration of antenna structures on which GCI Holdings' antennas and associated equipment are located and are also subject to regulation under federal environmental laws and the FCC's environmental regulations, including limits on radio frequency radiation from wireless handsets and antennas.

Universal Service. Under FCC regulations and RCA orders, GCI Holdings is an authorized ETC for purposes of providing wireless telephone service in many rural areas throughout Alaska. Without ETC status, GCI Holdings would not qualify for USF support in these areas or other rural areas where it proposes to offer facilities-based wireless telephone services, and its net cost of providing wireless telephone services in these areas would be materially adversely affected.

Under the Alaska High Cost Order. Per the Alaska High Cost Order, as of January 1, 2017, Remote (as defined by the Alaska High Cost Order) high cost support payments to Alaska High Cost participants are frozen on a per-company basis at adjusted December 2014 levels for a ten-year term in exchange for meeting individualized performance obligations to offer voice and broadband services meeting the service obligations at specified minimum speeds by five-year and ten-year service milestones to a specified number of locations. Remote high cost support is no longer dependent upon line counts and line count filings are no longer required. Under the terms of the Alaska High Cost Order, the FCC is to initiate a process in 2021 to eliminate duplicate support in areas that were served by more than one subsidized mobile wireless carrier as of December 31, 2020. As part of the Alaska High Cost Order, the FCC issued a Notice of Proposed Rulemaking seeking comment on how to implement that process. The FCC has not to date issued any further orders with respect to that process.

See "Description of Business — Regulatory Matters — Wireline Voice Services and Products — Regulatory Regime Applicable to IP-based Networks" for more information.

Emergency 911. The FCC has imposed rules requiring carriers to provide emergency 911 services, including E911 services that provide the caller's phone number and approximate location to local public safety dispatch agencies. Providers are required to transmit the geographic coordinates of the customer's location, for both indoor and outdoor locations, within accuracy parameters revised by the FCC, to be implemented over a phase-in period. The FCC also imposed requirements to allow users to text-to-911 if the local public safety dispatch agency requests and is able to receive such texts. Providers may not demand cost recovery as a condition of providing E911, although they are permitted to negotiate cost recovery if it is not mandated by the state or local governments. On June 1, 2020 and subsequently on May 24, 2021, GCI Holdings timely sought waivers from the FCC concerning the percentage of wireless calls required to meet 911 location accuracy benchmarks pursuant to the FCC's phase-in period. In December 2021, GCI Holdings met the 2020 benchmark. GCI Holdings has been able to meet FCC requirements for text-to-911 obligations to date.

State and Local Regulation. While the Communications Act generally preempts state and local governments from regulating the entry of, and the rates charged by, wireless carriers, it also permits a state to petition the FCC to allow it to impose commercial mobile radio service rate regulation when market conditions fail to adequately protect customers and such service is a replacement for a substantial portion of the telephone wireline exchange service within a state. The State of Alaska currently has no such petition on file.

In addition, the Communications Act does not expressly preempt the states from regulating the "terms and conditions" of wireless service. Several states have invoked this "terms and conditions" authority to impose or propose various consumer protection regulations on the wireless industry. State attorneys general have also become more active in enforcing state consumer protection laws against sales practices and services of wireless carriers. States also may impose their own universal service support requirements on wireless and other communications carriers, similar to the contribution requirements that have been established by the FCC.

States have become more active in attempting to impose new taxes and fees on wireless carriers, such as gross receipts taxes. Where successful, these taxes and fees are generally passed through to customers and result in higher costs to customers.

At the local level, wireless facilities typically are subject to zoning and land use regulation. Neither local nor state governments may categorically prohibit the construction of wireless facilities in any community or take actions, such as indefinite moratoria, which have the effect of prohibiting construction. Pursuant to Section 6409(a) of the Middle Class Tax Relief Act of 2012, state and local governments are further constrained in their regulation of changes to existing wireless infrastructure. Nonetheless, securing federal, state and local government approvals for new antenna structures has been and is likely to continue to be difficult, lengthy, and costly.

Charter's Spectrum Mobile Service

Charter's Spectrum Mobile service offers mobile Internet access and telephone service. Charter provides this service as an MVNO using Verizon's network and its network through Spectrum WiFi. As an MVNO, Charter is subject to many of the same FCC regulations that apply to facilities-based wireless carriers, as well as certain state or local regulations, including (but not limited to): E911, local number portability, customer privacy, CALEA, universal service fund contribution, robocall mitigation and hearing aid compatibility and safety and emission requirements for mobile devices. Spectrum Mobile's broadband Internet access service is also subject to the FCC's transparency rule. The FCC or other regulatory authorities may adopt new or different regulations for MVNOs and/or mobile service providers in the future, or impose new taxes or fees applicable to Spectrum Mobile, which could adversely affect the service offering or Charter's business generally.

Privacy and Information Security Regulation

The Communications Act limits Charter and GCI Holdings' ability to collect, use, and disclose customers' personally identifiable information for its Internet, video, and voice services. Charter and GCI Holdings are subject to additional federal, state, and local laws and regulations that impose additional restrictions on the collection, use and disclosure of consumer information. All broadband providers are also obliged by CALEA to configure their networks in a manner that facilitates the ability of state and federal law enforcement, with proper legal process authorized under the Electronic Communications Privacy Act, to obtain records and information concerning their customers, including the content of their communications. Further, the FCC, Federal Trade Commission ("FTC"), and many states regulate and restrict the marketing practices of communications service providers, including telemarketing and sending unsolicited commercial emails. The FTC currently has the authority, pursuant to its general authority to enforce against unfair or deceptive acts and practices, to protect the privacy of Internet service customers, including Charter and GCI Holdings' use and disclosure of certain customer information.

Charter and GCI Holdings' operations are also subject to federal and state laws governing information security. In the event of an information security breach, such rules may require consumer and government agency notification and may result in regulatory enforcement actions with the potential of monetary forfeitures. The FCC, the FTC, and state attorneys general regularly bring enforcement actions against companies related to information security breaches and privacy violations.

Various security standards provide guidance to telecommunications companies in order to help identify and mitigate cybersecurity risks. One such standard is the voluntary Cybersecurity Framework ("CSF") released by the National Institute for Standards and Technology ("NIST") in 2014 and updated in 2018, in cooperation with other federal agencies and owners and operators of U.S. critical infrastructure. The NIST CSF provides a prioritized and flexible model for organizations to identify and manage cyber risks inherent to their business. It was designed to supplement, not supersede, existing cybersecurity regulations and requirements. Several government agencies have encouraged compliance with the NIST CSF, including the FCC, which is also considering expansion of its cybersecurity guidelines or the adoption of cybersecurity requirements. Charter and GCI voluntarily follow the NIST CSF as part of their overall cybersecurity programs.

Many states and local authorities have considered legislative or other actions that would impose restrictions on Charter's ability to collect, use and disclose, and safeguard certain consumer information, particularly with regard to its broadband Internet business. For example, the California Consumer Privacy Act ("CCPA") and Maine's Act to Protect Privacy of Online Customer Information both became effective in 2020. The CCPA, under certain circumstances, regulates companies' use and disclosure of the personal information of California residents and authorizes enforcement actions by the California Attorney General and private class actions for data breaches. In addition, effective January 1, 2023, the California Privacy Rights Act, adopted by ballot initiative in 2020, will amend the CCPA to impose additional obligations on companies that handle the personal information of California residents. The Maine law regulates how Internet service providers use and disclose customers' personal information and requires Internet service providers to take reasonable measures to protect customers' personal information. In addition, Virginia and Colorado each enacted privacy laws in 2021 that will become effective in 2023 and will regulate the way that companies collect, use, and share personal information about consumers. Several other state legislatures are considering the adoption of new data security and cybersecurity legislation that could result in additional network and information security requirements for Charter's business. Congress may also adopt new privacy and data security obligations. Charter cannot predict whether any of these efforts will be successful or preempted, or how new legislation and regulations, if any, would affect its business.

Environmental Regulations

GCI Holdings undertakes activities that may, under certain circumstances, affect the environment. Accordingly, it may be subject to federal, state, and local laws designed to preserve or protect the environment, including the Clean Water Act and the Emergency Planning and Community Right-to-Know Act. The FCC, Bureau of Land Management, U.S. Forest Service, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, Bureau of Indian Affairs, and National Park Service are among the federal agencies required by the National Environmental Policy Act of 1969 and National Historic Preservation Act to consider the environmental impact of actions they authorize, including facility construction.

The principal effect of GCI Holdings' facilities on the environment would be in the form of construction of facilities and networks at various locations in Alaska and between Alaska, Washington, and Oregon. GCI Holdings' facilities have been constructed in accordance with federal, state and local building codes and zoning regulations whenever and wherever applicable. GCI Holdings obtains federal, state, and local permits, as required, for its projects and operations. GCI Holdings is unaware of any material violations of federal, state, or local regulations or permits.

Remaining Commitments Related to the 2016 Merger with TWC and Acquisition of Bright House

In connection with approval of Charter's 2016 merger with TWC and acquisition of Bright House (the "Transactions"), federal and state regulators imposed a number of post-transaction conditions on Charter, many of which have been fulfilled or have terminated. Remaining federal commitments include the following.

FCC Conditions

- Refrain from charging usage-based prices or imposing data caps on any fixed mass market broadband Internet access service plans for seven years; and
- Continue to support CableCARDs for use in third-party retail devices for seven years (unless the FCC changes the relevant rules) and only as to CableCARDs in use by customers in May 2020.

The FCC conditions also contain a number of compliance reporting requirements.

DOJ Conditions

The DOJ Order prohibits Charter from entering into or enforcing any agreement with a video programmer that forbids, limits or creates incentives to limit the video programmer's provision of content to online video distributors. Charter will not be able to avail itself of other distributors' most favored nation ("MFN") provisions if they are inconsistent with this prohibition. The DOJ's conditions are effective for seven years after entry of the final judgment in 2016, although Charter may petition the DOJ to eliminate the conditions after five years. Charter currently does not expect to so petition.

Competition

Charter and GCI Holdings operate in intensely competitive industries and compete with a number of companies that provide a broad range of communication, entertainment, and information products and services. Technological changes are further intensifying and complicating the competitive landscape and consumer behavior.

Residential/Consumer Services

Charter and GCI Holdings face intense competition for residential customers, both from existing competitors, and, as a result of the rapid development of new technologies, services and products, from new entrants.

Internet competition

The Internet industry is highly competitive, rapidly evolving and subject to constant technological change. Competition is based upon price, service bundles, the services and enhancements offered, the technologies used, customer service, billing services, and perceived quality, reliability and availability.

Charter and GCI Holdings' residential Internet services face competition across their footprints from fiber-to-the-home ("FTTH"), fiber-to-the-node ("FTTN"), fixed wireless broadband, Internet delivered via satellite and digital subscriber line ("DSL") services. AT&T, Frontier Communications Corporation's ("Frontier") fiber optic service ("FiOS" or "Fios") and Verizon's Fios are Charter's primary FTTH competitors. Given the FTTH deployments of Charter's competitors, launches of broadband services offering 1 Gbps speed have recently grown. Several competitors, including AT&T, Frontier's FiOS, Verizon's Fios, WideOpenWest, Inc. ("WOW") and Google Fiber, deliver 1 Gbps broadband speed (and some delivering 2 Gbps) in at least a portion of their footprints which overlap Charter's footprint. In several markets, Charter and GCI Holdings also face competition from one or more fixed wireless providers which deliver point-to-point Internet connectivity, although generally in areas limited to residential MDUs. Additionally, several mobile network operators offer LTE or 5G delivered fixed wireless home Internet service in an increasing number of Charter's markets. DSL service is offered across Charter's footprint and a portion of GCI Holdings' footprint, often at prices lower than Charter and GCI Holdings' Internet services, although typically at speeds much lower than the minimum speeds offered by Charter and GCI Holdings. In addition, a growing number of commercial areas, such as retail malls, restaurants and airports, offer WiFi Internet service. Numerous local governments are also considering or actively pursuing publicly subsidized WiFi Internet access networks. These options offer alternatives to cable-based Internet access. Charter faces terrestrial broadband Internet (defined as at least 25 Mbps) competition from three primary competitors, AT&T, Frontier and Verizon in approximately 34%, 9% and 5% of its operating areas, respectively.

Video competition

Charter and GCI Holdings' residential video services face competition from direct broadcast satellite ("DBS") service providers, which have a national footprint and compete in all of Charter's operating areas. DBS providers offer satellite-delivered pre-packaged programming services that can be received by relatively small and inexpensive receiving dishes. DBS providers offer aggressive promotional pricing, exclusive programming (e.g., NFL Sunday Ticket) and video services that are comparable in many respects to Charter and GCI Holdings' residential video service. Charter's residential video service also faces competition from large telecommunications companies, primarily Frontier FiOS and Verizon Fios, which offer wireline video services in significant portions of Charter's operating areas.

Charter and GCI Holdings' residential video services also face growing competition across their footprints from a number of other sources, including companies that deliver linear network programming, movies and television shows on demand and other video content over broadband Internet connections to televisions, computers, tablets and mobile devices. These competitors include virtual multichannel video programming distributors ("V-MVPDs") such as Hulu Live, YouTube TV, Sling TV, Philo and DirecTV Stream. Other online video business models and products have also developed, some offered by programmers that have not traditionally sold programming directly to consumers, including, (i) subscription video on demand ("SVOD") services such as Netflix, Apple TV+, Amazon Prime, Hulu Plus, Disney+, HBO Max, Peacock, Paramount+, AMC+, Starz and Showtime Anytime, (ii) ad-supported free online video products, including YouTube and Pluto TV, some of which offer programming for free to consumers that Charter currently purchases for a fee, (iii) pay-per-view products, such as iTunes, and Amazon Instant, and (iv) additional offerings from mobile providers which continue to integrate and bundle video services and mobile products. Historically, Charter has generally viewed SVOD online video services as complementary to its own video offering, and has developed a cloud-based guide that is capable of incorporating video from online video services currently offered in the marketplace. As the proliferation of online video services grows, however, services from V-MVPDs and direct to consumer offerings, as well as piracy and password sharing, negatively impact the number of customers purchasing Charter’s video product.

Voice competition

Charter and GCI Holdings’ residential voice services compete with wireless and wireline phone providers across their footprints, as well as other forms of communication, such as text messaging on cellular phones, instant messaging, social networking services, video conferencing and email. Charter and GCI Holdings also compete with “over-the-top” phone providers, such as Vonage, Skype, magicJack, Google Voice and Ooma, Inc., as well as companies that sell phone cards at a cost per minute for both national and international service. The increase in the number of different technologies capable of carrying voice services and the number of alternative communication options available to customers as well as the replacement of wireline services by wireless have intensified the competitive environment in which Charter and GCI Holdings operate their residential voice services.

GCI Holdings also competes against ILECs, long-distance resellers and certain smaller rural local telephone companies for local access and long-distance. GCI Holdings has competed by offering what it believes is excellent customer service and by providing desirable bundles of services.

Mobile Competition

Charter and GCI Holdings’ mobile services face competition from national mobile network operators including AT&T, Verizon and T-Mobile US, Inc. ("T-Mobile"), as well as a variety of regional operators and mobile virtual network operators. Most carriers offer unlimited data packages to customers. Various operators also offer wireless Internet services delivered over networks which they continue to enhance to deliver faster speeds. As a regional wireless carrier, GCI Holdings may not have immediate access to some wireless handsets that are available to these national wireless carriers.

AT&T, Verizon and T-Mobile continue to expand 5G mobile services. Additionally, in connection with Dish Network Corporation’s acquisition of Sprint Corporation’s (“Sprint”) prepaid mobile services businesses, the FCC and DOJ have imposed a timeline on Dish Network Corporation (70% by June 2023) for 5G network development and expansion. Charter also competes for retail activations with other resellers that buy bulk wholesale service from wireless service providers for resale.

Regional Competitors

In some of Charter’s operating areas, other competitors have built networks that offer Internet, video and voice services that compete with its services. For example, in certain service areas, Charter’s residential Internet, video and voice services compete with WOW, Cincinnati Bell Inc., Google Fiber, Hawaiian Telcom (owned by Cincinnati Bell Inc.) and Grande Communications Networks, LLC.

Additional competition

In addition to multi-channel video providers, cable systems compete with other sources of news, information and entertainment, including over-the-air television broadcast reception, live events, movie theaters and the Internet. Competition is also posed by fixed wireless and satellite master antenna television systems, serving MDUs, such as condominiums, apartment complexes, and private residential communities.

Business Services

Charter and GCI Holdings face intense competition across each of their business service product offerings. Charter’s SMB Internet, video and voice services face competition from a variety of providers as described above. Charter’s enterprise solutions also face competition from the competitors described above as well as cloud-based application-service providers, managed service providers and other telecommunications carriers, such as metro and regional fiber-based carriers. GCI Holdings’ business wireless, data and voice services face similar competition as described above for its consumer products.

Advertising

Charter and GCI Holdings face intense competition for advertising revenue across many different platforms and from a wide range of local and national competitors. Advertising competition has increased and will likely continue to increase as new advertising platforms seek to attract the same advertisers. Charter and GCI Holdings compete for advertising revenue against, among others, local broadcast stations, national cable and broadcast networks, radio stations, print media and online advertising companies and content providers.

Human Capital Resources

Employees

As described above, Liberty Broadband is party to a services agreement with Liberty, pursuant to which 86 Liberty corporate employees provide certain management services to Liberty Broadband for a determined fee. As a result, Liberty Broadband is not responsible for the hiring, retention and compensation of these individuals (except that Liberty Broadband does grant equity incentive awards to these individuals). However, Liberty Broadband directly benefits from the efforts undertaken by Liberty to attract and retain talented employees. Liberty strives to create a diverse, inclusive and supportive workplace, with opportunities for its employees to grow and develop in their careers, supported by competitive compensation, benefits and health and wellness programs, and by programs that build connections between its employees and their communities. Liberty Broadband fully supports these efforts.

As of December 31, 2021, the Company's consolidated subsidiaries had an aggregate of approximately 1,900 full and part-time employees and the Company is not party to any union contracts with its employees. Liberty Broadband believes that its employee relations are good.

GCI Holdings

GCI Holdings (or "GCI") has been operating in Alaska for more than 40 years and most of its employees live in the communities it serves. Many of GCI's employees have been with the company for decades and, in some cases, their children have joined the GCI team and have become the next generation of the GCI family. This sense of family and valuing its employees is a strong part of GCI's culture and is one that generates pride among employees and company leadership. GCI is committed to creating and maintaining an environment that is inclusive, supportive and provides opportunities for excellence and advancements. To that end, GCI is committed to ensuring its employees, at all levels of the company, are experts in their fields, and provides opportunities for training, including certifications relating to various technical aspects of the GCI business, training in people skills, management best practices and team-building, as well as tuition reimbursement to employees who are pursuing college or technical schools degrees while working for GCI. In 2020, GCI launched an initiative to evaluate the incorporation of diversity, equity and inclusion principles in all corporate operations and continues to assess and evolve its practices to create a focus on these principles.

GCI is committed to maintaining a safe and healthy workplace and has implemented several new safety protocols to keep its employees and customers safe during the pandemic, including moving more than 70% of employees to work-from-home status, installing plexiglass shields and sourcing additional sanitization supplies for our retail spaces. GCI has also limited the number of home visits by its field technicians by working with customers to resolve issues remotely and adopting new, socially distanced methods of troubleshooting and following strict safety precautions in the event an in-person visit is necessary.

Available Information

All of our filings with the SEC including our Form 10-Ks, Form 10-Qs and Form 8-Ks, as well as amendments to such filings are available on our Internet website free of charge generally within 24 hours after we file such material with the SEC. Our website address is www.libertybroadband.com.

Our corporate governance guidelines, code of business conduct and ethics, compensation committee charter, nominating and corporate governance committee charter, and audit committee charter are available on our website. In addition, we will provide a copy of any of these documents, free of charge, to any shareholder who calls or submits a request in writing to Investor Relations, Liberty Broadband Corporation, 12300 Liberty Boulevard, Englewood, Colorado 80112, Tel. No. (844) 826-8735.

The information contained on our website and the websites of GCI Holdings and Charter are not incorporated by reference herein.

Item 1A. Risk Factors

The risks described below and elsewhere in this annual report are not the only ones that relate to our businesses or our capitalization. The risks described below are considered to be the most material. However, there may be other unknown or unpredictable economic, business, competitive, regulatory or other factors that also could have material adverse effects on our businesses. Past financial performance may not be a reliable indicator of future performance and historical trends should not be used to anticipate results or trends in future periods. If any of the events described below were to occur, our businesses, prospects, financial condition, results of operations and/or cash flows could be materially adversely affected.

Factors Relating to Our Corporate History and Structure

We are a holding company, and we could be unable to obtain cash in amounts sufficient to service our financial obligations or meet our other commitments.

Our ability to meet our current and future financial obligations, including to make debt service obligations under the Margin Loan Agreement (defined below) and the Company Debentures (defined below), and other contractual commitments depends upon our ability to access cash. We are a holding company, and our sources of cash include our available cash balances, net cash from the operating activities of our wholly-owned subsidiaries, any dividends and interest we may receive from our investments, available funds under the Margin Loan Agreement (defined below) (which was $1.0 billion as of December 31, 2021) and proceeds from any asset sales or other forms of asset monetization we may undertake in the future. In addition, the ability of our operating subsidiaries to pay dividends or to make other payments or advances to us depends on their operating results and any statutory, regulatory or contractual restrictions to which they may be or may become subject.

Other than cash generated from our participation in Charter's stock repurchase program, we do not have access to the cash that Charter generates from its operating activities.

Notwithstanding our ownership interest in Charter and our having three nominees on its thirteen-member board of directors, we have no ability to cause Charter to pay dividends to us, and we cannot cause Charter to make funds available to us except to the extent we are obligated to participate in Charter's stock repurchase program pursuant to the terms of the Stockholders Agreement and the letter agreement entered into on February 23, 2021 in order to reduce our percentage equity interest, on a fully diluted basis, to the Equity Cap. Charter generated approximately $16,239 million, $14,562 million and $11,748 million of cash from its operations during the years ended December 31, 2021, 2020 and 2019, respectively. Charter uses the cash it generates from its operations primarily to fund its business operations, service its debt and other financial obligations and repurchase shares of its common stock. We do not have access to the cash that Charter generates unless Charter declares a dividend on its capital stock payable in cash, engages in stock repurchases for cash or otherwise distributes or makes payments to its stockholders, including us. Historically, Charter has not paid any dividends on its capital stock or, with limited exceptions, otherwise distributed cash to its stockholders and instead has used all of its available cash in the expansion of its business, to service its debt obligations and to repurchase shares of its common stock. Covenants in Charter's existing debt instruments also restrict the payment of dividends and cash distributions to stockholders. We expect that Charter will continue to apply its available cash as described above.

We rely on Charter to provide us with the financial information that we use in accounting for our ownership interest in Charter as well as information regarding Charter that we include in our public filings.

We account for our approximately 30.9% economic ownership interest in Charter using the equity method of accounting and, accordingly, in our financial statements we record our share of Charter's net income or loss. Within the meaning of U.S. accounting rules, we rely on Charter to provide us with financial information prepared in accordance with generally accepted accounting principles, which we use in the application of the equity method. We also rely on Charter to provide us with the information regarding their company that we include in our public filings. In addition, we cannot change the way in which Charter reports its financial results or require Charter to change its internal controls over financial reporting. No assurance can be given that Charter will provide us with the information necessary to enable us to complete our public filings on a timely basis or at all.

Furthermore, any material misstatements or omissions in the information Charter provides to us or publicly files could have a material adverse effect on our financial statements and filing status under federal securities laws.

We may become subject to the Investment Company Act of 1940.

We do not believe we are currently subject to regulation under the Investment Company Act of 1940, as amended (the "Investment Company Act") because our investment in Charter enables us to exercise significant influence over Charter. We have substantial involvement in the management and affairs of Charter, including through our board nominees. We nominated three of Charter's thirteen current directors. In connection with the Transactions, on May 23, 2015, we entered into the Stockholders Agreement, which continues to provide us with board nomination rights. If, however, our investment in Charter was deemed to become passive (such as in the event that our equity interests were significantly diluted and our nominees ceased to serve as directors of Charter), we could become subject to regulation under the Investment Company Act. In such event, we would be required to register as an investment company, which could result in significant registration and compliance costs, could require changes to our corporate governance structure and financial reporting and could restrict our activities going forward. Our restated certificate of incorporation includes a provision that would enable us, at the option of our board of directors, to automatically convert each outstanding share of our Series B common stock into one share of our Series A common stock at such time as we have outstanding less than 20% of the total number of shares of our Series B common stock issued in our 2014 spin-off from Liberty. In addition, if we were to become inadvertently subject to the Investment Company Act and failed to register as an investment company in violation of the Investment Company Act, such violation could subject us to material adverse consequences, including potentially significant regulatory penalties and the possibility that our contracts would be deemed unenforceable.

Our company has overlapping directors and officers with Liberty, Qurate Retail, TripCo and Liberty Media Acquisition Corporation, which may lead to conflicting interests.

As a result of our spin-off from Liberty in 2014 and other transactions between 2011 and 2014 that resulted in the separate corporate existence of Liberty, Qurate Retail, and TripCo, as well as the initial public offering of Liberty Media Acquisition Corporation ("LMAC") in January 2021, all of our executive officers also serve as executive officers of Liberty, Qurate Retail, TripCo and LMAC, and there are overlapping directors. Other than Liberty's ownership of LMAC's sponsor, which beneficially owns 20% of LMAC's outstanding common stock as of December 31, 2021, none of these companies has any ownership interest in any of the others. Our executive officers and members of our company's board of directors have fiduciary duties to our stockholders. Likewise, any such persons who serve in similar capacities at Liberty, Qurate Retail, TripCo, LMAC or any other public company have fiduciary duties to that company's stockholders. For example, there may be the potential for a conflict of interest when our company, Liberty, Qurate Retail, TripCo or LMAC pursues acquisitions and other business opportunities that may be suitable for each of them. Therefore, such persons may have conflicts of interest or the appearance of conflicts of interest with respect to matters involving or affecting more than one of the companies to which they owe fiduciary duties. Each of our company, TripCo and LMAC has renounced its rights to certain business opportunities and their respective restated certificate of incorporation provides that no director or officer of the respective company will breach their fiduciary duty and therefore be liable to the respective company or its stockholders by reason of the fact that any such individual directs a corporate opportunity to another person or entity (including Liberty, Qurate Retail, TripCo and LMAC) instead of the respective company, or does not refer or communicate information regarding such corporate opportunity to our company, unless (x) such opportunity was expressly offered to such person solely in his or her capacity as a director or officer of the respective company or as a director or officer of any of the respective company's subsidiaries, and (y) such opportunity relates to a line of business in which the respective company or any of its subsidiaries is then directly engaged. In addition, any potential conflict that qualifies as a "related party transaction" (as defined in Item 404 of Regulation S-K) is subject to review by an independent committee of the applicable issuer's board of directors in accordance with its corporate governance guidelines. Any other potential conflicts that arise will be addressed on a case-by-case basis, keeping in mind the applicable fiduciary duties owed by the executive officers and directors of each issuer. From time to time, we may enter into transactions with Liberty, Qurate Retail, TripCo, LMAC and/or their respective subsidiaries or other affiliates. There can be no assurance that the terms of any such transactions will be as favorable to our company, Liberty, Qurate Retail, TripCo, or LMAC or any of their respective subsidiaries or affiliates as would be the case where there is no overlapping officer or director.

Certain of our inter-company agreements were negotiated while we were a subsidiary of Liberty.

We entered into a number of inter-company agreements covering matters such as tax sharing and our responsibility for certain liabilities previously undertaken by Liberty for certain of our businesses. In addition, we entered into a services agreement with Liberty pursuant to which it provides to us certain management, administrative, financial, treasury, accounting, tax, legal and other services, for which we reimburse them on a fixed fee basis, which was amended to provide that components of our President and Chief Executive Officer's compensation will either be paid directly to him by our company or reimbursed to Liberty, in each case, based on the allocation set forth in the amendment. The terms of all of these agreements (other than the amendment to the services agreement) were established while we were a wholly-owned subsidiary of Liberty, and hence may not be the result of arms' length negotiations. We believe that the terms of these inter-company agreements are commercially reasonable and fair to all parties under the circumstances; however, conflicts could arise in the interpretation or any extension or renegotiation of the foregoing agreements.

Our ability to use net operating loss and disallowed business interest carryforwards to reduce future tax payments could be negatively impacted if there is an "ownership change" as defined under Section 382 of the Internal Revenue Code of 1986, as amended (the "Code"), of our Company.

At December 31, 2021, we had a deferred tax asset attributable to federal and state net operating losses and disallowed business interest carryforwards of $94 million and under the Code, we may carry forward our federal net operating losses and disallowed business interest deductions in certain circumstances to offset current and future taxable income and reduce our federal income tax liability, subject to certain requirements and restrictions. If we experience an "ownership change," as defined in Section 382 of the Code and related Treasury regulations (generally, a cumulative change in ownership that exceeds 50% of the value of a corporation's stock over a rolling three-year period) at a time when our market capitalization is below a certain level or proposed Treasury regulations under Section 382 of the Code issued during 2019 have become final and are applicable (taking into account the delayed effective date of such regulations), our ability to use our federal net operating loss and disallowed business interest carryforwards could be substantially limited. This limit could impact the timing of the usage of our net operating loss and disallowed business interest carryforwards, thus accelerating federal cash tax payments or causing certain federal net operating loss carryforwards to expire prior to their use, which could affect the ultimate realization of that deferred tax asset. Similar limitations may also apply at the state level.

Factors Related to Our and Our Subsidiaries' Indebtedness

Our company may have future capital needs and may not be able to obtain additional financing, or refinance or renew our existing indebtedness, on acceptable terms. Further, our and our subsidiaries' ability to service our respective debt and any other obligations will require access to funds, which may be restricted.

As of December 31, 2021, we had approximately $3.7 billion principal amount of debt outstanding, consisting of (i) $1.3 billion outstanding under a credit agreement (as amended, the "Margin Loan Agreement") governing a multi-draw margin loan agreement credit facility entered into in 2017 by a bankruptcy remote wholly owned subsidiary ("SPV") of Liberty Broadband; (ii) $575 million outstanding under our 2.75% Exchangeable Senior Debentures due 2050 and $825 million outstanding under our 1.25% Exchangeable Senior Debentures due 2050 (collectively, the "Company Debentures"); (iii) $15 million outstanding under the 1.75% exchangeable senior debentures due 2046 originally issued by GCI Liberty; (iv) $600 million outstanding under GCI, LLC's 4.750% senior notes due 2028 (the "Senior Notes"); and (v) $399 million in outstanding term and revolving loans under GCI, LLC's senior secured credit facility with a syndicate of banks (the "Senior Credit Facility"). We also had $1.0 billion remaining available to be drawn until five business days prior to May 12, 2024 at December 31, 2021 under the Margin Loan Agreement. Further, as a result of multiple transactions, including the Combination, we have entered into an indemnification agreement pursuant to which, among other things, (1) we will indemnify Liberty Interactive LLC ("Liberty LLC") with respect to any of Liberty LLC's 1.75% Exchangeable Debentures due 2046 (the "Liberty Charter Exchangeable Debentures") surrendered for exchange to Liberty LLC on or before October 5, 2023 for the amount by which (i) the exchange value exceeds (ii) the sum of the adjusted principal amount of such Liberty Charter Exchangeable Debentures plus the amount of certain tax benefits attributable to such Liberty Charter Exchangeable Debentures so exchanged, and (2) Qurate Retail, Liberty Broadband and GCI Liberty will indemnify each other with respect to certain potential losses in respect of the 2018 split-off of GCI Liberty by Qurate Retail.

Our and our subsidiaries' ability to service the respective financial obligations will depend on our and their ability to access cash, and cash flows from operations may be insufficient to satisfy the respective financial obligations under indebtedness outstanding from time to time. Accessing cash at operating subsidiaries will depend on those subsidiaries individual operating results and any statutory or regulatory restrictions. The obligations under the Margin Loan Agreement are secured by a portion of our ownership interest in Charter. Such equity interests are held through SPV. The terms of the Margin Loan Agreement limit our company's ability to secure additional financing on favorable terms. In addition, covenants included in the Senior Notes and Senior Credit Facility will limit the ability of certain subsidiaries to upstream or downstream cash for this purpose. Our and our subsidiaries' other potential sources of cash include available cash balances, dividends and interest from its investments, monetization of public investments, and proceeds from asset sales.

Moreover, our and our subsidiaries' ability to secure additional financing will depend upon the operating performance of our subsidiaries, the value of our investment in Charter, prevailing general economic and credit market conditions, including interest rate levels and the availability of credit generally, the state of competition in our subsidiaries' respective markets, the outcome of certain legislative and regulatory issues and financial, business and other factors, many of which are beyond our control. There can be no assurance that sufficient financing will be available, or that we will be able to renew or refinance existing indebtedness, on desirable terms or at all. If financing is not available when needed or is not available on favorable terms, we and our subsidiaries may be unable to take advantage of business or market opportunities as they arise, which could have a material adverse effect on our business and financial condition.

We and our subsidiaries have significant indebtedness, which could adversely affect our business and financial condition.

As discussed above, as of December 31, 2021, we and our subsidiaries had approximately $3.7 billion principal amount of debt outstanding. As a result of this significant indebtedness, we and our subsidiaries may:

- Experience increased vulnerability to general adverse economic and industry conditions;
- Be required to dedicate a substantial portion of cash flow from operations to principal and interest payments on its indebtedness, thereby reducing the availability of cash flow to fund working capital, capital expenditures, strategic acquisitions and investments and other general corporate purposes;
- Be impeded in our and their ability to optimally capitalize and manage cash flows;
- Be restricted from making strategic acquisitions or required to make non-strategic divestitures;
- Be exposed to the risk of increased interest rates with respect to any variable rate portion of indebtedness; and
- Be limited in planning for, or reacting to, changes in business or market conditions and placing us and our subsidiaries at a competitive disadvantage compared to competitors who are less highly leveraged and who, therefore, may be able to take advantage of opportunities that our and our subsidiaries' leverage may prevent us and them from exploiting.

In addition, it is possible that we may need to incur additional indebtedness in the future. For example, at December 31, 2021, we had $1.0 billion remaining available to be drawn until five business days prior to May 12, 2024 under the Margin Loan Agreement and we could issue additional exchangeable senior debentures. If new debt is added to the current debt levels, the risks described above could intensify. For additional limitations on our company's ability to potentially service our direct debt obligations, see "*We are a holding company, and we could be unable to obtain cash in amounts sufficient to service our financial obligations or meet our other commitments*" and "*Other than cash generated from our participation in Charter's stock repurchase program, we do not have access to the cash that Charter generates from its operating activities*" above.

The agreements that govern our and our subsidiaries' current and future indebtedness may contain various affirmative and restrictive covenants that will limit our discretion in the operation of our business.

As discussed above, SPV entered into the Margin Loan Agreement pursuant to which SPV had outstanding borrowings of $1.3 billion, with $1.0 billion remaining available to be drawn until five business days prior to May 12, 2024, at December 31, 2021. The Margin Loan Agreement contains various covenants, including those that limit our ability to, among other things, incur indebtedness either directly, through another of our subsidiaries, or by having SPV enter into financing arrangements with respect to the stock of Charter, and cause SPV to enter into unrelated businesses or otherwise conduct business other than owning common stock of Charter and other assets as permitted under the Margin Loan Agreement documents.

Further, the agreements governing our and our subsidiaries' other indebtedness contain various covenants that could materially and adversely affect our and our subsidiaries' ability to finance future operations or capital needs and to engage in other business activities that may be in our and their best interest.

We may also enter into certain other indebtedness arrangements in the future. The instruments governing such indebtedness, often contain covenants that, among other things, place certain limitations on a borrowers' ability to incur more debt, exceed specified leverage ratios, pay dividends, make distributions, make investments, repurchase stock, create liens, enter into transactions with affiliates, merge or consolidate, and transfer or sell assets. Any failure to comply with such covenants could result in an event of default, which, if not cured or waived, could have a material adverse effect on our business and financial condition.

The various covenants in existing or future indebtedness may restrict our and our subsidiaries' ability to expand or to pursue business strategies. Our and our subsidiaries' ability to comply with these covenants may be affected by events beyond our and their control, such as prevailing economic conditions and changes in regulations, and if such events occur, we cannot be sure that we and our subsidiaries will be able to comply. A breach of these covenants could result in a default under the indentures and/or the credit agreements. If there were an event of default under the Margin Loan Agreement, the indentures and/or the credit agreements, holders of such defaulted debt could cause all amounts borrowed under these instruments to be due and payable immediately. Additionally, if we or our subsidiaries fail to repay the debt under any secured indebtedness when it becomes due, the lenders under such indebtedness could proceed against the assets that are pledged to them as security. Our and our subsidiaries' assets or cash flow may not be sufficient to repay borrowings under outstanding debt instruments in the event of a default thereunder.

Variable rate indebtedness subjects the Company to interest rate risk, which could cause its debt service obligations to increase significantly.

Borrowings under the Margin Loan Agreement and the Senior Credit Facility are at variable rates of interest and expose us to interest rate risk. If interest rates increase, the Company's debt service obligations on any variable rate indebtedness could increase even though the amount borrowed remained the same, and net income and cash flow could decrease.

In addition, the Company's variable rate indebtedness uses London Interbank Offering Rate ("LIBOR") as a benchmark for establishing the rate. In 2017, the United Kingdom's Financial Conduct Authority (the "FCA"), which regulates LIBOR, announced that it intends to phase out LIBOR. On March 5, 2021, the FCA announced that all LIBOR settings will either cease to be provided by any administrator or no longer be representative: (a) immediately after December 31, 2021, in the case of the one week and two month U.S. dollar settings; and (b) immediately after June 30, 2023, in the case of the remaining U.S. dollar settings. The United States Federal Reserve has also advised banks to cease entering into new contracts that use USD LIBOR as a reference rate. The Alternative Reference Rate Committee, a committee convened by the Federal Reserve that includes major market participants, has identified the Secured Overnight Financing Rate, or SOFR, a new index calculated by short-term repurchase agreements, backed by Treasury securities, as its preferred alternative rate for LIBOR. At this time, it is not possible to predict how markets will respond to SOFR or other alternative reference rates as the transition away from the LIBOR benchmarks is anticipated in coming years. Accordingly, the outcome of these reforms is uncertain and any changes in the methods by which LIBOR is determined or regulatory activity related to LIBOR's phaseout could cause LIBOR to perform differently than in the past or cease to exist. The consequences of these developments cannot be entirely predicted, but could include an increase in the cost of borrowings under the aforementioned debt instruments. Additionally, our Margin Loan Agreement and Senior Credit Facility provide for a transition to a SOFR based rate or to other alternative reference rates depending on acceptance in the market of these rates.

In order to manage the Company's exposure to interest rate risk, in the future, it may enter into derivative financial instruments, typically interest rate swaps and caps, involving the exchange of floating for fixed rate interest payments. If the Company is unable to enter into interest rate swaps, it may adversely affect its cash flow and may impact its ability to make required principal and interest payments on its indebtedness and, even if we use these instruments to selectively manage risks, there can be no assurance that we will be fully protected against material interest rate fluctuations.

Factors Relating to COVID-19

The ongoing COVID-19 pandemic could materially affect the financial condition and results of operations of Charter and GCI Holdings.

The ongoing COVID-19 pandemic has significantly increased economic and demand uncertainty and caused economic disruption. At this time, we cannot predict the duration of any business disruption and the ultimate impact of COVID-19 on the businesses of Charter and GCI Holdings. As a general matter, the COVID-19 pandemic has significantly increased economic and demand uncertainty, and a significant global recession may result.

With respect to Charter, we cannot predict the depth and duration of the economic impact to Charter's residential and business customers' ability to pay for its products and services. In addition, there is uncertainty regarding the impact of government emergency declarations, the ability of Charter's suppliers and vendors to provide products and services to it, the pace of new housing construction, the pace of households moving residences, changes in business spend in Charter's local and national ad sales business, the effects to employees' health and safety, and resulting reorientation of its work activities and the risk of limitations on the deployment and maintenance of Charter's services (including by limiting customer support and on-site service repairs and installations).

With respect to GCI Holdings, because of the geographic concentration of GCI Holdings' operations in Alaska, growth of GCI Holdings' business and operations depends upon economic conditions in Alaska, which we expect will continue to be impacted by COVID-19 and the measures taken in Alaska and around the world to address the pandemic. At the end of 2019, the Alaska economy showed signs of emerging from a recession that started in late 2015. However, GCI Holdings expects this recession to continue as a result of the COVID-19 pandemic. GCI Holdings is unable to predict the depth and duration of the economic impact to its customers' ability to pay for products and services, even after taking into account the impact of extended unemployment benefits and other stimulus packages and governmental assistance provided to its customers. Historically, recessions have had an adverse impact on its business and could adversely affect the affordability of and demand for some of its products and services and cause customers to shift to lower priced products and services or to delay or forgo purchases of its products and services. GCI Holdings' customers may not be able to obtain adequate access to credit, which could affect their ability to make timely payments to GCI Holdings. There is a risk that GCI Holdings' accounts receivable and bad debt expense will increase substantially due to the economic impact of the COVID-19 pandemic. In addition, GCI Holdings is unable to predict the impact to its business from future government emergency declarations, the ability of its suppliers and vendors to provide products and services to GCI Holdings and the risk of limitations on the deployment and maintenance of GCI Holdings' services, changes in business spend in GCI Holdings' ad sales business, the effects to employees' health and safety, and resulting reorientation of its work activities and the risk of limitations on the deployment and maintenance of its services (including by limiting customer support and on-site service repairs and installations).

The Alaska economy is dependent upon the oil industry, state government spending, United States military spending, investment earnings and tourism. A decline in oil prices could put significant pressure on the Alaska state government budget. Although Alaska state government has significant reserves that GCI Holdings believes will help fund the state government for the next couple of years, major structural budgetary reforms will be required in order to offset the impact of the COVID-19 pandemic and a decline in oil prices. Although GCI Holdings cannot predict the long-term impact COVID-19 will have on these sectors of the Alaska economy, adverse circumstances in these industries may have an adverse impact on the demand for its products and services and on its results of operations and financial condition.

Further, the extent of the impact of the COVID-19 pandemic on Charter and GCI Holdings remains fluid and the likelihood of an impact that could be material increases the longer the virus impacts activity levels in the locations in which they operate. Delays in the widespread distribution of vaccines, or lack of public acceptance, could lead people to continue to self-isolate and not participate in the economy at pre-pandemic levels for a prolonged period of time. In addition, new variants of the virus may continue to emerge. Even after the COVID-19 pandemic subsides, the U.S. economy and other major global economies may experience a prolonged recession, and we anticipate Charter and GCI Holdings could be materially adversely affected by a prolonged recession in the U.S. and other major markets.

To the extent the COVID-19 pandemic adversely affects our or Charter's or GCI Holdings' respective businesses, financial conditions and results of operations, it may also have the effect of heightening the other risks described in these Risk Factors, such as those relating to fluctuations in our stock price and the market value of our interests in publicly-traded securities, the effect of increases in data usage on GCI Holdings' wired and wireless networks on network capacity limitations, impairments, our significant level of indebtedness and our ability to generate sufficient cash to service our debt obligations.

Factors Relating to GCI Holdings

Additional risks and uncertainties not currently known to the Company or that it currently deems to be immaterial may also materially and adversely affect the business operations of GCI Holdings, which the Company refers to as "GCI" in the following risk factors relating to the business of GCI Holdings. Any of the following risks could materially and adversely affect the Company's business, financial position, results of operations or liquidity.

GCI faces competition that may reduce its market share and harm its financial performance.

There is substantial competition in the telecommunications and entertainment industries. Through mergers, various service integration strategies, and business alliances, major providers are striving to strengthen their competitive positions. GCI faces increased wireless services competition from national carriers in the Alaska market and increasing video services competition from DBS providers and over-the-top content providers who are often able to offer more flexible subscription packages and exclusive content.

The Company expects competition to increase as a result of the rapid development of new technologies, services and products, and the availability of increased federal funding of broadband infrastructure. The Company cannot predict which of many possible future technologies, products or services will be important to maintain GCI's competitive position or what expenditures will be required to develop and provide these technologies, products or services. GCI's ability to compete successfully will depend on marketing and on its ability to anticipate and respond to various competitive factors affecting the industry, including new services that may be introduced, changes in consumer preferences, economic conditions and pricing strategies by competitors. To the extent GCI does not keep pace with technological advances or fails to timely respond to changes in competitive factors in its industry and in its markets, GCI could lose market share or experience a decline in its revenue and net income. Competitive conditions create a risk of market share loss and the risk that customers shift to less profitable lower margin services. Competitive pressures also create challenges for its ability to grow new businesses or introduce new services successfully and execute its business plan. GCI also faces the risk of potential price cuts by the Company's competitors partially driven by federal funding for broadband infrastructure that could materially adversely affect its market share and gross margins.

GCI's wholesale customers including its major roaming customers may construct facilities in locations where they currently contract with GCI to use its network to provide service on their behalf. The Company could experience a decline in revenue and net income if any of GCI's wholesale customers constructed or expanded their existing networks in places where service is currently provided by GCI's network. Some of GCI's wholesale customers have greater access to financial, technical, and other resources than GCI does. GCI expects to continue to offer competitive alternatives to such customers in order to retain significant traffic on GCI's network. The Company cannot predict whether such customers will continue to see GCI's network as a compelling alternative. GCI's inability to negotiate renewals of such contracts could have a material adverse effect on the Company's business, financial condition and results of operations.

If GCI experiences customer losses, the Company's financial performance will be negatively impacted.

GCI is in the business of selling communications and entertainment services to subscribers, and its economic success is based on its ability to retain current subscribers and attract new subscribers. If GCI is unable to retain and attract subscribers, its and the Company's financial performance will be impaired. GCI's rates of subscriber acquisition and turnover are affected by a number of competitive factors including the size of its service areas, network performance and reliability issues, changing technologies including the transition to internet protocol television, its device and service offerings, subscribers' perceptions of its services, and customer care quality. Managing these factors and subscribers' expectations is essential in attracting and retaining subscribers. Although GCI has implemented programs to attract new subscribers and address subscriber turnover, the Company cannot assure you that these programs or GCI's strategies to address subscriber acquisition and turnover will be successful. A high rate of turnover or low or negative rate of new subscriber acquisition would reduce revenue and increase the total marketing expenditures required to attract the minimum number of subscribers required to sustain GCI's business plan which, in turn, could have a material adverse effect on the Company's business, financial condition and results of operations.

GCI may be unable to obtain or maintain the roaming services it needs from other carriers to remain competitive.

Some of GCI's competitors have national networks that enable them to offer nationwide coverage to their subscribers at a lower cost than GCI can offer. The networks GCI operates do not, by themselves, provide national coverage and GCI must pay fees to other carriers who provide roaming services to it. GCI currently relies on roaming agreements with several carriers for the majority of its roaming services.

The FCC requires commercial mobile radio service providers to provide roaming, upon request, for voice and SMS text messaging services on just, reasonable and non-discriminatory terms. The FCC also requires carriers to offer data roaming services. The rules do not provide or mandate any specific mechanism for determining the reasonableness of roaming rates for voice, SMS text messaging or data services and require that roaming complaints be resolved on a case-by-case basis, based on a non-exclusive list of factors that can be taken into account in determining the reasonableness of particular conduct or rates. If GCI were to lose the benefit of one or more key roaming or wholesale agreements unexpectedly, it may be unable to obtain similar replacement agreements and as a result may be unable to continue providing nationwide voice and data roaming services for its customers or may be unable to provide such services on a cost-effective basis. GCI's inability to obtain new or replacement roaming services on a cost-effective basis may limit its ability to compete effectively for wireless customers, which may increase its turnover and decrease its revenue, which in turn could materially adversely affect the Company's business, financial condition and results of operations.

GCI's business is subject to extensive governmental legislation and regulation. Changes to or interpretations of existing statutes, rules, regulations, or the adoption of new ones, could adversely affect GCI's business, financial position, results of operations or liquidity.

As described above in "Item 1. - Business - Regulatory Matters," GCI's business is subject to extensive federal and state governmental legislation and regulation. There can be no assurance that future changes or additions to the regulatory system under which GCI operates will benefit or have no adverse effect on GCI. Similarly, these rules and regulations are subject to interpretation by the applicable agencies, and new interpretations, which could impact GCI's operations and have an adverse effect on GCI's business, position, results of operations or liquidity. There can be no assurance that future regulatory actions taken by Congress, the FCC or other federal, state or local government authorities will not have a similar effect.

With respect to wireless services provided by GCI, the licensing, construction, operation, sale and interconnection arrangements of wireless communications systems are regulated by the FCC, Alaska, and, potentially other state and local regulatory agencies. In particular, the FCC grants wireless licenses and imposes significant regulation on licensees of wireless spectrum. There can be no guarantee that GCI's existing licenses will be renewed. In addition, while the FCC does not currently regulate wireless service providers' rates, states may exercise authority over such things as certain billing practices and consumer-related issues. These regulations could increase the costs of GCI's wireless operations, including with respect to the maintenance of existing licenses granted by the FCC due to failure to comply with applicable regulations. GCI is also subject to FCC rules relating to E911 capabilities, and failure to comply with these rules could subject GCI to significant fines. With respect to video services provided by GCI, GCI is subject to changes in regulation that could potentially result in rate reductions or refunds of previously collected fees in the future.

With respect to Internet services provided by GCI, GCI would be adversely impacted by the reclassification of Internet service as a telecommunications service under Title II of the Communications Act. In 2015, the FCC classified Internet service as a telecommunication service. The FCC's implementing regulations prohibited broadband providers from blocking or throttling most lawful public Internet traffic, from engaging in paid prioritization of that traffic, and from unreasonably interfering with or disadvantaging end users' and edge providers' ability to send traffic to, from, and among each other. Although a 2018 FCC order returned to a Title I classification of Internet service and eliminated many of the requirements imposed in its initial 2015 order, the FCC may seek to re-impose net neutrality requirements or some variation thereof. In addition, Congress and state legislatures may undertake similar efforts. For example, California and Vermont have undertaken such efforts. The Company cannot predict whether the FCC or Congress will re-impose the 2015 rules or some variation thereof. The increased regulatory burden if the 2015 rules were re-imposed likely would increase GCI's costs and could adversely affect the manner and price of providing service, which could have a material adverse effect on GCI's business, financial position, results of operations, or liquidity.

USF receivables and contributions are subject to change due to regulatory actions taken by the FCC, including the FCC's interpretations of the USF program rules, or legislative actions that change the rules and regulations governing the USF program.

GCI participates in various USF programs, which provide government subsidies to customers in low income areas, including schools, libraries and other facilities. This support was 32% and 29% of GCI Holdings' revenue for the years ended December 31, 2021 and December 31, 2020, respectively. GCI had USF net receivables of $148 million and $281 million at December 31, 2021 and 2020, respectively. In addition, the USF programs require GCI, Charter and other telecommunications providers to make contributions, based on certain revenue earned, into a fund used to subsidize the provision of voice services and broadband-capable voice networks in high-cost areas, the provision of voice and broadband services to low-income consumers, and the provision of internet, voice and telecommunications services to schools, libraries and certain health care providers. The USF programs in which GCI participates are highly regulated. While the rules and regulations governing the USF programs are fairly robust, there can be no assurance that any new rules or regulations adopted will not impact GCI's USF program anticipated receivables or contributions. Further, the FCC and USAC may interpret or apply the applicable rules and regulations in ways that are unexpected to GCI or other program participants. As a result, material changes to receivables and contributions may occur, which could have an adverse effect on GCI's business and the Company's financial position, results of operations or liquidity. As described above in "Item 1. Business - Regulatory Matters," GCI has experienced material changes to receivables and contributions from the USF programs in recent years. For example, in October 2018, the Bureau notified GCI of its decision to reduce rural rates charged to RHC customers for the funding year that ended on June 30, 2018 by approximately 26% resulting in a reduction of total support payments of $28 million, and stated that it would apply the same cost methodology going forward. In addition, although the FCC has adjusted the RHC Program funding cap and committed to annual adjustments in future years for inflation, there is no guarantee that aggregate funding will be available to pay in full the approved funding for future years. Furthermore, the FCC has adopted changes to the manner in which support issued under the RHC Program will be calculated and approved, and GCI is currently unable to assess the substance, impact on funding or timing of these changes. Although, GCI has sought FCC review of certain FCC actions regarding the RHC Program, the outcome is uncertain.

Failure to comply with USF program requirements may have an adverse effect on GCI's business and the Company's financial position.

The USF programs in which GCI participates are highly regulated, and, in many cases, require highly technical and nuanced processes and procedures in order to obtain funding and to ensure compliance with the USF programs. For example, telecommunication providers and their customers are subject to regulations that set forth procedures that must be followed by both the provider and the customer, and there are limitations on communications between these parties. If a customer or a provider is found to have not complied with any aspect of these regulations, regardless of whether such noncompliance was unintentional or accidental, the FCC may deny funding and/or require disgorgement of any amounts received under the affected contracts. The FCC may also invalidate any affected contract and impose fines or penalties. Accordingly, failure to comply with these rules and regulations could have a material adverse effect on GCI's business and the Company's financial position, results of operations or liquidity. As described in note 14 to the consolidated financial statements, the Company accrued a loss of approximately $12 million resulting from a review of certain active and expired RHC Program contracts where it has identified potential compliance issues. Although the FCC has been made aware of the potential RHC Program compliance issues, there can be no assurance that the FCC will not impose penalties or fines that would be additive to any required disgorgement or denial of funding. Further, no assurance can be given that any novated contracts will be replicated subsequently, which may affect future revenue.

Loss of GCI's ETC status would disqualify it for USF support.

The USF pays support to ETCs to support the provision of facilities-based wireline and wireless telephone service in high cost areas. If GCI were to lose its ETC status in any of the study areas where it is currently an authorized ETC whether due to legislative or regulatory reform or its failure to comply with applicable laws and regulations, GCI would be ineligible to receive high cost or low income USF support for providing service in that area, which would have an adverse effect on the Company's business, financial position, results of operations or liquidity.

GCI may not meet its performance plan milestones under the Alaska High Cost Order.

As an ETC, GCI receives support from the USF to support the provision of wireline local access and wireless service in high cost areas. In 2016, the FCC published the Alaska High Cost Order which requires GCI to submit to the FCC a performance plan with five-year and ten-year commitments. If GCI is unable to meet the final performance plan milestones approved by the

FCC it will be required to repay 1.89 times the average amount of support per location received over the ten-year term for the relevant number of locations that GCI failed to deploy to, plus ten percent of its total Alaska High Cost Order support received over the ten-year term. Inability to meet GCI's performance plan milestones could have an adverse effect on its business, financial position, results of operations or liquidity.

GCI may lose USF high cost support if another carrier adds 4G LTE service in an area where it currently provides 4G LTE service.

Under the Alaska High Cost Order, the FCC adopted a process for revisiting after five years whether and to what extent there is duplicative support for 4G LTE service in rural Alaska and to take steps to eliminate such duplicative support levels in the second half of the ten-year term. As a result, if another carrier builds 4G LTE service in an area where GCI is the sole provider and the FCC decides to redistribute the support then GCI's high cost support may be reduced, which could have an adverse effect on its business, financial position, results of operations or liquidity.

Programming expenses for GCI's video services are increasing, which could adversely affect the Company's business.

The Company expects programming expenses for GCI's video services to continue to increase in the foreseeable future. The multichannel video provider industry has continued to experience an increase in the cost of programming, especially sports programming and costs to retransmit local broadcast stations. As GCI's contracts with content providers expire, there can be no assurance that they will be renewed on acceptable terms or that they will be renewed at all, in which case GCI may be unable to provide such content as part of its video services and the Company's business could be adversely affected. If GCI adds programming to its video services or if GCI chooses to distribute existing programming to its customers through additional delivery platforms, GCI may incur increased programming expenses. If GCI is unable to raise its customers' rates or offset such programming cost increases through the sale of additional services, the increasing cost of programming could have an adverse impact on the Company's business, financial condition, or results of operations.

The decline in GCI's voice services' results of operations, which include long-distance and local access services, may accelerate.

The Company expects GCI's voice services' results of operations, which include long-distance and local access services, will continue to decline. As competition from wireless carriers, such as GCI, increases the Company expects GCI's long-distance and local access services' subscribers and revenue will continue to decline and the rate of decline may accelerate.

In addition, GCI's success in the local telephone market depends on its continued ability to obtain interconnection, access and related services from local exchange carriers on terms that are reasonable and that are based on the cost of providing these services. GCI's ability to provide service in the local telephone market depends on its negotiation or arbitration with local exchange carriers to allow interconnection to the carrier's existing local telephone network (in some Alaska markets at cost-based rates), to establish dialing parity, to obtain access to rights-of-way, to resell services offered by the local exchange carrier, and in some cases, to allow the purchase, at cost-based rates, of access to certain unbundled network elements. Future negotiations or arbitration proceedings with respect to new or existing markets could result in a change in GCI's cost of serving these markets via the facilities of the Incumbent Local Exchange Carriers or via wholesale offerings. GCI's local telephone services business faces the risk of unfavorable changes in regulation or legislation or the introduction of new regulations.

Failure to stay abreast of new technology could affect GCI's ability to compete in the industry.

GCI tests and deploys various new technologies and support systems intended to enhance its competitiveness and increase the utility of its services. As GCI's operations grow in size and scope, it must continuously improve and upgrade its systems and infrastructure while maintaining or improving the reliability and integrity of its systems and infrastructure. The emergence of alternative platforms such as mobile or tablet computing devices and the emergence of niche competitors who may be able to optimize products, services or strategies for such platforms will require new investment in technology. Further, current and new wireless internet technologies such as 4G and 5G wireless broadband services continue to evolve rapidly to allow for greater speed and reliability, and the Company expects other advances in communications technology to occur in the future. GCI may not successfully complete the rollout of new technology and related features or services in a timely manner, and they may not be widely accepted by GCI's customers or may not be profitable, in which case GCI could not recover its investment in the technology. There can be no assurance that GCI will be able to compete with advancing technology or introduce new technologies and systems as quickly as it would like or in a cost effective manner. Deployment of technology supporting new service offerings may also adversely affect the performance or reliability of its networks with respect to both the new and existing services. Any resulting customer dissatisfaction could affect GCI's ability to retain customers and may have an adverse effect on the Company's financial position, results of operations, or liquidity. In addition to introducing new technologies and offerings, GCI must phase out outdated and unprofitable technologies and services. If GCI is unable to do so on a cost-effective basis, GCI could experience reduced profits.

GCI's operations are geographically concentrated in Alaska and are impacted by the economic conditions in Alaska, and GCI may not be able to continue to increase its share of the existing market for its services.

As described above in "*The ongoing COVID-19 pandemic could materially affect the financial condition and results of operations of Charter and GCI Holdings*," GCI offers products and services to customers primarily throughout Alaska. Because of this geographic concentration, growth of GCI's business and operations depends upon economic conditions in Alaska, which have been negatively impacted in recent years by a recession and the COVID-19 pandemic.

In addition, the customer base in Alaska is limited and GCI has already achieved significant market penetration with respect to its service offerings in Anchorage and other locations in Alaska. GCI may not be able to continue to increase its share of the existing markets for its services, and no assurance can be given that the Alaskan economy will grow and increase the size of the markets GCI serves or increase the demand for the services it offers. The markets in Alaska for wireless and wireline telecommunications and video services are unique and distinct within the United States due to Alaska's large geographical size, its sparse population located in a limited number of clusters, and its distance from the rest of the United States. The expertise GCI has developed in operating its businesses in Alaska may not provide GCI with the necessary expertise to successfully enter other geographic markets.

Natural or man-made disasters or terrorist attacks could have an adverse effect on GCI's business.

GCI's technical infrastructure (including its communications network infrastructure and ancillary functions supporting its network such as service activation, billing and customer care) is vulnerable to damage or interruption from technology failures, power surges or outages, natural disasters, fires, human error, terrorism, intentional wrongdoing or similar events. As a communications provider, there is an increased risk that GCI's technological infrastructure may be targeted in connection with terrorism or cyberattacks, either as a primary target, or as a means of facilitating additional attacks on other targets.

In addition, earthquakes, floods, fires and other unforeseen natural disasters or events could materially disrupt GCI's business operations or its provision of service in one or more markets. Specifically, the majority of GCI's facilities are located in areas with known significant seismic activity. Costs GCI incurs to restore, repair or replace its network or technical infrastructure, as well as costs associated with detecting, monitoring or reducing the incidence of unauthorized use, may be substantial and increase GCI's cost of providing service. Many of the areas in which GCI operates have limited emergency response services and may be difficult to reach in an emergency situation. Should a natural disaster or other event occur, it could be weeks or longer before remediation efforts could be implemented, if they could be implemented at all. Further, any failure in or interruption of systems that GCI or third parties maintain to support ancillary functions, such as billing, point of sale, inventory management, customer care and financial reporting, could materially impact GCI's ability to timely and accurately record, process and report information important to the Company's business. If any of the above events were to occur, GCI could experience higher churn, reduced revenue and increased costs, any of which could harm its reputation and have a material adverse effect on the Company's business, financial condition or results of operations.

Additionally, the Company's insurance may not be adequate to cover the costs associated with a natural disaster or terrorist attack.

Cyberattacks or other network disruptions could have an adverse effect on the Company and GCI's business.

Through the Company's operations, sales and marketing activities, it collects and stores certain non-public personal information related to its customers. The Company also gathers and retains information about employees in the normal course of business. The Company may share information about such persons with vendors, contractors and other third-parties that assist with certain aspects of its business. In addition, the Company's operations depend upon the transmission of information over the Internet. Unauthorized parties may attempt to gain access to the Company or its vendors' computer systems by, among other things, hacking into its systems or those of third parties, through fraud or other means of deceiving the Company's employees or its vendors, burglaries, errors by the Company or its vendors' employees, misappropriation of data by employees, or other irregularities that may result in persons obtaining unauthorized access to its data. The techniques used to gain such access to the Company's or its vendors' technology systems, data or customer information, disable or degrade service, or sabotage systems are constantly evolving, may be difficult to detect quickly, and often are not recognized until launched against a target.

Cyberattacks against GCI's or the Company's vendors' technological infrastructure or breaches of network information technology may cause equipment failures, disruption of its or their operations, and potentially unauthorized access to confidential customer or employee data, which could subject the Company to increased costs and other liabilities as discussed further below. Cyberattacks, which include the use of malware, computer viruses, and other means for service disruption or unauthorized access to confidential customer or employee data, have increased in frequency, scope, and potential harm for businesses in recent years. It is possible for such cyberattacks to go undetected for an extended period of time, increasing the potential harm to GCI's or the Company's respective customers, employees, assets, and reputation.

To date, GCI has not been subject to cyberattacks or network disruptions that, individually or in the aggregate, have been material to GCI's operations or financial condition. Although GCI has not detected a material security breach or cybersecurity incident to date, it has been the target of events of this nature and expects to be subject to similar attacks in the future. GCI engages in a variety of preventive measures at an increased cost to GCI, in order to reduce the risk of cyberattacks and safeguard its infrastructure and confidential customer information, but as with all companies, these measures may not be sufficient for all eventualities and there is no guarantee that they will be adequate to safeguard against all cyberattacks, system compromises or misuses of data. Such measures include, but are not limited to the following industry best practices: application whitelisting, anti-malware, message and spam filtering, encryption, advanced firewalls, threat detection, and URL filtering. Despite these preventive and detective actions, GCI's efforts may be insufficient to repel a major cyberattack or network disruption in the future and prevent the risks described above.

Some of the most significant risks to GCI's information technology systems, networks, and infrastructure include:

- Cyberattacks that disrupt, damage, and gain unauthorized access to GCI's network and computer systems including data breaches caused by criminal or terrorist activities;
- Undesired human actions including intentional or accidental errors and break-ins;
- Malware (including viruses, worms, cryptoware, and Trojan horses), software defects, unsolicited mass advertising, denial of service, ransomware, and other malicious or abusive attacks by third parties; and
- Unauthorized access to GCI's information technology, billing, customer care, and provisioning systems and networks and those of its vendors and other providers.

If hackers or cyberthieves gain improper access to GCI's technology systems, networks, or infrastructure, they may be able to access, steal, publish, delete, misappropriate, modify or otherwise disrupt access to confidential customer or employee data. Moreover, additional harm to customers or employees could be perpetrated by third parties who are given access to the confidential customer data. A network disruption (including one resulting from a cyberattack) could cause an interruption or degradation of service and diversion of management attention, as well as permit access, theft, publishing, deletion, misappropriation, or modification to or of confidential customer data. Due to the evolving techniques used in cyberattacks to disrupt or gain unauthorized access to technology networks, GCI may not be able to anticipate or prevent such disruption or unauthorized access.

The costs imposed on GCI as a result of a cyberattack or network disruption could be significant. Among others, such costs could include increased expenditures on cyber security measures, litigation, regulatory actions, fines, sanctions, lost revenue from business interruption, and damage to the public's perception regarding GCI's ability to provide a secure service. As a result, a cyberattack or network disruption could have a material adverse effect on the Company's business, financial condition, and operating results. GCI also faces similar risks associated with security breaches affecting third parties with which it is affiliated or otherwise conduct business. While GCI maintains cyber liability insurance that provides both third-party liability and first-party insurance coverage, its insurance may not be sufficient to protect against all of its losses from any future disruptions or breaches of its systems or other events as described above.

Increases in data usage on GCI's wired and wireless networks may cause network capacity limitations, resulting in service disruptions, reduced capacity or slower transmission speeds for GCI's customers.

Video streaming services and peer-to-peer file sharing applications use significantly more bandwidth than traditional Internet activity such as web browsing and email. As use of these services continues to grow, GCI's customers will likely use more bandwidth than in the past. Additionally, new wireless handsets and devices may place a higher demand for data on GCI's wireless network. If this occurs, GCI could be required to make significant capital expenditures to increase network capacity in order to avoid service disruptions, service degradation or slower transmission speeds for its customers. Alternatively, GCI could choose to implement network management practices to reduce the network capacity available to bandwidth-intensive activities during certain times in market areas experiencing congestion, which could negatively affect its ability to retain and attract customers in affected areas. While the Company believes demand for these services may drive customers to pay for faster speeds, competitive or regulatory constraints may preclude GCI from recovering the costs of the necessary network investments which could result in an adverse impact to its business, financial condition, and operating results.

Prolonged service interruptions or system failures could affect GCI's business.

GCI relies heavily on its network equipment, communications providers, data and software to support all of its functions. GCI relies on its networks and the networks of others for substantially all of its revenue. GCI is able to deliver services and serve its customers only to the extent that it can protect its network systems against damage from power or communication failures, computer viruses, natural disasters, unauthorized access and other disruptions. While GCI endeavors to provide for failures in the network by providing back-up systems and procedures, GCI cannot guarantee that these back-up systems and procedures will operate satisfactorily in an emergency. Disruption to its billing systems due to a failure of existing hardware and backup protocols could have an adverse effect on the Company's revenue and cash flow. Should GCI experience a prolonged failure, it could seriously jeopardize its ability to continue operations. In particular, should a significant service interruption occur, GCI's ongoing customers may choose a different provider, and its reputation may be damaged, reducing its attractiveness to new customers.

If failures occur in GCI's undersea fiber optic cable systems or GCI's TERRA facilities and its extensions, GCI's ability to immediately restore the entirety of GCI's service may be limited and the Company could incur significant costs.

GCI's communications facilities include undersea fiber optic cable systems that carry a large portion of its traffic to and from the contiguous lower 48 states, one of which provides an alternative geographically diverse backup communication facility to the other. GCI's facilities also include TERRA and its extensions some of which are unringed, operating in a remote environment and are at times difficult to access for repairs. Damage to an undersea fiber optic cable system or TERRA and its extensions could result in significant unplanned expense. For example, in January 2020, a fiber break occurred in GCI's TERRA ring in Alaska's Cook Inlet. Although service was not materially affected and has since been fully restored, and the financial impact was not significant, full functionality was not restored until March 2020 due to the uniquely challenging environmental conditions in the location of the fiber break. If a failure of both sides of the ring of GCI's undersea fiber optic facilities or GCI's ringed TERRA facility and its unringed extensions occurs and GCI is not able to secure alternative facilities, some of the communications services GCI offers to its customers could be interrupted, which could have a material adverse effect on the Company's business, financial position, results of operations or liquidity.

If a failure occurs in GCI's satellite communications systems, GCI's ability to immediately restore the entirety of its service may be limited.

GCI's communications facilities include satellite transponders that GCI uses to serve many rural and remote Alaska locations. Each of GCI's C-band and Ku-band satellite transponders are backed up using on-board transponder redundancy. In the event of a complete spacecraft failure the services are restored using capacity on other spacecraft that are held in reserve. If a failure of GCI's satellite transponders occurs and GCI is not able to secure alternative facilities, some of the communications services GCI offers to its customers could be interrupted which could have a material adverse effect on the Company's business, financial position, results of operations or liquidity.

GCI depends on a limited number of third-party vendors to supply communications equipment. If GCI does not obtain the necessary communications equipment, GCI will not be able to meet the needs of its customers.

GCI depends on a limited number of third-party vendors to supply wireless, Internet, video and other telephony-related equipment. If GCI's providers of this equipment are unable to timely supply the equipment necessary to meet GCI's needs or provide them at an acceptable cost, GCI may not be able to satisfy demand for its services and competitors may fulfill this demand. Due to the unique characteristics of the Alaska communications markets (i.e., remote locations, rural, satellite-served, low density populations, and the Company's leading edge services and products), in many situations GCI deploys and utilizes specialized, advanced technology and equipment that may not have a large market or demand. GCI's vendors may not succeed in developing sufficient market penetration to sustain continuing production and may fail. Vendor bankruptcy, or acquisition without continuing product support by the acquiring company, may require GCI to replace technology before its otherwise useful end of life due to lack of on-going vendor support and product development.

The suppliers and vendors on which GCI relies may also be subject to litigation with respect to technology on which GCI depends, including litigation involving claims of patent infringement. Such claims have been growing rapidly in the communications industry. The Company is unable to predict whether GCI's business will be affected by any such litigation. The Company expects GCI's dependence on key suppliers to continue as they develop and introduce more advanced generations of technology. The failure of GCI's key suppliers to provide products or product support could have a material adverse effect on the Company's business, financial position, and results of operations.

GCI does not have insurance to cover certain risks to which it is subject, which could lead to the occurrence of uninsured liabilities.

As is typical in the communications industry, GCI is self-insured for damage or loss to certain of its transmission facilities, including its buried, undersea and above-ground fiber optic cable systems. If GCI becomes subject to substantial uninsured liabilities due to damage or loss to such facilities, the Company's financial position, results of operations or liquidity may be adversely affected.

GCI uses a third-party vendor for its customer billing systems. Any errors, cyber-attacks or other operational disruption could have adverse operational, financial and reputational effects on the Company's business.

GCI's third-party billing services vendor may experience errors, cyber-attacks or other operational disruptions that could negatively impact GCI and over which GCI may have limited control. Interruptions and/or failure of this billing services system could disrupt GCI's operations and impact its ability to provide or bill for its services, retain customers, or attract new customers, and negatively impact overall customer experience. Any occurrence of the foregoing could cause material adverse effects on the Company's operations and financial condition, material weaknesses in its internal control over financial reporting and reputational damage.

Any significant impairment of GCI's indefinite-lived intangible assets would lead to a reduction in its net operating performance and a decrease in its assets.

GCI had $1.3 billion of indefinite-lived intangible assets at December 31, 2021, consisting of goodwill of $762 million, cable certificates of $550 million and other intangibles of $37 million. Goodwill represents the excess of cost over fair value of net assets acquired in connection with business acquisitions and represents the future economic benefits expected to arise from other intangible assets acquired that do not qualify for separate recognition. GCI's cable certificates represent agreements with government entities to construct and operate a video business. GCI's wireless licenses are from the FCC and give it the right to provide wireless service within a certain geographical area.

If GCI makes changes in its business strategy or if market or other conditions adversely affect its operations, it may be forced to record an impairment charge, which would lead to a decrease in its assets and a reduction in its net operating performance. GCI's indefinite-lived intangible assets are tested annually for impairment during the fourth quarter and at any time upon the occurrence of certain events or substantive changes in circumstances that indicate the assets might be impaired. If the testing performed indicates that impairment has occurred, GCI is required to record an impairment charge for the difference between the carrying value and the fair value of the goodwill and/or the indefinite-lived intangible assets, as appropriate, in the period in which the determination is made. The testing of goodwill and indefinite-lived intangible assets for impairment requires

GCI to make significant estimates about its future performance and cash flows, as well as other assumptions. These estimates can be affected by numerous factors, including changes in economic, industry or market conditions, changes in underlying business operations, future operating performance, changes in competition, or changes in technologies. Any changes to key assumptions, or actual performance compared with those assumptions, about GCI's business and its future prospects or other assumptions could affect the fair value, resulting in an impairment charge.

Factors Relating to Charter

The following risks relate specifically to our equity affiliate Charter. If any of these risks were realized, they could have a material adverse effect on the value of our equity interest in Charter, which could negatively impact our stock price and our financial prospects.

Charter operates in a very competitive business environment, which affects its ability to attract and retain customers and can adversely affect its business, operations and financial results.

The industry in which Charter operates is highly competitive and has become more so in recent years. In some instances, Charter competes against companies with fewer regulatory burdens, access to better financing and greater and more favorable brand name recognition. Increasing consolidation in the telecommunications and content industries have provided additional benefits to certain of Charter's competitors, either through access to financing, resources, or efficiencies of scale including the ability to launch new video services.

Charter's Internet service faces competition from the phone companies' FTTH, FTTN, fixed wireless broadband, Internet delivered via satellite and DSL services. Various operators offer wireless Internet services delivered over networks which they continue to enhance to deliver faster speeds and also continue to expand 5G mobile services. Charter's voice and mobile services compete with wireless and wireline phone providers, as well as other forms of communication, such as text, instant messaging, social networking services, video conferencing and email. Competition from these companies, including intensive marketing efforts with aggressive pricing and exclusive programming may have an adverse impact on Charter's ability to attract and retain customers.

Charter's video service faces competition from a number of sources, including DBS services, and companies that deliver linear network programming, movies and television shows on demand and other video content over broadband Internet connections to televisions, computers, tablets and mobile devices, often with password sharing among multiple users and security that makes content susceptible to piracy. Newer products and services, particularly alternative methods for the distribution, sale and viewing of content will likely continue to be developed, further increasing the number of competitors that Charter faces.

The increasing number of choices available to audiences, including low-cost or free choices, could negatively impact not only consumer demand for Charter's products and services, but also advertisers' willingness to purchase advertising from Charter. Charter competes for the sale of advertising revenue with television networks and stations, as well as other advertising platforms, such as online media, radio and print. Competition related to Charter's service offerings to businesses continues to increase as well, as more companies deploy more fiber to more buildings, which may negatively impact Charter's growth and/or put pressure on margins.

Charter's failure to effectively anticipate or adapt to new technologies and changes in customer expectations and behavior could significantly adversely affect its competitive position with respect to the leisure time and discretionary spending of its customers and, as a result, affect its business and results of operations. Competition may also reduce its expected growth of future cash flows which may contribute to future impairments of Charter's franchises and goodwill and Charter's ability to meet cash flow requirements, including debt service requirements.

Charter depends on third party service providers, suppliers and licensors; thus, if it is unable to procure the necessary services, equipment, software or licenses on reasonable terms and on a timely basis, its ability to offer services could be impaired, and Charter's growth, operations, business, financial results and financial condition could be materially adversely affected.

Charter depends on a limited number of third party service providers, suppliers and licensors to supply some of the services, hardware, software and operational support necessary to provide some of its services. Some of Charter's hardware, software and operational support vendors, and service providers represent its sole source of supply or have, either through contract or as a result of intellectual property rights, a position of some exclusivity. Charter's ability to provide some services might be materially adversely affected, or the need to procure or develop alternative sources of the affected materials or services might interrupt or delay its ability to serve its customers, if any of these parties experience or engage in the following:

- breach or terminate or elect not to renew their agreements with Charter or otherwise fail to perform their obligations in a timely manner;
- demand exceeds these vendors' capacity;
- tariffs are imposed that impact vendors' ability to perform their obligations or significantly increase the amount Charter pays;
- experience operating or financial difficulties;
- significantly increase the amount Charter is required to pay (including demands for substantial non-monetary compensation) for necessary products or services;
- cease production of any necessary product due to lack of demand, profitability or a change in ownership or are otherwise unable to provide the equipment or services Charter needs in a timely manner at its specifications and at reasonable prices.

Charter's third-party service providers, suppliers and licensors have been disrupted by worker absenteeism, quarantines, restrictions on employees' ability to work, office and factory closures, disruptions to ports and other shipping infrastructure, border closures, or other travel or health-related restrictions. Furthermore, an extended duration of the COVID-19 pandemic could result in significant disruptions in Charter's supply chain. For example, quarantines, shelter-in-place and similar government orders, travel restrictions and health impacts of the COVID-19 pandemic, could impact the availability or productivity of personnel at third-party supply manufacturers, distributors, freight carriers and other necessary components of Charter's supply chain. In addition, the existence of only a limited number of vendors of key technologies can lead to less product innovation and higher costs. These events could materially and adversely affect Charter's ability to retain and attract customers and its operations, business, financial results and financial condition.

Programming costs per video customer are rising at a fast rate, and Charter may not have the ability to reduce or moderate the growth rates of, or pass on to its customers, its increasing programming costs, which would adversely affect its cash flow and operating margins.

Video programming has been, and is expected to continue to be, Charter's largest operating expense item. Media corporation and broadcast station group consolidation has resulted in fewer suppliers and additional selling power on the part of programming suppliers. Charter expects programming rates per video customer will continue to increase due to a variety of factors including annual increases imposed by programmers with additional selling power as a result of media and broadcast station groups consolidation, increased demands by owners of broadcast stations for payment for retransmission consent or linking carriage of other services to retransmission consent, and additional programming, particularly new services. The inability to fully pass programming cost increases on to its customers has had, and is expected in the future to have, an adverse impact on Charter's cash flow and operating margins associated with the video product. Programming contracts often restrict the structure of the video packages Charter offers which impacts the affordability and competitive positioning of its video service. The contracts set to expire in any particular year vary. There can be no assurance that these agreements will be renewed on favorable or comparable terms.

In addition, a number of programmers have begun to sell their services through alternative distribution channels, including IP-based platforms, which are less secure than Charter's video distribution platforms. There is growing evidence that these less secure video distribution platforms are leading to video product theft via password sharing among consumers. Password sharing may drive down the number of customers who pay for certain programming, putting programmer revenue at risk, and which in turn may cause certain programmers to seek even higher programming fees from Charter. The ability for consumers to receive the same content for free through such unauthorized channels has devalued Charter's video product which could impact sales, customer retention and Charter's ability to pass through programming costs to consumers, which increases the risk of non-renewal when programmers seek increases. To the extent that Charter is unable to reach agreement with certain programmers on terms that it believes are reasonable, Charter has been, and may be in the future, forced to remove such programming channels from its line-up, which may result in a loss of customers. Charter's failure to carry programming that is attractive to its customers could adversely impact Charter's customer levels, operations and financial results.

Increased demands by owners of some broadcast stations for carriage of other services or payments to those broadcasters for retransmission consent are likely to further increase Charter's programming costs. Federal law allows commercial television broadcast stations to make an election between "must-carry" rights and an alternative "retransmission-consent" regime. When a station opts for the retransmission-consent regime, Charter is not allowed to carry the station's signal without that station's permission. In some cases, Charter carries stations under short-term arrangements while it attempts to negotiate new long-term retransmission agreements. If negotiations with these programmers prove unsuccessful, they could require Charter to cease carrying their signals, possibly for an indefinite period. Any loss of stations could make Charter's video service less attractive to customers, which could result in less subscription and advertising revenue. In retransmission-consent negotiations, broadcasters often condition consent with respect to one station on carriage of one or more other stations or programming services in which they or their affiliates have an interest. Carriage of these other services, as well as increased fees for retransmission rights, may increase Charter's programming expenses and diminish the amount of capacity it has available to introduce new services, which could have an adverse effect on its business and financial results.

Charter's inability to respond to technological developments and meet customer demand for new products and services could adversely affect its ability to compete effectively.

Charter operates in a highly competitive, consumer-driven and rapidly changing environment. From time to time, Charter may pursue strategic initiatives to launch products or enhancements to its products. Charter's success is, to a large extent, dependent on its ability to acquire, develop, adopt, upgrade and exploit new and existing technologies to address consumers' changing demands and distinguish its services from those of its competitors. Charter may not be able to accurately predict technological trends or the success of new products and services. If Charter chooses technologies or equipment that are less effective, cost-efficient or attractive to customers than those chosen by its competitors, if technologies or equipment on which Charter has chosen to rely cease to be available to it on reasonable terms or conditions, if Charter offers services that fail to appeal to consumers, are not available at competitive prices or that do not function as expected, or Charter is not able to fund the expenditures necessary to keep pace with technological developments, or if Charter is no longer able to make its services available to its customers on a third-party device on which a substantial number of customers have relied to access its services, its competitive position could deteriorate, and its business and financial results could suffer.

The ability of some of Charter's competitors to introduce new technologies, products and services more quickly than Charter does may adversely affect its competitive position. Furthermore, advances in technology, decreases in the cost of existing technologies or changes in competitors' product and service offerings may require Charter in the future to make additional research and development expenditures, or to offer at no additional charge or at a lower price, certain products and services that Charter currently offers to customers separately or at a premium. In addition, the uncertainty of Charter's ability, and the costs, to obtain intellectual property rights from third parties could impact its ability to respond to technological advances in a timely and effective manner.

Charter's inability to maintain and expand its upgraded systems and provide advanced services in a timely manner, or to anticipate the demands of the marketplace, could materially adversely affect Charter's ability to attract and retain customers. In addition, as Charter continues to grow its mobile services using virtual network operator rights from a third party, Charter expects continued growth-related sales and marketing and other customer acquisition costs as well as negative working capital impacts from the timing of device-related cash flows when Charter provides the devices pursuant to equipment installation plans. Charter also continues to consider and pursue opportunities in the mobile space which may include the acquisition of additional licensed spectrum and may include entering into or expanding joint ventures or partnerships with wireless or cable providers which may require significant investment. For example, Charter now holds CBRS PALs to support existing and future mobile services. These licenses are subject to revocation and expiration. Although Charter expects to be able to maintain and renew these licenses, the loss of one or more licenses could significantly impair its ability to offload mobile traffic and achieve cost reductions. If Charter is unable to continue to grow its mobile business and achieve the outcomes it expects from its investments in the mobile business, Charter's growth, financial condition and results of operations could be adversely affected.

Charter's business may be adversely affected if Charter cannot continue to license or enforce the intellectual property rights on which its business depends.

Charter relies on patent, copyright, trademark and trade secret laws and licenses and other agreements with its employees, customers, suppliers and other parties to establish and maintain Charter's intellectual property rights in technology and the products and services used in its operations. Also, because of the rapid pace of technological change, Charter both develops its own technologies, products and services and relies on technologies developed or licensed by third parties. However, any of Charter's intellectual property rights, or the rights of its suppliers, could be challenged or invalidated, or such intellectual property rights may not be sufficient to permit Charter to take advantage of current industry trends or otherwise to provide competitive advantages, which could result in costly redesign efforts, discontinuance of certain product or service offerings or other competitive harm. Charter may not be able to obtain or continue to obtain licenses from these third parties on reasonable terms, if at all. In addition, claims of intellectual property infringement could require Charter to enter into royalty or licensing agreements on unfavorable terms, incur substantial monetary liability or be enjoined preliminarily or permanently from further use of the intellectual property in question, which could require Charter to change its business practices or offerings and limit its ability to compete effectively. Even unsuccessful claims can be time-consuming and costly to defend and may divert management's attention and resources away from Charter's business. Infringement claims continue to be brought frequently in the communications and entertainment industries, and Charter is also often a party to such litigation alleging that certain of its services or technologies infringe the intellectual property rights of others.

Various events could disrupt or result in unauthorized access to Charter's networks, information systems or properties and could impair its operating activities and negatively impact Charter's reputation and financial results.

Network and information systems technologies are critical to Charter's operating activities, both for its internal uses, such as network management and supplying services to Charter's customers, including customer service operations and programming delivery. Network or information system shutdowns or other service disruptions caused by events such as computer hacking, phishing, dissemination of computer viruses, worms and other destructive or disruptive software, "cyber attacks" such as ransomware, process breakdowns, denial of service attacks and other malicious activity pose increasing risks. Both unsuccessful and successful "cyber attacks" on companies have continued to increase in frequency, scope and potential harm in recent years. While Charter develops and maintains systems seeking to prevent systems-related events and security breaches from occurring, the development and maintenance of these systems is costly and requires ongoing monitoring and updating as techniques used in such attacks become more sophisticated and change frequently. Charter, and the third parties on which Charter relies, may be unable to anticipate these techniques or implement adequate preventive measures. While from time to time attempts have been made to access Charter's network, these attempts have not as yet resulted in any material release of information, degradation or disruption to its network and information systems.

Charter's network and information systems are also vulnerable to damage or interruption from power outages, telecommunications failures, accidents, natural disasters (including extreme weather arising from short-term or any long-term changes in weather patterns), terrorist attacks and similar events. Charter's system redundancy may be ineffective or inadequate, and Charter's disaster recovery planning may not be sufficient for all eventualities.

Any of these events, if directed at, or experienced by, Charter or technologies upon which Charter depends, could have adverse consequences on Charter's network, customers and business, including degradation of service, service disruption, excessive call volume to call centers, and damage to Charter's or its customers' equipment and data. Large expenditures may be necessary to repair or replace damaged property, networks or information systems or to protect them from similar events in the future. Moreover, the amount and scope of insurance that Charter maintains against losses resulting from any such events or security breaches may not be sufficient to cover Charter's losses or otherwise adequately compensate Charter for any disruptions to its business that may result. Any such significant service disruption could result in damage to Charter's reputation and credibility, customer dissatisfaction and ultimately a loss of customers or revenue. Any significant loss of customers or revenue, or significant increase in costs of serving those customers, could adversely affect Charter's growth, financial condition and results of operations.

Furthermore, Charter's operating activities could be subject to risks caused by misappropriation, misuse, leakage, falsification or accidental release or loss of information maintained in its information technology systems and networks and those of its third-party vendors, including customer, personnel and vendor data. Charter provides certain confidential, proprietary and personal information to third parties in connection with its business, and there is a risk that this information may be compromised.

Charter processes, stores and transmits large amounts of data, including the personal information of its customers. Ongoing increases in the potential for mis-use of personal information, the public's awareness of the importance of safeguarding personal information, and the volume of legislation that has been adopted or is being considered regarding the protection, privacy and security of personal information have resulted in increases to Charter's information-related risks. Charter could be exposed to significant costs if such risks were to materialize, and such events could damage Charter's reputation, credibility and business and have a negative impact on its revenue. Charter could be subject to regulatory actions and claims made by consumers in private litigations involving privacy issues related to consumer data collection and use practices. Charter also could be required to expend significant capital and other resources to remedy any such security breach.

Charter's exposure to the economic conditions of its current and potential customers, vendors and third parties could adversely affect its cash flow, results of operations and financial condition.

Charter is exposed to risks associated with the economic conditions of its current and potential customers, the potential financial instability of its customers and their financial ability to purchase its products. If there were a general economic downturn, Charter may experience increased cancellations or non-payment by its customers or unfavorable changes in the mix of products purchased. This may include an increase in the number of homes that replace their video service with Internet-delivered and/or over-air content, as well as an increase in the number of Internet and voice customers substituting mobile data and voice products for wireline services which would negatively impact Charter's ability to attract customers, increase rates and maintain or increase revenue. In addition, Charter's ability to gain new customers is dependent to some extent on growth in occupied housing in its service areas, which is influenced by both national and local economic conditions. Weak economic conditions may also have a negative impact on Charter's advertising revenue. These events have adversely affected Charter in the past, and may adversely affect its cash flow, results of operations and financial condition if a downturn were to occur.

In addition, Charter is susceptible to risks associated with the potential financial instability of the vendors and third parties on which Charter relies to provide products and services or to which it outsources certain functions. The same economic conditions that may affect Charter's customers, as well as volatility and disruption in the capital and credit markets, also could adversely affect vendors and third parties and lead to significant increases in prices, reduction in output or the bankruptcy of Charter's vendors or third parties upon which Charter relies. Any interruption in the services provided by Charter's vendors or by third parties could adversely affect Charter's cash flow, results of operation and financial condition.

If Charter is unable to retain key employees, its ability to manage its business could be adversely affected.

Charter's operational results have depended, and its future results will depend, upon the retention and continued performance of its management team. Charter's ability to retain and hire new key employees for management positions could be impacted adversely by the competitive environment for management talent in the broadband communications and technology industries. The loss of the services of key members of management and the inability or delay in hiring new key employees could adversely affect Charter's ability to manage its business and its future operational and financial results.

Charter has a significant amount of debt and expects to incur significant additional debt, including secured debt, in the future, which could adversely affect its financial health and its ability to react to changes in its business.

Charter has a significant amount of debt and expects to (subject to applicable restrictions in its debt instruments) incur additional debt in the future as Charter maintains its stated objective of 4.0 to 4.5 times Adjusted EBITDA leverage (net debt divided by the last twelve months Adjusted EBITDA). As of December 31, 2021, Charter's total principal amount of debt was approximately $91.2 billion with a leverage ratio of 4.4 times Adjusted EBITDA.

Charter's significant amount of debt could have consequences, such as:

- impact its ability to raise additional capital at reasonable rates, or at all;
- make it vulnerable to interest rate increases, in part because approximately 13% of its borrowings as of December 31, 2021 were, and may continue to be, subject to variable rates of interest;
- expose it to increased interest expense to the extent it refinances existing debt with higher cost debt;
- require it to dedicate a significant portion of its cash flow from operating activities to make payments on its debt, reducing its funds available for working capital, capital expenditures, and other general corporate expenses;
- limit its flexibility in planning for, or reacting to, changes in its business, the cable and telecommunications industries, and the economy at large;
- place it at a disadvantage compared to its competitors that have proportionately less debt; and
- adversely affect its relationship with customers and suppliers.

To the extent Charter's current debt amounts increase more than expected, Charter's business results are lower than expected, or credit rating agencies downgrade its debt limiting its access to investment grade markets, the related risks that Charter now faces will intensify.

In addition, Charter's variable rate indebtedness may use LIBOR as a benchmark for establishing the rate. The United Kingdom's Financial Conduct Authority, which regulates LIBOR, stopped publishing one week and 2 month U.S. Dollar ("USD") LIBOR rates after 2021 with remaining USD LIBOR rates ceasing to be published on June 30, 2023 (the "FCA Announcement"). In the United States, the Alternative Reference Rates Committee has proposed the Secured Overnight Financing Rate ("SOFR") as an alternative to LIBOR. It is not presently known whether SOFR or any other alternative reference rates that have been proposed will attain market acceptance as replacements of LIBOR. In addition, the overall financial markets may be disrupted as a result of the phase-out or replacement of LIBOR. Uncertainty as to the nature of such phase out and selection of an alternative reference rate, together with disruption in the financial markets, could increase in the cost of Charter's variable rate indebtedness.

The agreements and instruments governing Charter's debt contain restrictions and limitations that could significantly affect its ability to operate its business, as well as significantly affect its liquidity.

Charter's credit facilities and the indentures governing its debt contain a number of significant covenants that could adversely affect Charter's ability to operate its business, its liquidity, and its results of operations. These covenants restrict, among other things, Charter's and Charter's subsidiaries' ability to:

- incur additional debt;
- repurchase or redeem equity interests and debt;
- issue equity;
- make certain investments or acquisitions;
- pay dividends or make other distributions;
- dispose of assets or merge;
- enter into related party transactions; and
- grant liens and pledge assets.

Additionally, the Charter Communications Operating, LLC ("Charter Operating") credit facilities require Charter Operating to comply with a maximum total leverage covenant and a maximum first lien leverage covenant. The breach of any covenants or obligations in Charter's indentures or credit facilities, not otherwise waived or amended, could result in a default under the applicable debt obligations and could trigger acceleration of those obligations, which in turn could trigger cross defaults under other agreements governing Charter's long-term indebtedness. In addition, the secured lenders under Charter's notes and the Charter Operating credit facilities could foreclose on their collateral, which includes equity interests in substantially all of Charter's subsidiaries, and exercise other rights of secured creditors.

Charter's business is subject to extensive governmental legislation and regulation, which could adversely affect its business.

Regulation of the cable industry has increased cable operators' operational and administrative expenses and limited their revenue. Cable operators are subject to numerous laws and regulations including those covering the following:

- the provision of high-speed Internet service, including net neutrality and transparency rules;
- the provision of voice communications;
- cable franchise renewals and transfers;
- the provisioning, marketing and billing of cable and Internet equipment;
- customer and employee privacy and data security;

- copyright royalties for retransmitting broadcast signals;
- the circumstances when a cable system must carry a broadcast station and the circumstances when it first must obtain retransmission consent to carry a broadcast station;
- limitations on Charter's ability to enter into exclusive agreements with multiple dwelling unit complexes and control Charter's inside wiring;
- equal employment opportunity;
- the resiliency of Charter's networks to maintain service during and after disasters and power outages;
- emergency alert systems, disability access, pole attachments, commercial leased access and technical standards;
- marketing practices, customer service, and consumer protection; and
- approval for mergers and acquisitions often accompanied by the imposition of restrictions and requirements on an applicant's business in order to secure approval of the proposed transaction.

Legislators and regulators at all levels of government frequently consider changing, and sometimes do change, existing statutes, rules, regulations, or interpretations thereof, or prescribe new ones. Any future legislative, judicial, regulatory or administrative actions may increase Charter's costs or impose additional restrictions on Charter's businesses.

Changes to existing statutes, rules, regulations, or interpretations thereof, or adoption of new ones, or participation in new regulatory programs, could have an adverse effect on Charter's business.

There are ongoing efforts to amend or expand the federal, state, and local regulation of some of the services offered over Charter's cable systems, particularly its retail broadband Internet access service. Potential legislative and regulatory changes could adversely impact its business by increasing costs and competition and limiting Charter's ability to offer services in a manner that that would maximize its revenue potential. These changes could include, for example, the reclassification of Internet services as regulated telecommunications services; restrictions on how Charter manages its Internet access services and networks; the adoption of new privacy restrictions on its collection, use and disclosure of certain customer information; new data security and cybersecurity mandates that could result in additional network and information security requirements for Charter's business; new restraints on Charter's discretion over programming decisions; new restrictions on the rates Charter charges to consumers for one or more of the services it offers; changes to the cable industry's compulsory copyright license to carry broadcast signals; new requirements to assure the availability of navigation devices from third-party providers; new Universal Service Fund obligations on Charter's provision of Internet service that would add to the cost of that service; increases in government-administered broadband subsidies to rural areas that could result in subsidized overbuilding of its more rural facilities; changes to the FCC's administration of spectrum; and changes in the regulatory framework for VoIP telephone service, including the scope of regulatory obligations associated with Charter's VoIP telephone service and its ability to interconnect its VoIP telephone service with incumbent providers of traditional telecommunications service.

As a winning bidder in the FCC's RDOF auction in 2020, Charter must comply with numerous FCC and state requirements prior to and after receiving such funding. To comply with these RDOF program requirements, Charter has chosen in the RDOF areas to offer certain of its VoIP telephone services, such as its federal or state Lifeline services, subject to traditional federal and state common carrier regulations. Additionally, in the RDOF areas, Charter will offer certain of its broadband Internet access services subject to required discounts and other marketing-related terms. If Charter fails to comply with those requirements, the FCC could consider Charter in default of the RDOF program rules, and Charter could incur substantial penalties or forfeitures. For example, if Charter fails to attain certain specified infrastructure build-out requirements under the RDOF program, the FCC could withhold future support payments until those shortcomings are corrected. Charter's failure to comply with the rules and requirements for the RDOF program could result in being suspended or disbarred from future governmental programs or contracts for a significant period of time, which could adversely affect its results of operations and financial condition.

If any laws or regulations are enacted that would expand the regulation of Charter's services, they could affect Charter's operations and require significant expenditures. Charter cannot predict future developments in these areas, and any changes to the regulatory framework for Charter's Internet, video, mobile or VoIP services could have a negative impact on its business and results of operations.

It remains uncertain what rule changes, if any, will ultimately be adopted by Congress and the FCC and what operating or financial impact any such rules might have on Charter, including on its programming agreements, customer privacy and the user experience. In addition, the FCC, the FTC, and various state agencies and attorney general actively investigate industry practices and could impose substantial forfeitures for alleged regulatory violations.

Tax legislation and administrative initiatives or challenges to Charter's tax and fee positions could adversely affect its results of operations and financial condition.

Charter operates cable systems in locations throughout the United States and, as a result, is subject to the tax laws and regulations of federal, state and local governments. From time to time, legislative and administrative bodies change laws and regulations that change Charter's effective tax rate or tax payments. Certain states and localities have imposed or are considering imposing new or additional taxes or fees on Charter's services or changing the methodologies or base on which certain fees and taxes are computed. Potential changes include additional taxes or fees on Charter's services which could impact its customers, changes to income tax sourcing rules and other changes to general business taxes, central/unit-level assessment of property taxes and other matters that could increase Charter's income, franchise, sales, use and/or property tax liabilities. For example, some local franchising authorities have imposed franchise fee assessments on Charter's broadband Internet access service (in addition to Charter's video service), and more may do so in the future. If challenges to such assessments are unsuccessful, it could adversely impact Charter's costs. Although the FCC issued a decision precluding the imposition of such duplicative fees, that favorable decision is currently subject to judicial review. In addition, federal, state and local tax laws and regulations are extremely complex and subject to varying interpretations. There can be no assurance that Charter's tax positions will not be challenged by relevant tax authorities or that it would be successful in any such challenge.

Charter's cable system franchises are subject to non-renewal or termination and are non-exclusive. The failure to renew a franchise or the grant of additional franchises in one or more service areas could adversely affect its business.

Charter's cable systems generally operate pursuant to franchises, permits, and similar authorizations issued by a state or local governmental authority controlling the public rights-of-way. Many franchises establish comprehensive facilities and service requirements, as well as specific customer service standards and monetary penalties for non-compliance. In many cases, franchises are terminable if the franchisee fails to comply with significant provisions set forth in the franchise agreement governing system operations. Franchises are generally granted for fixed terms and must be periodically renewed. Franchising authorities may resist granting a renewal if either past performance or the prospective operating proposal is considered inadequate. Franchise authorities often demand concessions or other commitments as a condition to renewal. In some instances, local franchises have not been renewed at expiration, and Charter has operated and is operating under either temporary operating agreements or without a franchise while negotiating renewal terms with the local franchising authorities.

There can be no assurance that Charter will be able to comply with all significant provisions of its franchise agreements and certain of its franchisers have from time to time alleged that Charter has not complied with these agreements. Additionally, although historically Charter has renewed its franchises without incurring significant costs, there can be no assurance that Charter will be able to renew, or to renew as favorably, its franchises in the future. A termination of or a sustained failure to renew a franchise in one or more service areas could adversely affect Charter's business in the affected geographic area.

Charter's cable system franchises are non-exclusive. Consequently, local and state franchising authorities can grant additional franchises to competitors in the same geographic area or operate their own cable systems. In some cases, local government entities and municipal utilities may legally compete with Charter on more favorable terms.

Factors Relating to our Common Stock and the Securities Market

We expect our stock price to continue to be directly affected by the results of operations of Charter and developments in its business.

The fair value of our investment in Charter, on an as-converted basis, was approximately $34.8 billion as of December 31, 2021, which represents a meaningful portion of our total market value. As a result, our stock price will continue to be directly affected by the results of operations of Charter and the developments in its business.

Although our Series B common stock is quoted on the OTC Markets, there is no meaningful trading market for the stock.

Our Series B common stock is not widely held, with approximately 93% of the outstanding shares beneficially owned by John C. Malone, the Chairman of the Board and a director of our company as of January 31, 2022. Although it is quoted on the OTC Markets, it is sparsely traded and does not have an active trading market. The OTC Markets tend to be highly illiquid, in part, because there is no national quotation system by which potential investors can track the market price of shares except through information received or generated by a limited number of broker-dealers that make markets in particular stocks. There is also a greater chance of market volatility for securities that trade on the OTC Markets as opposed to a national exchange or quotation system. This volatility is due to a variety of factors, including a lack of readily available price quotations, lower trading volume, absence of consistent administrative supervision of "bid" and "ask" quotations, and market conditions. Each share of the Series B common stock is convertible, at any time at the option of the holder, into one share of our Series A common stock, which is listed and traded on the Nasdaq Global Select Market under the symbol "LBRDA."

It may be difficult for a third party to acquire us, even if doing so may be beneficial to our stockholders.

Certain provisions of our certificate of incorporation and bylaws may discourage, delay or prevent a change in control of our company that a stockholder may consider favorable. These provisions include the following:

- authorizing a capital structure with multiple series of common stock: a Series B that entitles the holders to ten votes per share, a Series A that entitles the holders to one vote per share and a Series C that, except as otherwise required by applicable law, entitles the holders to no voting rights;
- authorizing the issuance of "blank check" preferred stock, which could be issued by our board of directors to increase the number of outstanding shares and thwart a takeover attempt;
- classifying our board of directors with staggered three-year terms, which may lengthen the time required to gain control of our board of directors;
- limiting who may call special meetings of stockholders;
- prohibiting stockholder action by written consent, thereby requiring all stockholder actions to be taken at a meeting of the stockholders;
- establishing advance notice requirements for nominations of candidates for election to our board of directors or for proposing matters that can be acted upon by stockholders at stockholder meetings;
- requiring stockholder approval by holders of at least 66 2/3% of our voting power or the approval by at least 75% of our board of directors with respect to certain extraordinary matters, such as a merger or consolidation of our company, a sale of all or substantially all of our assets or an amendment to our restated certificate of incorporation; and
- the existence of authorized and unissued stock which would allow our board of directors to issue shares to persons friendly to current management, thereby protecting the continuity of its management, or which could be used to dilute the stock ownership of persons seeking to obtain control of us.

In addition, John C. Malone currently beneficially owns shares representing the power to direct approximately 49% of the aggregate voting power in our company, due to his beneficial ownership of approximately 93% of the outstanding shares of our Series B common stock as of January 31, 2022.

Holders of a single series of our common stock may not have any remedies if an action by our directors has an adverse effect on only that series of our common stock.

Principles of Delaware law and the provisions of our certificate of incorporation may protect decisions of our board of directors that have a disparate impact upon holders of any single series of our common stock. Under Delaware law, the board of directors has a duty to act with due care and in the best interests of all of our stockholders, including the holders of all series of our common stock. Principles of Delaware law established in cases involving differing treatment of multiple classes or series of stock provide that a board of directors owes an equal duty to all common stockholders regardless of class or series and does not have separate or additional duties to any group of stockholders. As a result, in some circumstances, our directors may be required to make a decision that is viewed as adverse to the holders of one series of our common stock. Under the principles of Delaware law and the business judgment rule, holders may not be able to successfully challenge decisions that they believe have a disparate impact upon the holders of one series of our stock if our board of directors is disinterested and independent with respect to the action taken, is adequately informed with respect to the action taken and acts in good faith and in the honest belief that the board is acting in the best interest of all of our stockholders.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties.

Liberty Broadband

In connection with the Broadband Spin-Off, a wholly-owned subsidiary of Liberty entered into a facilities sharing agreement with Liberty Broadband, pursuant to which Liberty Broadband shares office facilities with Liberty located at 12300 Liberty Boulevard, Englewood, Colorado, 80112.

GCI Holdings

GCI Holdings' properties do not lend themselves to description by location of principal units. The majority of GCI Holdings' properties are located in Alaska.

GCI Holdings leases most of its executive, corporate and administrative facilities and business offices. GCI Holdings' operating, executive, corporate and administrative properties are in good condition. GCI Holdings considers its properties suitable and adequate for its present needs.

GCI Holdings' properties consist primarily of undersea and terrestrial fiber optic cable networks, switching equipment, satellite transponders and earth stations, microwave radio, cable and wire facilities, cable head-end equipment, wireless towers and equipment, coaxial distribution networks, connecting lines (aerial, underground and buried cable), routers, servers, transportation equipment, computer equipment, general office equipment, land, land improvements, landing stations and other buildings. See note 2 to the accompanying consolidated financial statements found in Part II of this report for additional information on its properties. Substantial amounts of GCI Holdings' properties are located on or in leased real property or facilities. Substantially all of GCI Holdings' properties secure the Senior Credit Facility. See note 8 to the accompanying consolidated financial statements found in Part II of this report for additional information on the Senior Credit Facility.

Item 3. Legal Proceedings

Litigation Relating to the Combination

Hollywood Firefighters' Pension Fund, et al. v. GCI Liberty, Inc., et al.

On October 9, 2020, a putative class action complaint was filed by two purported GCI Liberty stockholders in the Court of Chancery of the State of Delaware under the caption *Hollywood Firefighters' Pension Fund, et al. v. GCI Liberty, Inc., et al.*, Case No. 2020-0880. A new version of the complaint was filed on October 11, 2020. The complaint named as defendants GCI Liberty, as well as the members of the GCI Liberty board of directors. The complaint alleged, among other things, that Mr. Gregory B. Maffei, a director and the President and Chief Executive Officer of Liberty Broadband and, prior to the Combination, GCI Liberty, and Mr. John C. Malone, the Chairman of the board of directors of Liberty Broadband and, prior to the Combination, GCI Liberty, in their purported capacities as controlling stockholders and directors of GCI Liberty, and the other directors of GCI Liberty, breached their fiduciary duties by approving the Combination. The complaint also alleged that various prior and current relationships among members of the GCI Liberty special committee, Mr. Malone and Mr. Maffei rendered the members of the GCI Liberty special committee not independent.

The complaint sought certification of a class action, declarations that Messrs. Maffei and Malone and the other directors of GCI Liberty breached their fiduciary duties and the recovery of damages and other relief.

On December 23, 2020, the plaintiffs filed a Second Amended Complaint, which, among other things, included a new count of breach of fiduciary duty against Mr. Maffei and Mr. Gregg Engles, the other former member of the GCI Liberty special committee, and new allegations that the price of GCI Liberty was depressed as a result of statements and omissions by Mr. Maffei in November of 2019. During the first quarter of 2021, the parties were conducting discovery with the trial scheduled for November 2021. We believed the lawsuit was without merit.

During March 2021 and in advance of the expenditure of significant time and costs to conduct the depositions proposed to have been taken in this action, the parties began negotiations with the class of plaintiffs for a potential settlement of this action. On May 5, 2021, the plaintiffs (on behalf of themselves and other members of a proposed settlement class) and defendants entered into an agreement in principle to settle the litigation pursuant to which the parties agreed that the plaintiffs will dismiss their claims with prejudice, with customary releases, in return for a settlement payment of $110 million to be paid by Merger LLC (as successor-by-merger to GCI Liberty, Inc.) and/or insurers for the defendants and for GCI Liberty.

On June 17, 2021, the parties filed a Stipulation and Agreement of Settlement, Compromise, and Release. On June 30, 2021, the Court preliminarily certified, solely for purposes of effectuating the proposed settlement, the action as a non-opt out class action on behalf of a settlement class consisting of all holders of GCI Liberty Series A common stock as of December 18, 2020. The Court set a settlement hearing for October 5, 2021, to determine whether to permanently certify the class, whether the proposed settlement is fair, reasonable, and adequate to the settlement class, and whether to enter a judgment dismissing the action with prejudice, among other things. On October 18, 2021, subsequent to that hearing, the Court issued a final order permanently certifying the Class and approving the settlement. The Court also awarded Plaintiffs' Counsel $22 million in attorneys' fees, which shall be paid out of the settlement fund. Plaintiffs also requested that the Court issue an additional fee award, which Defendant opposed, not to be paid out of the settlement fund, in connection with a certain claim that was mooted earlier in the case (a "mootness fee"). On November 8, 2021, the Court awarded Plaintiffs' Counsel a $9 million mootness fee, which Defendant subsequently paid.

Charter and Liberty Broadband - Delaware Litigation

In August 2015, a purported stockholder of Charter, Matthew Sciabacucchi, filed a lawsuit in the Delaware Court of Chancery on behalf of a putative class of Charter stockholders, challenging the transactions involving Charter, TWC, Advance/Newhouse Partnership, and Liberty Broadband announced by Charter on May 26, 2015. The lawsuit, which named as defendants Liberty Broadband, Charter and the board of directors of Charter, alleged that the transactions resulted from breaches of fiduciary duty by Charter's directors and that Liberty Broadband improperly benefited from the challenged transactions at the expense of other Charter stockholders. Charter and Liberty Broadband deny any liability, believe that they have substantial defenses, and are vigorously defending this lawsuit. Although Charter is unable to predict the outcome of this lawsuit, it does not expect the outcome will have a material effect on its operations, financial condition or cash flows.

Other Charter Proceedings

The California Attorney General and the Alameda County, California District Attorney are investigating whether certain of Charter's waste disposal policies, procedures and practices are in violation of the California Business and Professions Code and the California Health and Safety Code. That investigation was commenced in January 2014. A similar investigation involving TWC was initiated in February 2012. Charter is cooperating with these investigations. While Charter is unable to predict the outcome of these investigations, it does not expect that the outcome will have a material effect on its operations, financial condition, or cash flows.

Sprint Communications Company L.P. ("Sprint") filed a patent suit against Charter and Bright House on December 2, 2017 in the United States District Court for the District of Delaware. This suit alleges infringement of 9 patents related to Charter's provision of VoIP services. Sprint previously sued TWC with respect to eight of these patents and obtained a final judgment of $151 million inclusive of interest and costs, which Charter paid in November 2019. Charter has also brought a patent suit against Sprint (TC Tech, LLC v. Sprint) in the United States District Court for the District of Delaware implicating Sprint's LTE technology and a similar suit against T-Mobile in the United States District Court for the Western District of Texas.

Sprint filed a subsequent patent suit against Charter on May 17, 2018 in the United States District Court for the Eastern District of Virginia. This suit alleges infringement of two patents related to Charter's video on demand services. The court transferred this case to the United States District Court for the District of Delaware on December 20, 2018 pursuant to an agreement between the parties.

On February 18, 2020, Sprint filed a lawsuit against Charter, Bright House and TWC. Sprint alleges that Charter misappropriated trade secrets from Sprint years ago through employees hired by Bright House. Sprint asserts that the alleged trade secrets relate to the VoIP business of Charter, TWC and Bright House. The case is now pending in the United States District Court for the District of Kansas.

Charter, T-Mobile and Sprint have tentatively reached a settlement of all of the foregoing suits that would result in a payment of $220 million by Charter to T-Mobile. Charter can give no assurance that this tentative settlement will be finalized. Pending finalization of the settlement and in the event the settlement is not finalized, Charter will vigorously defend these Sprint suits and prosecute the suits it has brought against T-Mobile and Sprint. While Charter is unable to predict the outcome of these lawsuits, it does not expect that the litigation will have a material effect on its operations, financial condition, or cash flows.

In addition to the Sprint litigation described above, Charter is a defendant or co-defendant in several additional lawsuits involving alleged infringement of various intellectual property relating to various aspects of its businesses. Other industry participants are also defendants in certain of these cases or related cases. In the event that a court ultimately determines that Charter infringes on any intellectual property, Charter may be subject to substantial damages and/or an injunction that could require Charter or its vendors to modify certain products and services it offers to its subscribers, as well as negotiate royalty or license agreements with respect to the intellectual property at issue. While Charter believes the lawsuits are without merit and intends to defend the actions vigorously, no assurance can be given that any adverse outcome would not be material to Charter's consolidated financial condition, results of operations, or liquidity. Charter cannot predict the outcome of any such claims nor can it reasonably estimate a range of possible loss.

Charter is party to other lawsuits, claims and regulatory inquiries that arise in the ordinary course of conducting its business. The ultimate outcome of these other legal matters pending against Charter or its subsidiaries cannot be predicted, and although such lawsuits and claims are not expected individually to have a material adverse effect on our or Charter's consolidated financial condition, results of operations, or liquidity, such lawsuits could have in the aggregate a material adverse effect on ours or Charter's consolidated financial condition, results of operations, or liquidity. Whether or not Charter ultimately prevails in any particular lawsuit or claim, litigation can be time consuming and costly and injure its reputation.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity and Related Stockholder Matters of Equity Securities.

Market Information

Our Series A and Series C common stock trade on the Nasdaq Global Select Market under the symbols "LBRDA" and "LBRDK," respectively. Our Series B common stock is quoted on the OTC Markets under the symbol "LBRDB", but it is not actively traded. Stock price information for securities traded on the Nasdaq Global Select Market can be found on the Nasdaq's website at www.nasdaq.com.

The following table sets forth the quarterly range of high and low sales prices of our Series B common stock for the years ended December 31, 2021 and 2020. There is no established public trading market for our Series B common stock, which is quoted on the OTC Markets. Such over-the-counter market quotations reflect inter-dealer prices without dealer mark-ups, mark-downs or commissions, and may not necessarily represent actual transactions.

	Liberty Broadband Corporation Series B (LBRDB)	
	High	Low
2020		
First quarter	$ 131.80	95.25
Second quarter	$ 140.00	107.75
Third quarter	$ 139.00	125.35
Fourth quarter	$ 161.05	145.47
2021		
First quarter	$ 153.11	142.85
Second quarter	$ 160.40	141.15
Third quarter	$ 178.00	170.00
Fourth quarter	$ 173.00	151.00

Holders

As of January 31, 2022, there were 659, 81 and 2,155 holders of our Series A, Series B and Series C common stock, respectively. The foregoing numbers of record holders do not include the number of stockholders whose shares are held nominally by banks, brokerage houses or other institutions, but include each such institution as one shareholder.

Dividends

We have not paid any cash dividends on our common stock, and we have no present intention of so doing. Payment of cash dividends, if any, in the future will be determined by our board of directors in light of our earnings, financial condition and other relevant considerations.

Securities Authorized for Issuance Under Equity Compensation Plans

Information required by this item is incorporated by reference to our definitive proxy statement for our 2022 Annual Meeting of Stockholders.

Purchases of Equity Securities by the Issuer

On February 23, 2021, the board of directors authorized the repurchase of $2.23 billion of Liberty Broadband Series A and Series C common stock. Additionally, on August 5, 2021, the board of directors authorized the repurchase of an additional $2.105 billion of Liberty Broadband Series A and Series C common stock. Further, on January 26, 2022, a duly authorized committee of the board of directors authorized the repurchase of an additional $2.215 billion of Liberty Broadband Series A and Series C common stock.

A summary of the repurchase activity for the three months ended December 31, 2021 is as follows:

	Series A Common Stock		Series C Common Stock			
Period	**(a) Total Number of Shares Purchased**	**(b) Average Price Paid per Share**	**(a) Total Number of Shares Purchased**	**(b) Average Price Paid per Share**	**(c) Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs**	**(d) Maximum Number (or Approximate Dollar Value) of Shares that May Yet Be Purchased Under the Plans or Programs**
October 1 - 31, 2021	681,359	$ 170.26	1,537,865	$ 173.51	2,219,224	$1,647 million
November 1 - 30, 2021	674,862	$ 164.53	2,290,236	$ 167.19	2,965,098	$1,153 million
December 1 - 31, 2021	1,197,000	$ 154.31	1,914,094	$ 156.38	3,111,094	$669 million
Total	2,553,221	$ 161.27	5,742,195	$ 165.28	8,295,416	

There were no repurchases of Liberty Broadband Series B common stock or Liberty Broadband Preferred Stock during the three months ended December 31, 2021.

During the three months ended December 31, 2021, 179 shares of Liberty Broadband Series A common stock, zero shares of Liberty Broadband Series B common stock, 29,735 shares of Series C common stock and 4,091 shares of Liberty Broadband Preferred Stock were surrendered by our officers and employees to pay withholding taxes and other deductions in connection with the vesting of their restricted stock, restricted stock units and options.

Item 6. [Reserved]

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis provides information concerning our results of operations and financial condition. This discussion should be read in conjunction with our accompanying consolidated financial statements and the notes thereto.

Overview

Liberty Broadband Corporation ("Liberty Broadband," "the Company," "us," "we," or "our") is primarily comprised of GCI Holdings, LLC ("GCI Holdings") (as of December 18, 2020), a wholly owned subsidiary, and an equity method investment in Charter Communications, Inc. ("Charter").

During May 2014, the board of directors of Liberty Media Corporation and its subsidiaries ("Liberty") authorized management to pursue a plan to spin-off to its stockholders common stock of a wholly-owned subsidiary, Liberty Broadband, and to distribute subscription rights to acquire shares of Liberty Broadband's common stock (the "Broadband Spin-Off").

On December 18, 2020, pursuant to the Agreement and Plan of Merger, dated as of August 6, 2020, entered into by GCI Liberty, Inc. ("GCI Liberty"), Liberty Broadband, Grizzly Merger Sub 1, LLC, a wholly owned subsidiary of Liberty Broadband ("Merger LLC"), and Grizzly Merger Sub 2, Inc., a wholly owned subsidiary of Merger LLC ("Merger Sub"), Merger Sub merged with and into GCI Liberty (the "First Merger"), with GCI Liberty surviving the First Merger as an indirect wholly owned subsidiary of Liberty Broadband (the "Surviving Corporation"), and immediately following the First Merger, GCI Liberty (as the Surviving Corporation in the First Merger) merged with and into Merger LLC (the "Upstream Merger", and together with the First Merger, the "Combination"), with Merger LLC surviving the Upstream Merger as a wholly owned subsidiary of Liberty Broadband.

As a result of the Combination, each holder of a share of Series A common stock and Series B common stock of GCI Liberty received 0.58 of a share of Series C common stock and Series B common stock, respectively, of Liberty Broadband. Additionally, each holder of a share of Series A Cumulative Redeemable Preferred Stock of GCI Liberty received one share of newly issued Liberty Broadband Series A Cumulative Redeemable Preferred Stock, which has substantially identical terms to

GCI Liberty's former Series A Cumulative Redeemable Preferred Stock, including a mandatory redemption date of March 9, 2039. Cash was paid in lieu of issuing fractional shares of Liberty Broadband stock in the Combination. No shares of Liberty Broadband stock were issued with respect to (x) shares of GCI Liberty capital stock held by (i) GCI Liberty as treasury stock, (ii) any of GCI Liberty's wholly owned subsidiaries or (iii) Liberty Broadband or its wholly owned subsidiaries or (y) shares of GCI Liberty Series B Common Stock held by any stockholders who perfected and did not waive, effectively withdraw or lost their appraisal rights pursuant to Section 262 of the General Corporation Law of the State of Delaware

Through a number of prior years' transactions, including the Combination, Liberty Broadband has acquired an interest in Charter Communications, Inc. ("Charter"). Liberty Broadband controls 25.01% of the aggregate voting power of Charter.

During the first quarter of 2021, as a result of the closing of the Combination on December 18, 2020, Skyhook Holding, Inc. ("Skyhook"), a wholly owned subsidiary of the Company, is no longer significant to the Company and has been included in Corporate and other for presentation purposes. The revised segment reporting structure includes the following reportable segments: (1) GCI Holdings and (2) Charter. All prior period segment disclosure information has been reclassified to conform to the current reporting structure. These reclassifications had no effect on our consolidated financial statements in any period.

Strategies and Challenges

Executive Summary

GCI Holdings, a wholly owned subsidiary of the Company, provides a full range of wireless, data, video, voice, and managed services to residential customers, businesses, governmental entities, and educational and medical institutions primarily in Alaska under the GCI brand.

Charter is a leading broadband connectivity company and cable operator serving more than 32 million customers in 41 states through its Spectrum brand. Over an advanced high-capacity, two-way telecommunications network, Charter offers a full range of state-of-the-art residential and business services including Spectrum Internet, TV, Mobile and Voice. For small and medium-sized companies, Spectrum Business delivers the same suite of broadband products and services coupled with special features and applications to enhance productivity, while for larger businesses and government entities, Spectrum Enterprise provides highly customized, fiber-based solutions. Spectrum Reach delivers tailored advertising and production for the modern media landscape. Charter also distributes award-winning news coverage, sports and high-quality original programming to its customers through Spectrum Networks and Spectrum Originals. At December 31, 2021, Liberty Broadband owned approximately 53.4 million shares of Charter Class A common stock, representing an approximate 30.9% economic ownership interest in Charter's issued and outstanding shares.

Key Drivers of Revenue

GCI Holdings earns revenue from the monthly fees customers pay for wireless, data, video, voice and managed services. Through close coordination of its customer service and sales and marketing efforts, its customer service representatives suggest to its customers other services they can purchase or enhanced versions of services they already purchase to achieve increased revenue and penetration of its multiple service offerings.

Charter's revenue is principally derived from the monthly fees customers pay for services it provides. Charter also earns revenue from one-time installation fees and advertising sales. Charter's marketing organization creates and executes marketing programs intended to grow customer relationships, increase the number of services they sell per relationship, retain existing customers and cross-sell additional products to current customers.

Current Trends Affecting Our Business

GCI Holdings and Charter must stay abreast of rapidly evolving technological developments and offerings to remain competitive and increase the utility of their products and services. These companies must be able to incorporate new technologies into their products and services in order to address the needs of their customers.

GCI Holdings

GCI Holdings offers wireless and wireline telecommunication services, data services, video services, and managed services to customers primarily throughout Alaska. Because of this geographic concentration, growth of GCI Holdings' business and operations depends upon economic conditions in Alaska. In December 2019, Chinese officials reported a novel coronavirus outbreak. COVID-19 has since spread through China and internationally. On March 11, 2020, the World Health Organization assessed COVID-19 as a global pandemic, causing many countries throughout the world to take aggressive actions, including imposing travel restrictions and stay-at-home orders, closing public attractions and restaurants, and mandating social distancing practices, which has caused a significant disruption to most sectors of the economy.

Although the COVID-19 pandemic has significantly impacted Alaska, GCI Holdings has continued to deliver services uninterrupted by the pandemic and expects to be able to continue to respond to the increase in network activity. As a major provider of Internet services in Alaska, GCI Holdings believes it plays an instrumental role in enabling social distancing through telecommuting and e-learning across the state and remains focused on its service to customers, as well as the health and safety of its employees and customers.

The majority of GCI Holdings' workforce has transitioned to working at home full time and it expects to keep those employees working from home through at least May 2022.

GCI Holdings cannot predict the ultimate impact of COVID-19 on its business, including the depth and duration of the economic impact to its customers' ability to pay for products and services including the impact of extended unemployment benefits and other stimulus packages and what assistance may be provided to its customers. There is a risk that GCI Holdings' accounts receivable and bad debt expense will increase substantially due to the economic impact of the COVID-19 pandemic. In addition, there is uncertainty regarding the impact of government emergency declarations, the ability of suppliers and vendors to provide products and services to GCI Holdings and the risk of limitations on the deployment and maintenance of its services.

The Alaska economy is dependent upon the oil industry, state and federal spending, investment earnings and tourism. A decline in oil prices would put significant pressure on the Alaska state government budget. Although the Alaska state government has significant reserves that GCI Holdings believes will help fund the state government for the next couple of years, major structural budgetary reforms will be required in order to offset the impact of the COVID-19 pandemic and a decline in oil prices. Although GCI Holdings cannot predict the long-term impact COVID-19 will have on these sectors of the Alaska economy, adverse circumstances in these industries may have an adverse impact on the demand for its products and services and on its results of operations and financial condition.

The Alaska economy is in a recession that started in late 2015 and has continued as a result of the COVID-19 pandemic. While it is difficult for GCI Holdings to predict the future impact of a renewed or continuing recession on its business, these conditions have had an adverse impact on its business and could adversely affect the affordability of and demand for some of its products and services and cause customers to shift to lower priced products and services or to delay or forgo purchases of its products and services. Additionally, GCI Holdings' customers may not be able to obtain adequate access to credit, which could affect their ability to make timely payments to GCI Holdings. If that were to occur, GCI Holdings could be required to increase its allowance for credit losses, and the number of days outstanding for its accounts receivable could increase. If the recession continues, it could negatively affect GCI Holdings' business including its financial position, results of operations, or liquidity, as well as its ability to service debt, pay other obligations and enhance shareholder returns.

Rural Health Care ("RHC") Program

GCI Holdings receives support from various Universal Service Fund ("USF") programs including the RHC Program. The USF programs are subject to change by regulatory actions taken by the Federal Communications Commission ("FCC"), interpretations of or compliance with USF program rules, or legislative actions. Changes to any of the USF programs that GCI Holdings participates in could result in a material decrease in revenue and accounts receivable, which could have an adverse effect on GCI Holdings' business and the Company's financial position, results of operations or liquidity. The following paragraphs describe certain separate matters related to the RHC Program that impact or could impact the revenue earned and receivables recognized by the Company. As of December 31, 2021, the Company had net accounts receivable from the RHC Program in the amount of approximately $120 million, which is included within Trade and other receivables in the consolidated balance sheets.

FCC Rate Reduction. In November 2017, the Universal Service Administrative Company ("USAC") requested further information in support of the rural rates charged to a number of GCI Holdings' RHC customers in connection with the funding requests for the year that runs July 1, 2017 through June 30, 2018. On October 10, 2018, GCI Holdings received a letter from the FCC's Wireline Competition Bureau (“Bureau”) notifying it of the Bureau’s decision to reduce the rural rates charged to RHC customers for the funding year that ended on June 30, 2018 by approximately 26% resulting in a reduction of total support payments of $28 million. The FCC also informed GCI Holdings that the same cost methodology used for the funding year that ended on June 30, 2018 would be applied to rates charged to RHC customers in subsequent funding years. In response to the Bureau’s letter, GCI Holdings filed an Application for Review with the FCC.

On October 20, 2020, the Bureau issued two separate letters approving the cost-based rural rates GCI Holdings historically applied when recognizing revenue for services provided to its RHC customers for the funding years that ended on June 30, 2019 and June 30, 2020. GCI Holdings collected approximately $175 million in accounts receivable relating to these two funding years during the year ended December 31, 2021. GCI Holdings also filed an Application for Review of these determinations. Subsequently, GCI identified rates for similar services provided by a competitor that would justify higher rates for certain GCI satellite services in the funding years that ended on June 30, 2018, June 30, 2019, and June 30, 2020. GCI submitted that information to the Bureau on September 7, 2021. The Applications for Review remain pending.

On June 25, 2020, GCI Holdings submitted cost studies with respect to a number of its rates for services provided to its RHC customers for the funding year ended June 30, 2021, which require approval by the Bureau. GCI Holdings further updated those studies on November 12, 2020, to reflect the completion of the bidding season for that funding year. On May 24, 2021, the FCC approved the cost studies submitted by GCI Holdings for the funding year ended June 30, 2021. Subsequently, on August 16, 2021, GCI submitted a request for approval of rates for 17 additional sites, which remains pending.

RHC Program Funding Cap. The RHC program has a funding cap for each individual funding year that is annually adjusted for inflation, and which the FCC can increase by carrying forward unused funds from prior funding years. In recent years, including the current year, this funding cap has not limited the amount of funding received by participants; however, management continues to monitor the funding cap and its potential impact on funding in future years.

Enforcement Bureau and Related Inquiries. On March 23, 2018, GCI Holdings received a letter of inquiry and request for information from the Enforcement Bureau of the FCC relating to the period beginning January 1, 2015 and including all future periods, to which it is in the process of responding. This includes inquiry into the rates charged by GCI Holdings, and presently it is unable to assess the ultimate outcome of this rate inquiry. Other aspects related to the Enforcement Bureau’s review of GCI Holdings’ compliance with program rules are discussed separately below. The ongoing uncertainty in program funding, as well as the uncertainty associated with the rate review, could have an adverse effect on its business, financial position, results of operations or liquidity.

In the fourth quarter of 2019, GCI Holdings became aware of potential RHC Program compliance issues related to certain of GCI Holdings’ currently active and expired contracts with certain of its RHC customers. The Company and its external experts performed significant and extensive procedures to determine whether GCI Holdings’ currently active and expired contracts with its RHC customers would be deemed to be in compliance with the RHC Program rules. GCI Holdings notified the FCC of the potential compliance issues in the fourth quarter of 2019.

On May 28, 2020, GCI Holdings received a second letter of inquiry from the Enforcement Bureau in the same matter noted above. This second letter, which was in response to a voluntary disclosure made by GCI Holdings to the FCC, extended the scope of the original inquiry to also include various questions regarding compliance with the records retention requirements related to the (i) original inquiry and (ii) RHC Program.

On December 17, 2020, GCI Holdings received a Subpoena Duces Tecum from the FCC’s Office of the Inspector General requiring production of documents from January 1, 2009 to the present related to a single RHC customer and related contracts, information regarding GCI Holdings’ determination of rural rates for a single customer, and to provide information regarding persons with knowledge of pricing practices generally.

On April 21, 2021, representatives of the Department of Justice (“DOJ”) informed GCI Holdings that a qui tam action has been filed in the Western District of Washington arising from the subject matter under review by the Enforcement Bureau. The DOJ is investigating whether GCI Holdings submitted false claims and/or statements in connection with GCI’s participation in the FCC’s RHC Program. On July 14, 2021, the DOJ issued a Civil Investigative Demand with regard to the qui tam action.

GCI Holdings continues to work with the FCC and the DOJ to resolve all enforcement inquiries discussed above. With respect to the ongoing inquiries from the FCC's Enforcement Bureau and the FCC's Office of the Inspector General, GCI Holdings recognized a liability of approximately $12 million in 2019 for contracts that were deemed probable of not complying with the RHC Program rules. GCI Holdings also identified certain contracts where additional loss was reasonably possible and such loss could range from zero to $44 million. An accrual was not made for the amount of the reasonably possible loss in accordance with the applicable accounting guidance. GCI Holdings could also be assessed fines and penalties but such amounts could not be reasonably estimated. With respect to the ongoing inquiries from the DOJ regarding the qui tam action, the Company is unable to assess the ultimate outcome of this action given the confidentiality of the qui tam process and is unable to determine whether any type of fine or penalty would ultimately be assessed as is permitted under the applicable law.

Revision of Support Calculations. On August 20, 2019, the FCC released an order changing the manner in which support issued under the RHC Program will be calculated and approved. Some of these changes will become effective beginning with the funding year ended June 30, 2021, while others will apply beginning with the funding year ending June 30, 2022. On October 21, 2019, GCI Holdings appealed the order to the United States Court of Appeals for the District of Columbia Circuit. On December 6, 2019, that appeal was held in abeyance for nine months due to pending Petitions for Reconsideration filed by other parties at the FCC and on September 25, 2020, the period of abeyance was extended through March 8, 2021. At the direction of the FCC, USAC has released a database that purports to determine a median rate which will cap the amount of support available for each service sold under the program, starting in the funding year ending June 30, 2022. GCI Holdings has sought FCC review of various aspects of the database implementation. On September 30, 2020, USAC released a refreshed version of the database incorporating limited changes submitted by interested parties. On January 19, 2021, the Bureau issued an Order that waives the requirement to use the database for health care providers in Alaska for the two funding years ending June 30, 2022 and June 30, 2023. The Order requires GCI Holdings to determine its rural rates based on previously approved rates or under reinstitution of the rules currently in effect through the funding year ended on June 30, 2021. On April 8, 2021, the Bureau issued an Order further extending the January 19, 2021 waiver to carriers nationwide and eliminating the ability or requirement to use the database to establish the healthcare provider payments for services subsidized by the RHC Telecom Program.

Charter

Charter faces intense competition for residential customers, both from existing competitors and, as a result of the rapid development of new technologies, services and products, from new entrants. With respect to its residential business, Charter competes with other providers of video, high-speed Internet access, telephone and mobile services, and other sources of home entertainment. Charter's principal competitors for video services are DBS service providers, as well as virtual multichannel video programming distributors such as Hulu Live, YouTube TV, Sling TV, Philo and DirecTV Stream. Charter's principal competitors for high-speed Internet services are the broadband services provided by companies, including fiber-to-the-home, fiber-to-the-node, fixed wireless broadband, Internet delivered via satellite and DSL services. A growing number of commercial areas, such as retail malls, restaurants and airports, offer WiFi Internet service. Numerous local governments are also considering or actively pursuing publicly subsidized WiFi Internet access networks. These options offer alternatives to cable-based Internet access. Charter's principal competitors for voice and mobile services are other mobile and wireline phone providers, as well as other forms of communication, such as text messaging over cellular phones, instant messaging, social networking services, video conferencing and email. The increase in the number of different technologies capable of carrying voice services and the number of alternative communication options available to customers as well as the replacement of wireline services by wireless have intensified the competitive environment in which Charter operates its residential voice service.

The COVID-19 pandemic significantly impacted how Charter's customers use its products and services, how they interact with Charter, and how Charter's employees provide services to its customers. Customer activity levels remain below normal which contributed to lower operating expense from reduced service transactions and lower bad debt in 2021, along with lower growth in customer relationships. Charter cannot predict when trends return to pre-COVID-19 levels as the economy returns to normal activities.

Although the ultimate impact of the COVID-19 pandemic cannot be predicted, Charter remains focused on driving customer relationship growth by deploying superior products and services with attractive pricing. In October 2021, Charter announced and implemented new Spectrum Mobile multi-line pricing designed to drive more mobile line sales per customer, and in turn, drive more broadband sales and the associated retention benefits. Further, Charter expects to continue to drive customer relationship growth through sales of Internet connectivity services and improving customer retention despite the expectation for continued losses of video and wireline voice customers.

Results of Operations—Consolidated

General. We provide information regarding our consolidated operating results and other income and expenses, as well as information regarding the contribution to those items from our reportable segments in the tables below. The "Corporate and other" category consists of those assets or businesses which do not qualify as a separate reportable segment. See note 15 to the accompanying consolidated financial statements for more discussion regarding our reportable segments. GCI Holdings' results are only included in the Company's consolidated results beginning on December 18, 2020. For a more detailed discussion and analysis of GCI Holdings' results, see "Results of Operations – GCI Holdings, LLC" below.

Operating Results

	Years ended December 31,		
	2021	2020	2019
	amounts in millions		
Revenue			
GCI Holdings	$ 970	34	—
Corporate and other	18	17	15
Consolidated	$ 988	51	15
Operating Income (Loss)			
GCI Holdings	$ 72	(5)	—
Corporate and other	(170)	(55)	(29)
Consolidated	$ (98)	(60)	(29)
Adjusted OIBDA			
GCI Holdings	$ 354	10	—
Corporate and other	(49)	(24)	(17)
Consolidated	$ 305	(14)	(17)

Revenue

Revenue increased $937 million and $36 million for the years ended December 31, 2021 and 2020, respectively, as compared to the corresponding prior year periods. The increases in revenue were primarily due to revenue from GCI Holdings as a result of the Combination on December 18, 2020. See "Results of Operations – GCI Holdings, LLC" below for a more complete discussion of the results of operations of GCI Holdings. Revenue for Corporate and other increased slightly in both years due to increased revenue at Skyhook from both existing and new customers.

Operating Income (Loss)

Consolidated operating loss increased $38 million and $31 million for the years ended December 31, 2021 and 2020, respectively, as compared to the corresponding prior year periods. The increase in operating loss in 2021 is primarily due to a litigation settlement, net of recoveries of $95 million, as well as an increase in professional service fees and corporate compensation expenses, partially offset by the absence of transaction costs in 2021. The increase in operating loss in 2020 is primarily driven by an increase in professional service fees mostly related to the Combination and to a lesser extent corporate compensation expense. Operating income increased at GCI Holdings as a result of the Combination on December 18, 2020. See "Results of Operations – GCI Holdings, LLC" below for a more complete discussion of the results of operations of GCI Holdings.

Stock-based compensation

Stock-based compensation expense increased $32 million and decreased $1 million for the years ended December 31, 2021 and 2020, respectively, as compared to the corresponding prior year periods. The increase in stock-based compensation expense during 2021 was primarily due to upfront grants per our CEO's employment agreement, along with the impact of the Combination. The decrease in stock-based compensation expense during 2020 was primarily due to a decrease in the value of restricted stock units of Liberty Broadband Series C common stock granted during the first half of 2020.

Adjusted OIBDA

To provide investors with additional information regarding our financial results, we also disclose Adjusted OIBDA, which is a non-GAAP financial measure. We define Adjusted OIBDA as operating income (loss) plus depreciation and amortization, stock-based compensation, transaction costs, separately reported litigation settlements, restructuring, and impairment charges. Our chief operating decision maker and management team use this measure of performance in conjunction with other measures to evaluate our businesses and make decisions about allocating resources among our businesses. We believe this is an important indicator of the operational strength and performance of our businesses by identifying those items that are not directly a reflection of each business' performance or indicative of ongoing business trends. In addition, this measure allows us to view operating results, perform analytical comparisons and benchmarking between businesses and identify strategies to improve performance. Accordingly, Adjusted OIBDA should be considered in addition to, but not as a substitute for, operating income, net income, cash flow provided by operating activities and other measures of financial performance prepared in accordance with U.S. generally accepted accounting principles. The following table provides a reconciliation of Operating income (loss) to Adjusted OIBDA.

	Years ended December 31,		
	2021	2020	2019
	amounts in millions		
Operating income (loss)	$ (98)	(60)	(29)
Depreciation and amortization	267	15	2
Stock-based compensation	41	9	10
Litigation settlement, net of recoveries	95	—	—
Transaction costs	—	22	—
Adjusted OIBDA	$ 305	(14)	(17)

Adjusted OIBDA improved $319 million and $3 million in the years ended December 31, 2021 and 2020, respectively, as compared to the corresponding prior year periods. The increases in Adjusted OIBDA were primarily due to the results of operations of GCI Holdings as a result of the Combination, as discussed above. Corporate and other Adjusted OIBDA declined in both years due to the fluctuations in operating income (loss) as discussed above.

Other Income and Expense:

Components of Other Income (Expense) are presented in the table below.

	Years ended December 31,		
	2021	2020	2019
	amounts in millions		
Other income (expense):			
Interest expense	$ (117)	(28)	(25)
Share of earnings (losses) of affiliate	1,194	713	286
Gain (loss) on dilution of investment in affiliate	(102)	(184)	(79)
Realized and unrealized gains (losses) on financial instruments, net	67	(83)	1
Other, net	6	3	1
	$ 1,048	421	184

Interest expense

Interest expense increased $89 million and $3 million during the years ended December 31, 2021 and 2020, respectively. The increases were driven by additional amounts outstanding on the Margin Loan Facility (as defined in note 8 to the accompanying consolidated financial statements), the 2.75% Exchangeable Senior Debentures due 2050 that were issued in August 2020 and the 1.25% Exchangeable Senior Debentures due 2050 that were issued in November 2020. The increases in both years were partially offset by a decrease in our weighted average interest rates.

Share of earnings (losses) of affiliates

Share of earnings from affiliates increased $481 million and $427 million during the years ended December 31, 2021 and 2020, respectively, as compared to the corresponding prior year periods. Share of earnings (losses) from affiliates is attributable to the Company's ownership interest in Charter. Upon the Company's initial investment in Charter, the Company allocated the excess basis, between the book basis of Charter and fair value of the shares acquired, and ascribed remaining useful lives of 7 years and 13 years to property and equipment and customer relationships, respectively, and indefinite lives to franchise fees, trademarks and goodwill. As of December 31, 2021, property and equipment and customer relationships have weighted average remaining useful lives of approximately 5 years and 9 years, respectively. Outstanding debt is amortized over the contractual period using the straight-line method. Amortization related to debt and intangible assets with identifiable useful lives is included in the Company's share of earnings (losses) from affiliates line item in the accompanying consolidated statements of operations and aggregated $234 million, $144 million, and $124 million, net of related taxes, for the years ended December 31, 2021, 2020 and 2019, respectively.

The following is a discussion of Charter's stand alone results of operations. In order to provide a better understanding of Charter's operations, we have included a summarized presentation of Charter's results from operations. Charter is a separate publicly traded company and additional information about Charter can be obtained through its website and public filings, which are not incorporated by reference. The amounts included in the table below, derived from Charter's public filings, represent Charter's results for each of the years ended December 31, 2021, 2020 and 2019.

	Years ended December 31,		
	2021	2020	2019
	amounts in millions		
Revenue	$ 51,682	48,097	45,764
Operating expenses, excluding stock-based compensation	(31,381)	(29,637)	(29,012)
Adjusted OIBDA	20,301	18,460	16,752
Depreciation and amortization	(9,345)	(9,704)	(9,926)
Stock-based compensation	(430)	(351)	(315)
Operating income	10,526	8,405	6,511
Other expenses, net	(4,138)	(4,103)	(4,080)
Net income (loss) before income taxes	6,388	4,302	2,431
Income tax benefit (expense)	(1,068)	(626)	(439)
Net income (loss)	$ 5,320	3,676	1,992

Charter's revenue increased $3.6 billion and $2.3 billion during the years ended December 31, 2021 and 2020, respectively, as compared to the corresponding prior years. Revenue growth during 2021 was primarily due to increases in the number of residential Internet, mobile and commercial customers and price adjustments. Revenue growth during 2020 was primarily due to increases in the number of residential Internet and mobile customers, price adjustments and higher political advertising sales offset by lower local advertising revenue as a result of COVID-19, $218 million of estimated customer credits issued to video customers due to canceled sporting events and $102 million of waived receivables related to the Keep Americans Connected pledge and certain state-mandated programs.

The increases in revenue during 2021 and 2020 were partially offset by the net impact of increased operating expenses, excluding stock-based compensation, of $1.7 billion and $0.6 billion, respectively. Operating costs increased during the year ended December 31, 2021, as compared to the corresponding prior year, primarily due to increased mobile and programming costs, as well as increased regulatory, connectivity and produced content costs. Operating costs for the year ended December 31, 2021 also increased due to increased litigation settlements, including the tentative settlement with Sprint Communications Company L.P. and T-Mobile USA, Inc. for $220 million. Operating costs increased during the year ended December 31, 2020, as compared to the corresponding prior year, primarily due to increased mobile device costs and mobile service and operating costs, increases in costs to service customers and increases in programming costs, offset by lower regulatory, connectivity and produced content costs.

Programming costs increased as a result of $124 million more rebates in 2020 than 2021 from sports programming networks as a result of canceled sporting events due to COVID-19, as well as contractual rate adjustments, including renewals and increases in amounts paid for retransmission consent offset by fewer customers and a higher mix of lower cost video packages within Charter's video customer base. Programming costs increased during 2020 as a result of contractual rate adjustments, including renewals and increases in amounts paid for retransmission consent, as well as an increase in video customers. The increase in 2020 was offset by the $163 million of estimated rebates from sports programming networks as a result of canceled sporting events due to COVID-19 and further benefited from a higher mix of lower cost video packages within its video customer base during the year ended December 31, 2020. Charter expects programming rates per customer will continue to increase due to a variety of factors, including annual increases imposed by programmers with additional selling power as a result of media and broadcast station groups consolidation, increased demands by owners of broadcast stations for payment for retransmission consent or linking carriage of other services to retransmission consent, and additional programming. Charter has been unable to fully pass these increases on to its customers and does not expect to be able to do so in the future without a potential loss of customers.

Mobile costs were comprised of mobile device costs and mobile service, customer acquisition and operating costs. The increase in both years is attributable to an increase in the number of mobile lines.

Regulatory, connectivity and produced content increased during the year ended December 31, 2021 primarily due to higher sports rights costs as a result of more National Basketball Association ("NBA") and Major League Baseball ("MLB") games during 2021 as compared to the corresponding period in 2020. Regulatory, connectivity and produced content cost decreased during 2020 due to deferred sports rights costs associated with the shortened baseball season and delayed start to the 2020 - 2021 basketball season as a result of COVID-19.

Charter's Adjusted OIBDA in 2021 and 2020 increased for the reasons described above.

Depreciation and amortization expense decreased $359 million and $222 million during the years ended December 31, 2021 and 2020, respectively. The decreases in both years were primarily due to a decrease in depreciation and amortization as certain assets acquired in acquisitions become fully depreciated, offset by an increase in depreciation as a result of more recent capital expenditures.

Charter's results were also impacted by other expenses, net which increased $35 million and $23 million in the years ended December 31, 2021 and 2020, respectively, compared to the corresponding prior year periods. The changes in other expenses, net were primarily due to increased net interest expense, as well as increased losses on financial instruments and increased losses on equity investments, partially offset by increased net periodic pension benefits. The loss on equity investments also included an impairment on equity investments of approximately $165 million during the year ended December 31, 2021. The increase in other expenses, net for the year ended December 31, 2020, as compared to the corresponding period year, was primarily due to increased losses on the extinguishment of debt and increased net interest expense, partially offset by a decrease to other expense.

Income tax expense increased $442 million and $187 million during the years ended December 31, 2021 and 2020, respectively, compared to the corresponding prior year periods. Income tax expense increased during the year ended December 31, 2021, as compared to the corresponding period in the prior year, primarily as a result of higher pretax income. Income tax expense increased during the year ended December 31, 2020, compared to the corresponding prior year, as a result of higher pretax income offset by increased recognition of excess tax benefits resulting from share-based compensation during 2020.

Gain (loss) on dilution of investment in equity affiliate

The loss on dilution of investment in affiliate decreased by $82 million and increased by $105 million during the years ended December 31, 2021 and 2020, respectively, compared to the corresponding periods in the prior year. In both 2021 and 2020, the loss on dilution was primarily due to increases in issuance of Charter's common stock from the exercise of stock options held by employees and other third parties, at prices below Liberty Broadband's book basis per share, partially offset by a gain on dilution related to Charter's repurchase of Liberty Broadband's Charter shares. As Liberty Broadband's ownership in Charter changes due to exercises of Charter warrants and stock options, a loss is recorded with the effective sale of common stock, because the exercise price of Charter warrants or stock options is typically lower than the book value of the Charter shares held by Liberty Broadband.

Realized and unrealized gains (losses) on financial instruments, net

Realized and unrealized gains (losses) on financial instruments, net are comprised of changes in the fair value of the following:

	Years ended December 31,		
	2021	2020	2019
		amounts in millions	
Indemnification obligation	$ 21	(9)	—
Exchangeable senior debentures	46	(74)	—
Other	—	—	1
	$ 67	(83)	1

The changes in these accounts are primarily due to market factors and changes in the fair value of the underlying stocks or financial instruments to which these related. The changes for both years were primarily related to the assumption of the indemnification obligation by the Company as a result of the Combination (see note 5 to the accompanying consolidated financial statements for additional discussion), as well as the changes in fair value of the 2.75% Exchangeable Senior Debentures due 2050, the 1.25% Exchangeable Senior Debentures due 2050 and the 1.75% Exchangeable Senior Debentures due 2046 related to changes in market price of underlying Charter stock (see notes 5 and 8 to the accompanying consolidated financial statements for additional discussion).

Other, net

Other, net increased $3 million and $2 million for the years ended December 31, 2021 and 2020, respectively, as compared to the corresponding prior year periods. The increase in 2021 was primarily due to a tax sharing receivable with Qurate Retail that resulted in losses of $10 million for the year ended December 31, 2021, as well as a gain of $12 million on the sale of an investment during the third quarter of 2021. The increase in 2020 was primarily due to a tax sharing receivable with Qurate Retail that resulted in gains of $2 million for the period from December 18, 2020 to December 31, 2020, partially offset by decreases in dividend and interest income as a result of lower interest rates and lower cash balances during the current year. The Company's cash balance increased during the fourth quarter of 2020, but not until the Combination on December 18, 2020. See more discussion about the tax sharing agreement with Qurate Retail in note 1 to the accompanying consolidated financial statements.

Income taxes

Earnings (losses) before income taxes and income tax (expense) benefit are as follows:

	Years ended December 31,		
	2021	2020	2019
		amounts in millions	
Earnings (loss) before income taxes	$ 950	361	155
Income tax (expense) benefit	(218)	37	(38)
Effective income tax rate	23%	10%	25%

Our effective tax rate for the year ended December 31, 2021 was 23%. Our effective tax rate was higher than the federal tax rate of 21% in 2021 primarily due to a non-deductible litigation settlement and non-deductible executive compensation, partially offset by tax benefits from a change in effective tax rate used to measure deferred taxes on certain Charter shares.

The Company had an income tax benefit of $37 million for the year ended December 31, 2020. The tax benefit in 2020 was primarily due to a change in the effective state tax rate used to measure deferred taxes due to the Combination.

Our effective tax rate for the year ended December 31, 2019 was 25%. Our effective tax rate was higher than the federal tax rate of 21% in 2019 primarily due to state income taxes.

Net earnings (losses)

We had net earnings of $732 million, $398 million and $117 million for the years ended December 31, 2021, 2020 and 2019, respectively. The change in net earnings (losses) was the result of the above-described fluctuations in our revenue, expenses and other gains and losses.

Liquidity and Capital Resources

As of December 31, 2021, substantially all of our cash and cash equivalents are invested in U.S. Treasury securities, other government securities or government guaranteed funds, AAA rated money market funds and other highly rated financial and corporate debt instruments.

The following are potential sources of liquidity: available cash balances, cash generated by the operating activities of our privately-owned subsidiaries (to the extent such cash exceeds the working capital needs of the subsidiaries and is not otherwise restricted), monetization of investments (including Charter Repurchases (as defined in note 6 to the accompanying consolidated financial statements and discussed below)), outstanding or anticipated debt facilities (as defined in note 8 to the accompany consolidated financial statements), debt and equity issuances, and dividend and interest receipts.

As of December 31, 2021, Liberty Broadband had a cash balance of $191 million.

		Years ended December 31,		
		2021	2020	2019
			amounts in millions	
Cash flow information				
Net cash provided (used) by operating activities	$	3	(96)	(37)
Net cash provided (used) by investing activities	$	4,062	575	(1)
Net cash provided (used) by financing activities	$	(5,292)	904	5

The increase in cash provided by operating activities in 2021, as compared to the corresponding prior year period, was primarily driven by increased activity in working capital accounts due to the Combination and the collection of accounts receivable from the RHC Program for the funding years that ended on June 30, 2019 and June 30, 2020, partially offset by litigation settlements, net of recoveries.

The increase in cash used by operating activities in 2020, as compared to the corresponding prior year period, was primarily driven by the decrease in operating income, as well as by timing differences in working capital accounts.

During the year ended December 31, 2021, net cash flows provided by investing activities were primarily related to the sale of 6,077,664 shares of Charter Class A common stock for $4.2 billion to maintain our fully diluted ownership percentage of Charter at 26%. In February 2021, Liberty Broadband entered into a letter agreement in order to implement, facilitate and satisfy the terms of the Stockholders Agreement with respect to the Equity Cap (see more information in note 6 to the accompanying consolidated financial statements). The Company expects the Charter Repurchases to be a significant source of liquidity in future periods. This net inflow of cash was partially offset by capital expenditures of $134 million during the year ended December 31, 2021.

During the year ended December 31, 2020, net cash flows provided by investing activities were primarily due to the $592 million in cash acquired as a result of the Combination, offset partially by the exercise of preemptive rights to purchase an aggregate of approximately 35 thousand shares of Charter's Class A common stock for an aggregate purchase price of $15 million.

During the year ended December 31, 2021, net cash flows used in financing activities were primarily repurchases of Series A and Series C Liberty Broadband common stock of $4.3 billion, as well as net debt repayments of $700 million of outstanding Revolving Loans (as defined in note 8 to the accompanying consolidated financial statements) under the Margin Loan Facility, net debt repayment of $155 million by GCI, LLC on its revolving credit facility and repayment by GCI, LLC of $395 million of the Term Loan B (as defined in note 8 to the accompanying consolidated financial statements), partially offset by additional borrowings of $250 million under the new Term Loan A (as defined in note 8 to the accompanying consolidated financial statements).

During the year ended December 31, 2020, net cash flows provided by financing activities were primarily borrowings of $2.8 billion under the Company's Margin Loan Facility and issuances of multiple senior exchangeable debentures (see note 8 to the accompanying financial statements for more information), partially offset by repayments of debt of $1.3 billion and repurchases of Series C Liberty Broadband common stock of $597 million.

The projected uses of our cash are the potential buyback of common stock under the approved share buyback program, net capital expenditures of approximately $150 million, approximately $90 million for interest payments on outstanding debt, approximately $15 million for preferred stock dividends, funding of any operational needs of our subsidiaries, to reimburse Liberty for amounts due under various agreements and to fund potential investment opportunities. We expect corporate cash and other available sources of liquidity to cover corporate expenses for the foreseeable future.

Off-Balance Sheet Arrangements and Material Cash Requirements

We have contingent liabilities related to legal and tax proceedings and other matters arising in the ordinary course of business. Although it is reasonably possible we may incur losses upon conclusion of such matters, an estimate of any loss or range of loss cannot be made. In the opinion of management, it is expected that amounts, if any, which may be required to satisfy such contingencies will not be material in relation to the accompanying consolidated financial statements.

The following table summarizes current and long-term material cash requirements, both accrued and off-balance sheet, as of December 31, 2021:

	Payments due by period				
	Total	Less than 1 year	2 - 3 years	4 - 5 years	After 5 years
	amounts in millions				
Material Cash Requirements					
Debt (1)	$ 3,720	3	1,306	157	2,254
Preferred stock liquidation value	179	—	—	—	179
Interest expense and preferred stock dividends (2)	1,282	103	192	153	834
Finance and operating lease obligations	169	51	90	13	15
Tower obligations, including interest	148	8	15	16	109
Purchase obligations	161	78	45	24	14
Total	$ 5,659	243	1,648	363	3,405

(1) Amounts are reflected in the table at the outstanding principal amount at December 31, 2021, assuming the debt instrument will remain outstanding until the stated maturity date, and may differ from the amounts stated in our consolidated balance sheet to the extent debt instruments (i) were issued at a discount or premium or (ii) have elements which are reported at fair value in our consolidated balance sheets. Amounts do not assume additional borrowings or refinancings of existing debt.

(2) Amounts (i) are based on our outstanding debt at December 31, 2021, (ii) assume the interest rates on our variable rate debt remain constant at the December 31, 2021 rates and (iii) assume that our existing debt is repaid at maturity.

Critical Accounting Estimates and Policies

The preparation of our financial statements in conformity with generally accepted accounting principles in the United States ("GAAP") requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Listed below are the accounting estimates and accounting policies that we believe are critical to our financial statements due to the degree of uncertainty regarding the estimates or assumptions involved and the magnitude of the asset, liability, revenue or expense being reported. All of these accounting estimates and assumptions, as well as the resulting impact to our financial statements, have been discussed with our audit committee.

Application of the Equity Method of Accounting for Investments in Affiliates. For those investments in affiliates in which the Company has the ability to exercise significant influence, the equity method of accounting is used. Under this method, the investment, originally recorded at cost, is adjusted to recognize the Company's share of net earnings or losses of the affiliate as they occur rather than as dividends or other distributions are received. Losses are limited to the extent of the Company's investment in, advances to and commitments for the equity method investee. The Company determines the difference between the purchase price of the equity method investee and the underlying equity which results in an excess basis in the investment. This excess basis is allocated to the underlying assets and liabilities of the Company's equity method investee through a purchase accounting exercise and is allocated within memo accounts used for equity method accounting purposes. Depending on the applicable underlying assets, these amounts are either amortized over the applicable useful lives or determined to be indefinite lived.

Changes in the Company's proportionate share of the underlying equity of an equity method investee, which result from the issuance of additional equity securities by such equity method investee, to investors other than the Company, to investors other than the Company, are recognized in the statement of operations through the gain (loss) on dilution of investment in affiliate line item. We periodically evaluate our equity method investment to determine if decreases in fair value below our cost basis are other than temporary. If a decline in fair value is determined to be other than temporary, we are required to reflect such decline in our consolidated statements of operations. Other than temporary declines in fair value of our equity method investment would be included in share of earnings (losses) of affiliates in our consolidated statement of operations.

The primary factors we consider in our determination of whether declines in fair value are other than temporary are the length of time that the fair value of the investment is below our carrying value; the severity of the decline; and the financial condition, operating performance and near term prospects of the equity method investee. In addition, we consider the reason for the decline in fair value, be it general market conditions, industry specific or equity method investee specific; analysts' ratings and estimates of 12 month share price targets for the equity method investee; changes in stock price or valuation subsequent to the balance sheet date; and our intent and ability to hold the investment for a period of time sufficient to allow for a recovery in fair value.

Our evaluation of the fair value of our investments and any resulting impairment charges are made as of the most recent balance sheet date. Changes in fair value subsequent to the balance sheet date due to the factors described above are possible. Subsequent decreases in fair value will be recognized in our consolidated statement of operations in the period in which they occur to the extent such decreases are deemed to be other than temporary. Subsequent increases in fair value will be recognized in our consolidated statement of operations only upon our ultimate disposition of the investment.

Fair Value of Non-Financial Instruments. The Company's non-financial instrument valuations are primarily comprised of its determination of the estimated fair value allocation of net tangible and identifiable intangible assets acquired in business combinations, the Company's annual assessment of the recoverability of its goodwill and other nonamortizable intangibles, and the Company's evaluation of the recoverability of its other long-lived assets upon certain triggering events.

The Company periodically reviews the carrying value of its intangible assets with definite lives and other long-lived assets to be used in operations whenever events or changes in circumstances indicate that the carrying amount of the assets or asset groups might not be recoverable. Factors that would necessitate an impairment assessment include a significant adverse change in the extent or manner in which an asset is used, a significant adverse change in legal factors or the business climate that could affect the value of the asset group, or a significant decline in the observable market value of an asset group, among others. If such facts indicate a potential impairment, the recoverability of the asset group is assessed by determining whether the carrying value of the asset group exceeds the sum of the projected undiscounted cash flows expected to result from the use and eventual disposition of the asset group over the remaining economic life of the asset group. If the carrying amount of the asset group is greater than the expected undiscounted cash flows to be generated by such asset group, including its ultimate disposition, an impairment adjustment is recognized.

If the carrying value of the Company's amortizing intangible or long-lived assets exceeds their estimated fair value, the Company is required to write the carrying value down to fair value. Any such write down is included in impairment expense in the Company's consolidated statements of operations. A high degree of judgment is required to estimate the fair value of the Company's amortizing intangible and long-lived assets. The Company may use quoted market prices, prices for similar assets, present value techniques and other valuation techniques to prepare these estimates. The Company may need to make estimates of future cash flows and discount rates as well as other assumptions in order to implement these valuation techniques. Due to the high degree of judgment involved in our estimation techniques, any value ultimately derived from the Company's amortizing intangible or long-lived assets may differ from its estimate of fair value.

The Company utilizes the cost approach as the primary method used to establish fair value for its property and equipment in connection with business combinations. The cost approach considers the amount required to replace an asset by constructing or purchasing a new asset with similar utility, then adjusts the value in consideration of physical depreciation and functional and technological obsolescence as of the appraisal date. The cost approach relies on management's assumptions regarding current material and labor costs required to rebuild and repurchase significant components of the Company's property and equipment along with assumptions regarding the age and estimated useful lives of its property and equipment.

The accounting guidance permits entities to first perform a qualitative assessment to determine whether it is more likely than not that an indefinite-lived intangible asset is impaired. If the qualitative assessment supports that it is more likely than not that the carrying value of the Company's indefinite-lived intangible assets, other than goodwill, exceeds its fair value, then a quantitative assessment is performed.

The Company utilizes an income approach as the primary method used to establish fair value for its customer relationships and cable certificates in connection with business combinations and annual impairment testing when deemed necessary. The income approach quantifies the expected earnings of the Company's customer relationships and cable certificates, by isolating the after tax cash flows attributable to the respective asset and then discounting the cash flows to their present value. The income approach relies on management's assumptions such as projected revenue, market penetration, expenses, capital expenditures, customer trends, and a discount rate applied to the estimated after tax cash flows.

The Company performs an annual assessment of the recoverability of its goodwill during the fourth quarter, or more frequently, if events and circumstances indicate impairment may have occurred. In evaluating goodwill on a qualitative basis, the Company reviews the business performance of each reporting unit and evaluates other relevant factors as identified in the relevant accounting guidance to determine whether it is more likely than not that an indicated impairment exists for any of its reporting units. The Company considers whether there are any negative macroeconomic conditions, industry specific conditions, market changes, increased competition, increased costs in doing business, management challenges, legal environments and how these factors might impact company specific performance in future periods. As part of the analysis, the Company also considers fair value determinations for certain reporting units that have been made at various points throughout the current and prior year for other purposes. If based on the qualitative analysis it is more likely than not that an impairment exists, the Company performs the quantitative impairment test.

The quantitative goodwill impairment test compares the estimated fair value of a reporting unit to its carrying value. The estimated fair value of a reporting unit has historically been determined using an income approach, when deemed necessary. The Company's income approach model used for its reporting unit valuation is consistent with that used for the cable certificates except that cash flows from the entire business enterprise are used.

Income Taxes. We are required to estimate the amount of tax payable or refundable for the current year and the deferred income tax liabilities and assets for the future tax consequences of events that have been reflected in our financial statements or tax returns for each taxing jurisdiction in which we operate. This process requires our management to make judgments regarding the timing and probability of the ultimate tax impact of the various agreements and transactions that we enter into. Based on these judgments we may record tax reserves or adjustments to valuation allowances on deferred tax assets to reflect the expected realizability of future tax benefits. Actual income taxes could vary from these estimates due to future changes in income tax law, significant changes in the jurisdictions in which we operate, our inability to generate sufficient future taxable income or unpredicted results from the final determination of each year's liability by taxing authorities. These changes could have a significant impact on our financial position.

Results of Operations—GCI Holdings, LLC

As described in notes 1 and 4 to the accompanying consolidated financial statements, Liberty Broadband acquired GCI Holdings in the Combination on December 18, 2020. As GCI Holdings' results are only included in the Company's 2020 results for 13 days following the Combination, we believe a discussion of GCI Holdings' results for a comparative three year period promotes a better understanding of GCI Holdings' operations. For comparison and discussion purposes the Company is presenting (a) the results of GCI Holdings for the year ended December 31, 2021, as included in the consolidated financial statements of the Company and (b) the actual historical results of GCI Holdings for the years ended December 31, 2020 and

2019, exclusive of the effects of acquisition accounting. The most significant effect of acquisition accounting is an increase to depreciation and amortization as compared to prior periods as a result of an increase in fair values of depreciable and amortizable assets. This historical financial information of GCI Holdings can be found in historical filings of GCI Liberty, Inc. with the exception of the fourth quarter of 2020. The financial information below is presented voluntarily and does not purport to represent what the results of operations of GCI Holdings would have been if it were a wholly owned subsidiary of Liberty Broadband for the periods presented or to project the results of operations of GCI Holdings for any future periods.

GCI Holdings provides a full range of wireless, data, video, voice, and managed services to residential, businesses, governmental entities, and educational and medical institutions primarily in Alaska. The following table highlights selected key performance indicators used in evaluating GCI Holdings.

	December 31, 2021	2020	2019
Consumer			
Wireless:			
Revenue generating wireless lines in service[1]	185,200	176,900	176,200
Non-revenue generating wireless lines in service[2]	1,000	2,200	6,100
Wireless lines in service	186,200	179,100	182,300
Data:			
Cable modem subscribers[3]	151,900	140,600	127,000
Video:			
Basic subscribers[4]	54,300	74,300	81,200
Voice:			
Total local access lines in service[5]	33,000	36,600	39,900

[1] A revenue generating wireless line in service is defined as a wireless device with a monthly fee for services.

[2] A non-revenue generating wireless line in service is defined as a data-only line with no monthly fee for services.

[3] A cable modem subscriber is defined by the purchase of cable modem service regardless of the level of service purchased. If one entity purchases multiple cable modem service access points, each access point is counted as a subscriber.

[4] A basic subscriber is defined by the purchase of basic video service.

[5] A local access line in service is defined as a revenue generating circuit or channel connecting a customer to the public switched telephone network.

GCI Holdings' operating results for the years ended December 31, 2021, 2020 and 2019 are as follows:

	Years ended December 31, 2021	2020	2019
		amounts in millions	
Revenue	$ 970	949	870
Operating expenses (excluding stock-based compensation included below):			
Operating expense	(272)	(271)	(267)
Selling, general and administrative expenses	(344)	(333)	(346)
Adjusted OIBDA	354	345	257
Stock-based compensation	(16)	(10)	(15)
Impairment of intangibles and long-lived assets	—	—	(167)
Insurance proceeds and restructuring, net	—	—	6
Depreciation and amortization	(266)	(248)	(264)
Operating income (loss)	$ 72	87	(183)

Revenue

The components of revenue are as follows:

		Years ended December 31,	
	2021	2020	2019
		amounts in millions	
Consumer			
Wireless	$ 184	171	168
Data	214	188	169
Video	71	91	84
Voice	15	15	17
Business			
Wireless	74	89	93
Data	368	339	278
Video	3	12	16
Voice	41	44	45
Total revenue	$ 970	949	870

Consumer wireless revenue increased $13 million and $3 million for the years ended December 31, 2021 and 2020, respectively, as compared to the corresponding prior year periods. The increase in 2021 was primarily due to increased plan service fee revenue of $9 million driven by an increase in the number of subscribers and subscribers' selection of plans with higher recurring monthly charges that offer higher usage limits. Additionally, equipment and accessories sales revenue increased $5 million, driven by an increase in the number of handsets sold in 2021. The increase in revenue in 2020 was primarily due to increased plan service fee revenue of $5 million, driven by subscribers' selection of plans with higher recurring monthly charges that offer higher usage limits. The increase was partially offset by a $2 million decrease in equipment sales revenue due to a decrease in the number of handsets sold in 2020.

Consumer data revenue increased $26 million and $19 million for the years ended December 31, 2021 and 2020, respectively, as compared to the corresponding prior year periods. The increases in both years were driven by increases in the number of subscribers and the subscribers' selection of plans with higher recurring monthly charges that offer higher speeds and higher usage limits.

Consumer video revenue decreased $20 million and increased $7 million for the years ended December 31, 2021 and 2020, respectively, as compared to the corresponding prior year periods. The decrease in 2021 was due to a $15 million decrease in plan service fee revenue driven by a decrease in the number of subscribers. Additionally, there was a decrease of $6 million in advertising revenue driven by a reduction in advertising sales due to the absence of a major political election in 2021 compared to 2020. The increase in 2020 was due to an $11 million increase in advertising revenue driven by a reorganization effective August 1, 2020. The Company transitioned its advertising sales to Consumer video following the sale of the Company's broadcast television station. The increase was partially offset by a decrease in plan fee revenue driven by a decrease in the number of subscribers.

Consumer voice revenue remained flat and decreased $2 million for the years ended December 31, 2021 and 2020, respectively, as compared to the corresponding prior year periods. The decrease in 2020 was primarily due to a reduction in the number of customers.

Business wireless revenue decreased $15 million and $4 million for the years ended December 31, 2021 and 2020, respectively, as compared to the corresponding prior year periods. The decrease in 2021 was primarily due to a decrease in grant and roaming revenue. The decrease in 2020 was primarily due to wholesale customers removing backhaul circuits from our network and a decrease in grant revenue partially offset by increases in roaming revenue driven by the renegotiation of a roaming contract.

Business data revenue increased $29 million and $61 million for the years ended December 31, 2021 and 2020, respectively, as compared to the corresponding prior year periods. The increase in 2021 was due to a $50 million increase in data and transport, driven by increased sales to education and medical customers for service upgrades. The increase was partially offset by a decrease of $12 million in professional services revenue driven by a reduction in time and materials project work.

Additionally, the increase was partially offset by the absence of $9 million in revenue recorded in the first quarter of 2020 for a RHC customer whose funding was initially denied but subsequently approved in the first quarter of 2020.

The increase in 2020 was due to a $73 million increase in data and transport revenue driven by increased sales to school and medical customers for service upgrades. The increase also included the $9 million in revenue associated with prior periods for an RHC customer whose funding was initially denied but subsequently approved in the first quarter of 2020. The increases were partially offset by a $12 million decrease in professional services revenue driven by a reduction in time and materials project work.

Business video revenue decreased $9 million and $4 million for the years ended December 31, 2021 and 2020, respectively, as compared to the corresponding prior year periods. The decreases in both 2021 and 2020 were primarily due to the sale of the Company's broadcast television station in the third quarter of 2020.

Business voice revenue decreased $3 million and $1 million for the years ended December 31, 2021 and 2020, respectively, as compared to the corresponding prior year periods. The decrease in 2021 was driven by a reduction in conference calling, long distance minutes, and local service lines. The decrease in 2020 was driven by a reduction in local service lines partially offset by an increase in long distance and conferencing services.

Operating expenses increased $1 million and $4 million for the years ended December 31, 2021 and 2020, respectively, as compared to the corresponding prior year periods. The increase in 2021 was primarily due to a $20 million increase in costs to operate our network driven by the increase in demand from education and medical customers, as well as a $3 million increase in wireless handset costs. These increases were partially offset by a decrease of $10 million in professional services costs driven by a reduction in time and materials project work and a decrease of $13 million in video costs driven by the sale of the Company's broadcast television station in the third quarter of 2020, as well as a decrease in costs paid to content producers driven by a decrease in video subscribers.

The increase in 2020 was primarily due to an $18 million increase in costs to operate our network driven by the increase in demand from school and medical customers. The increase is partially offset by decreases of $8 million in professional services costs driven by a reduction in time and materials project work and $4 million in video costs paid to content producers driven by a decrease in video subscribers.

Selling, general and administrative expenses increased $11 million and decreased $13 million for the years ended December 31, 2021 and 2020, as compared to the corresponding prior year periods. The increase in 2021 was primarily due to a $16 million increase in labor related costs driven by increases in healthcare costs as employees have returned to normal healthcare interactions and increases in contract labor. Additionally, the period was impacted by a $2 million increase in software costs driven by an increase in software as service arrangements and a $2 million increase in travel and training costs driven by a return to more normal activity levels. The increase is partially offset by a $2 million decrease in bad debt expense, $3 million decrease in legal and compliance cost and $3 million decrease in lease and facility costs.

The decrease in 2020 was primarily due to the absence of a $17 million reserve recorded in the fourth quarter of 2019 for contracts that were deemed probable of not complying with RHC Program rules, and the Company's cost cutting efforts. The decrease was partially offset by a $5 million increase in legal and compliance costs.

Stock based compensation increased $6 million and decreased $5 million for the years ended December 31, 2021 and 2020, respectively, as compared to the corresponding prior year periods. The increase in 2021 was due to the fair value assigned to converted awards as part of the modification as a result of the Combination. Additionally, stock-based compensation expense for the prior period included the reversal of expense for performance-based awards that did not vest. The decrease in 2020 was primarily due to the reversal of expense for performance-based awards that did not vest due to a shortfall in certain financial metrics and qualitative criteria; employees who left the company prior to the vesting of their awards; and a decrease in the number of awards granted.

Depreciation and amortization increased $18 million and decreased $16 million for the years ended December 31, 2021 and 2020, respectively, as compared to the corresponding prior year periods. The increase in 2021 was primarily due to an increase in assets placed in service since January 1, 2020 and higher amortization expense because of an accelerated recognition pattern for amortizing intangibles as a result of the Combination. The decrease in 2020 was primarily due to assets which became fully depreciated prior to 2020, a decrease in assets placed in service since January 1, 2019, and lower amortization expense because of an accelerated recognition pattern for amortizing intangibles.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk.

We are exposed to market risk in the normal course of business due to our ongoing investing and financial activities. Market risk refers to the risk of loss arising from adverse changes in stock prices and interest rates. The risk of loss can be assessed from the perspective of adverse changes in fair values, cash flows and future earnings. We have established policies, procedures and internal processes governing our management of market risks and the use of financial instruments to manage our exposure to such risks.

We are exposed to changes in interest rates primarily as a result of our borrowing and investment activities, which could include investments in fixed and floating rate debt instruments and borrowings used to maintain liquidity and to fund business operations. The nature and amount of our long-term and short-term debt are expected to vary as a result of future requirements, market conditions and other factors. We manage our exposure to interest rates by maintaining what we believe is an appropriate mix of fixed and variable rate debt. We believe this best protects us from interest rate risk. We could achieve this mix by (i) issuing fixed rate debt that we believe has a low stated interest rate and significant term to maturity, (ii) issuing variable rate debt with appropriate maturities and interest rates and (iii) entering into interest rate swap arrangements when we deem appropriate.

Liberty Broadband's borrowings under the Margin Loan Agreement (as defined in note 8 to the accompanying consolidated financial statements) and the Senior Credit Facility (as defined in note 8 to the accompanying consolidated financial statements) carry a variable interest rate based on LIBOR as a benchmark for establishing the rate of interest. LIBOR is the subject of national, international and other regulatory guidance and proposals for reform. In 2017, the United Kingdom's Financial Conduct Authority (the "FCA"), which regulates LIBOR, announced that it intends to phase out LIBOR. On March 5, 2021, the FCA announced that all LIBOR settings will either cease to be provided by any administrator or no longer be representative: (a) immediately after December 31, 2021, in the case of the one week and two month U.S. dollar settings; and (b) immediately after June 30, 2023, in the case of the remaining U.S. dollar settings. The United States Federal Reserve has also advised banks to cease entering into new contracts that use USD LIBOR as a reference rate. The Alternative Reference Rate Committee, a committee convened by the Federal Reserve that includes major market participants, has identified the Secured Overnight Financing Rate, or SOFR, a new index calculated by short-term repurchase agreements, backed by Treasury securities, as its preferred alternative rate for LIBOR. Additionally, our Margin Loan Agreement and Senior Credit Facility provide for a transition to a SOFR based rate or to other alternative reference rates depending on acceptance in the market of these rates. At this time, it is not possible to predict how markets will respond to SOFR or other alternative reference rates as the transition away from the LIBOR benchmarks is anticipated in coming years. Accordingly, the outcome of these reforms is uncertain and any changes in the methods by which LIBOR is determined or regulatory activity related to LIBOR's phaseout could cause LIBOR to perform differently than in the past or cease to exist. The consequences of these developments cannot be entirely predicted, but could include an increase in the cost of borrowings under the aforementioned debt instruments.

As of December 31, 2021, our debt is comprised of the following amounts:

	Variable rate debt		Fixed rate debt	
	Principal amount	Weighted avg interest rate	Principal amount	Weighted avg interest rate
	dollar amounts in millions			
GCI Holdings	$ 405	1.9 %	$ 600	4.8 %
Corporate and other	$ 1,300	1.7 %	$ 1,415	1.9 %

Our investment in Charter (our equity method affiliate) is publicly traded and not reflected at fair value in our balance sheet. Our investment in Charter is subject to market risk that is not directly reflected in our financial statements.

Item 8. Financial Statements and Supplementary Data.

The consolidated financial statements of Liberty Broadband Corporation are filed under this Item, beginning on Page II-26. The financial statement schedules required by Regulation S-X are filed under Item 15 of this Annual Report on Form 10-K.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

In accordance with Exchange Act Rules 13a-15 and 15d-15, the Company carried out an evaluation, under the supervision and with the participation of management, including its chief executive officer and its principal accounting and financial officer (the “Executives”), of the effectiveness of its disclosure controls and procedures as of the end of the period covered by this report. Based on that evaluation, the Executives concluded that the Company's disclosure controls and procedures were effective as of December 31, 2021 to provide reasonable assurance that information required to be disclosed in its reports filed or submitted under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission’s rules and forms.

Management’s Report on Internal Control Over Financial Reporting

See page II-23 for *Management's Report on Internal Control Over Financial Reporting.*

See page II-24 for *Report of Independent Registered Public Accounting Firm* for their attestation regarding our internal control over financial reporting.

Changes in Internal Control Over Financial Reporting

Except for continued enhancements related to material weakness remediation activities, there has been no change in the Company’s internal control over financial reporting that occurred during the quarter ended December 31, 2021 that has materially affected, or is reasonably likely to materially affect, its internal control over financial reporting.

Remediation of Material Weakness in Internal Control Over Financial Reporting

In response to the material weakness identified in Part II, Item 9A in the Annual Report on Form 10-K for the year ended December 31, 2020 Form 10-K, the Company developed a plan to remediate the material weakness at GCI Holdings. Remediation activities included:

- Continue to hire, train and retain individuals with appropriate skills and experience related to designing, operating and documenting internal control over financial reporting.
- Enhance the comprehensive and continuous risk assessment process to identify and assess financial statement risks and ensure that the financial reporting process and related internal controls are in place to respond to those risks.
- Enhance the design of and implement additional process-level control activities and ensure they are properly evidenced and operating effectively.
- Communicate expectations, monitor for compliance with expectations, and hold individuals accountable for their roles related to internal control over financial reporting.

For the quarter ended December 31, 2021 the Company completed the testing and evaluation of the operating effectiveness of the controls, and based on the results of the testing, the controls were determined to be designed and operating effectively as of December 31, 2021. Accordingly, the Company concluded the previously reported material weakness was remediated as of December 31, 2021.

Item 9B. Other Information.

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.

Not applicable.

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Management of the Company is responsible for establishing and maintaining adequate internal control over the Company’s financial reporting, as such term is defined in Rule 13a-15(f) of the Exchange Act. The Company’s internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP. Because of 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 and procedures may deteriorate.

The Company’s management assessed the effectiveness of internal control over financial reporting as of December 31, 2021, using the criteria in *Internal Control-Integrated Framework (2013)*, issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, management has concluded that, as of December 31, 2021, the Company's internal control over financial reporting is effective.

The Company’s independent registered public accounting firm audited the consolidated financial statements and related notes in the Annual Report on Form 10-K and have issued an audit report on the effectiveness of the Company’s internal control over financial reporting. Their report appears on page II-24 of this Annual Report on Form 10-K.

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Liberty Broadband Corporation:

Opinion on Internal Control Over Financial Reporting

We have audited Liberty Broadband Corporation and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2021, 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, 2021, 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, 2021 and 2020, the related consolidated statements of operations, comprehensive earnings (loss), cash flows, and equity for each of the years in the three-year period ended December 31, 2021, and the related notes (collectively, the consolidated financial statements), and our report dated February 25, 2022 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 25, 2022

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Liberty Broadband Corporation:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Liberty Broadband Corporation and subsidiaries (the Company) as of December 31, 2021 and 2020, the related consolidated statements of operations, comprehensive earnings (loss), cash flows, and equity for each of the years in the three-year period ended December 31, 2021, 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, 2021 and 2020, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2021, 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, 2021, 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 25, 2022 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

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

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

Critical Audit Matters

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

Equity method accounting for the Company's investment in Charter

As discussed in notes 2 and 6 to the consolidated financial statements, the Company has recorded an investment in Charter of $13,260 million as of December 31, 2021, accounted for using the equity method. The investment represents approximately 78.1% of the total assets of the Company as of December 31, 2021. The investment, originally recorded at cost, is adjusted to recognize the Company's share of net earnings or losses as they occur and for additional purchases and sales of Charter shares. The Company's investment in Charter differs from the underlying equity of Charter which results in excess basis in the investment. This excess basis is allocated to the underlying assets and liabilities of the Company's investee within memo accounts used for equity method accounting.

We identified the evaluation of the equity method of accounting for the Company's investment in Charter as a critical audit matter. Evaluating the Company's application of the equity method of accounting for the Company's investment in Charter required a higher degree of auditor judgment to determine the nature and extent of audit effort required to address the matter, including the involvement of valuation professionals with specialized skills and knowledge.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the critical audit matter. This included controls related to the Company's application of its equity method accounting, including the related share of earnings calculation, allocation of excess basis to the memo accounts, the associated amortization, and the gain or loss on dilution. We performed risk assessment procedures, including sensitivity analyses, and applied auditor judgment to determine the nature and extent of procedures to be performed over the investment. We developed independent expectations of (1) the Company's share of earnings of Charter and (2) the gain or loss on dilution and compared such expectations to the amounts recorded by the Company. We recalculated (1) the allocation of excess basis to the memo accounts and (2) the related excess basis amortization. We involved valuation professionals with specialized skills and knowledge, who assisted in assessing the allocation of the excess basis, including (1) assessing the valuation methodology used by the Company to estimate the fair value of Charter's assets by comparison to generally accepted valuation methodologies, and (2) assessing the identification of marketplace transactions used in the model by considering the comparability to Charter.

Sufficiency of audit evidence over certain video, voice, data, and wireless revenue streams

As discussed in note 2 to the consolidated financial statements and disclosed in the consolidated statements of operations, the Company reported revenue of $988 million for the year ended December 31, 2021, which included $893 million of revenue related to video, voice, data and wireless services at GCI Holdings. The Company's accounting for these revenue streams involves multiple processes and information technology (IT) systems.

We identified the evaluation of sufficiency of audit evidence over certain video, voice, data, and wireless revenue streams at GCI Holdings as a critical audit matter. Evaluating the sufficiency of audit evidence required subjective auditor judgment due to the number of revenue streams and related IT applications utilized throughout the revenue recognition process. Subjective auditor judgment was required to evaluate whether relevant revenue data was captured and aggregated throughout these various processes and IT applications, which included the involvement of IT professionals with specialized skills and knowledge. We applied auditor judgment in determining the revenue streams over which procedures would be performed and evaluating the nature and extent of evidence obtained over each relevant revenue stream.

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 revenue. For each revenue stream where procedures were performed:

— we evaluated the design and tested the operating effectiveness of certain internal controls related to the revenue recognition process, including controls related to accurately recording amounts for certain of the Company's video, voice, data, and wireless revenue streams

— assessed the recorded revenue by selecting a sample of transactions and compared the amounts recognized to underlying documentation, including evidence of contracts with customers.

We involved IT professionals with specialized skills and knowledge, who assisted in:

— testing relevant IT applications and internal controls over the Company's revenue recognition processes

— testing the transfer of relevant revenue data between different IT systems used in the Company's revenue recognition processes

We evaluated the sufficiency of audit evidence obtained by assessing the results of the procedures performed, including the appropriateness of the nature and extent of such evidence.

/s/ KPMG LLP

We have served as the Company's auditor since 2014.

Denver, Colorado
February 25, 2022

LIBERTY BROADBAND CORPORATION

Consolidated Balance Sheets

December 31, 2021 and 2020

	2021	2020
	amounts in millions	
Assets		
Current assets:		
Cash and cash equivalents	$ 191	1,418
Trade and other receivables, net	206	349
Prepaid and other current assets	62	79
Total current assets	459	1,846
Investment in Charter, accounted for using the equity method (note 6)	13,260	16,179
Property and equipment, net (note 2)	1,031	1,099
Intangible assets not subject to amortization		
Goodwill (note 7)	762	746
Cable certificates	550	560
Other	37	22
Intangible assets subject to amortization, net (note 7)	573	675
Tax sharing receivable	86	95
Other assets, net	210	151
Total assets	$ 16,968	21,373

See accompanying notes to consolidated financial statements.

LIBERTY BROADBAND CORPORATION

Consolidated Balance Sheets (Continued)

December 31, 2021 and 2020

		2021	2020
		amounts in millions, except share amounts	
Liabilities and Equity			
Current liabilities:			
Accounts payable and accrued liabilities	$	99	98
Deferred revenue		25	25
Current portion of debt, including $25 and $26 measured at fair value, respectively (note 8)		28	31
Indemnification obligation (note 5)		324	345
Other current liabilities		106	113
Total current liabilities		582	612
Long-term debt, net, including $1,403 and $1,446 measured at fair value, respectively (note 8)		3,733	4,785
Obligations under finance leases and tower obligations, excluding current portion (note 9)		89	93
Long-term deferred revenue		35	40
Deferred income tax liabilities (note 10)		1,998	1,978
Preferred stock (note 11)		203	203
Other liabilities		189	147
Total liabilities		6,829	7,858
Equity			
Series A common stock, $.01 par value. Authorized 500,000,000 shares; issued and outstanding 23,232,342 and 26,495,249 at December 31, 2021 and 2020 respectively		—	—
Series B common stock, $.01 par value. Authorized 18,750,000 shares; issued and outstanding 2,544,548 and 2,549,470 at December 31, 2021 and 2020, respectively		—	—
Series C common stock, $.01 par value. Authorized 500,000,000 shares; issued and outstanding 144,854,780 and 167,480,926 at December 31, 2021 and 2020, respectively		1	2
Additional paid-in capital		6,214	10,320
Accumulated other comprehensive earnings, net of taxes		14	15
Retained earnings		3,898	3,166
Total stockholders' equity		10,127	13,503
Non-controlling interests		12	12
Total equity		10,139	13,515
Commitments and contingencies (note 14)			
Total liabilities and equity	$	16,968	21,373

See accompanying notes to consolidated financial statements.

LIBERTY BROADBAND CORPORATION

Consolidated Statements of Operations

Years Ended December 31, 2021, 2020 and 2019

	2021	2020	2019
		amounts in millions, except per share amounts	
Revenue	988	51	15
Operating costs and expenses:			
Operating expense (exclusive of depreciation and amortization shown separately below)	282	20	9
Selling, general and administrative, including stock-based compensation and transaction costs (note 12)	442	76	33
Depreciation and amortization	267	15	2
Litigation settlement, net of recoveries (note 14)	95	—	—
	1,086	111	44
Operating income (loss)	(98)	(60)	(29)
Other income (expense):			
Interest expense (including amortization of deferred loan fees)	(117)	(28)	(25)
Share of earnings (losses) of affiliate (note 6)	1,194	713	286
Gain (loss) on dilution of investment in affiliate (note 6)	(102)	(184)	(79)
Realized and unrealized gains (losses) on financial instruments, net (note 5)	67	(83)	1
Other, net	6	3	1
Earnings (loss) before income taxes	950	361	155
Income tax benefit (expense)	(218)	37	(38)
Net earnings (loss)	732	398	117
Less net earnings (loss) attributable to the non-controlling interests	—	—	—
Net earnings (loss) attributable to Liberty Broadband shareholders	$ 732	398	117
Basic earnings (loss) attributable to Series A, Series B and Series C Liberty Broadband shareholders per common share (note 2)	$ 3.97	2.18	0.65
Diluted net earnings (loss) attributable to Series A, Series B and Series C Liberty Broadband shareholders per common share (note 2)	$ 3.93	2.17	0.64

See accompanying notes to consolidated financial statements.

LIBERTY BROADBAND CORPORATION

Consolidated Statements of Comprehensive Earnings (Loss)

Years ended December 31, 2021, 2020 and 2019

	2021	2020	2019
		amounts in millions	
Net earnings (loss)	$ 732	398	117
Other comprehensive earnings (loss), net of taxes:			
Comprehensive earnings (loss) attributable to debt credit risk adjustments	(1)	7	—
Other	—	—	1
Other comprehensive earnings (loss), net of taxes	(1)	7	1
Comprehensive earnings (loss)	731	405	118
Less comprehensive earnings (loss) attributable to the non-controlling interests	—	—	—
Comprehensive earnings (loss) attributable to Liberty Broadband shareholders	$ 731	405	118

See accompanying notes to consolidated financial statements.

LIBERTY BROADBAND CORPORATION

Consolidated Statements of Cash Flows

Years ended December 31, 2021, 2020 and 2019

	2021	2020	2019
		amounts in millions	
Cash flows from operating activities:			
Net earnings (loss)	$ 732	398	117
Adjustments to reconcile net earnings (loss) to net cash provided by operating activities:			
Depreciation and amortization	267	15	2
Stock-based compensation	41	9	10
Share of (earnings) losses of affiliate, net	(1,194)	(713)	(286)
(Gain) loss on dilution of investment in affiliate	102	184	79
Realized and unrealized (gains) losses on financial instruments, net	(67)	83	(1)
Deferred income tax expense (benefit)	(15)	(37)	38
Other, net	(15)	1	3
Changes in operating assets and liabilities:			
Current and other assets	214	(14)	(1)
Payables and other liabilities	(62)	(22)	2
Net cash provided by (used in) operating activities	3	(96)	(37)
Cash flows from investing activities:			
GCI Liberty, Inc. cash acquired in merger	—	592	—
Capital expenditures	(134)	(2)	(1)
Exercise of preemptive right to purchase Charter shares	—	(15)	—
Cash received for Charter shares repurchased by Charter	4,179	—	—
Other investing activities, net	17	—	—
Net cash provided by (used in) investing activities	4,062	575	(1)
Cash flows from financing activities:			
Borrowings of debt	1,467	2,825	50
Repayments of debt, finance leases and tower obligations	(2,476)	(1,301)	—
Repurchases of Liberty Broadband common stock	(4,272)	(597)	—
Proceeds (payments) from issuances of financial instruments	—	—	(46)
Proceeds (payments) from settlements of financial instruments	—	—	48
Payment to former parent under tax sharing agreement related to net settlement of Awards	—	—	(50)
Other financing activities, net	(11)	(23)	3
Net cash provided by (used in) financing activities	(5,292)	904	5
Net increase (decrease) in cash, cash equivalents and restricted cash	(1,227)	1,383	(33)
Cash, cash equivalents and restricted cash, beginning of period	1,433	50	83
Cash, cash equivalents and restricted cash, end of period	$ 206	1,433	50

See accompanying notes to consolidated financial statements.

LIBERTY BROADBAND CORPORATION

Consolidated Statements of Equity

Years ended December 31, 2021, 2020 and 2019

	Common stock Series A	Common stock Series B	Common stock Series C	Additional paid-in capital	Accumulated other comprehensive earnings	Retained earnings (accumulated deficit)	Noncontrolling interest in equity of subsidiaries	Total equity
	amounts in millions							
Balance at December 31, 2018	$ —	—	2	7,938	7	2,651	—	10,598
Net earnings (loss)	—	—	—	—	—	117	—	117
Other comprehensive earnings (loss), net of taxes	—	—	—	—	1	—	—	1
Stock-based compensation	—	—	—	10	—	—	—	10
Issuance of common stock upon exercise of stock options	—	—	—	5	—	—	—	5
Payment to former parent under tax sharing agreement related to net settlement of Awards	—	—	—	(50)	—	—	—	(50)
Noncontrolling interest activity at Charter and other	—	—	—	(13)	—	—	—	(13)
Balance at December 31, 2019	$ —	—	2	7,890	8	2,768	—	10,668
Net earnings (loss)	—	—	—	—	—	398	—	398
Other comprehensive earnings (loss), net of taxes	—	—	—	—	7	—	—	7
Stock-based compensation	—	—	—	9	—	—	—	9
Withholding taxes on net share settlements of stock-based compensation	—	—	—	(2)	—	—	—	(2)
Liberty Broadband stock repurchases	—	—	—	(597)	—	—	—	(597)
Net impact of GCI Liberty, Inc. Acquisition	—	—	—	3,060	—	—	12	3,072
Noncontrolling interest activity at Charter and other	—	—	—	(40)	—	—	—	(40)
Balance at December 31, 2020	$ —	—	2	10,320	15	3,166	12	13,515
Net earnings (loss)	—	—	—	—	—	732	—	732
Other comprehensive earnings (loss), net of taxes	—	—	—	—	(1)	—	—	(1)
Stock-based compensation	—	—	—	41	—	—	—	41
Issuance of common stock upon exercise of stock options	—	—	—	2	—	—	—	2
Withholding taxes on net share settlements of stock-based compensation	—	—	—	(11)	—	—	—	(11)
Liberty Broadband stock repurchases	—	—	(1)	(4,271)	—	—	—	(4,272)
Noncontrolling interest activity at Charter and other	—	—	—	133	—	—	—	133
Balance at December 31, 2021	$ —	—	1	6,214	14	3,898	12	10,139

See accompanying notes to consolidated financial statements.

LIBERTY BROADBAND CORPORATION

Notes to Consolidated Financial Statements

December 31, 2021, 2020 and 2019

(1) Basis of Presentation

The accompanying consolidated financial statements include the accounts of Liberty Broadband Corporation and its controlled subsidiaries (collectively, "Liberty Broadband," the "Company," "us," "we," or "our" unless the context otherwise requires). Liberty Broadband Corporation is primarily comprised of GCI Holdings, LLC ("GCI Holdings") (as of December 18, 2020), a wholly owned subsidiary, and an equity method investment in Charter Communications, Inc. ("Charter").

GCI Holdings provides a full range of wireless, data, video, voice, and managed services to residential customers, businesses, governmental entities, and educational and medical institutions primarily in Alaska under the GCI brand. Charter is a leading broadband connectivity company and cable operator. Over an advanced high-capacity, two-way telecommunications network, Charter offers a full range of state-of-the-art residential and business services including Spectrum Internet, TV, Mobile and Voice. For small and medium-sized companies, Spectrum Business® delivers the same suite of broadband products and services coupled with special features and applications to enhance productivity, while for larger businesses and government entities, Spectrum Enterprise provides highly customized, fiber-based solutions. Spectrum Reach® delivers tailored advertising and production for the modern media landscape. Charter also distributes award-winning news coverage, sports and high-quality original programming to its customers through Spectrum Networks and Spectrum Originals.

On December 18, 2020, pursuant to the Agreement and Plan of Merger, dated as of August 6, 2020, entered into by GCI Liberty, Inc. ("GCI Liberty"), Liberty Broadband, Grizzly Merger Sub 1, LLC, a wholly owned subsidiary of Liberty Broadband ("Merger LLC"), and Grizzly Merger Sub 2, Inc., a wholly owned subsidiary of Merger LLC ("Merger Sub"), Merger Sub merged with and into GCI Liberty (the "First Merger"), with GCI Liberty surviving the First Merger as an indirect wholly owned subsidiary of Liberty Broadband (the "Surviving Corporation"), and immediately following the First Merger, GCI Liberty (as the Surviving Corporation in the First Merger) merged with and into Merger LLC (the "Upstream Merger", and together with the First Merger, the "Combination"), with Merger LLC surviving the Upstream Merger as a wholly owned subsidiary of Liberty Broadband.

As a result of the Combination, each holder of a share of Series A common stock and Series B common stock of GCI Liberty received 0.58 of a share of Series C common stock and Series B common stock, respectively, of Liberty Broadband. Additionally, each holder of a share of Series A Cumulative Redeemable Preferred Stock of GCI Liberty ("GCI Liberty Preferred Stock") received one share of newly issued Liberty Broadband Series A Cumulative Redeemable Preferred Stock ("Liberty Broadband Preferred Stock"), which has substantially identical terms to GCI Liberty's former Series A Cumulative Redeemable Preferred Stock, including a mandatory redemption date of March 9, 2039. Cash was paid in lieu of issuing fractional shares of Liberty Broadband stock in the Combination. No shares of Liberty Broadband stock were issued with respect to shares of GCI Liberty capital stock held by (i) GCI Liberty as treasury stock, (ii) any of GCI Liberty's wholly owned subsidiaries or (iii) Liberty Broadband or its wholly owned subsidiaries.

In December 2019, Chinese officials reported a novel coronavirus ("COVID-19") outbreak. COVID-19 has since spread through China and internationally. On March 11, 2020, the World Health Organization assessed COVID-19 as a global pandemic, causing many countries throughout the world to take aggressive actions, including imposing travel restrictions and stay-at-home orders, closing public attractions and restaurants, and mandating social distancing practices, which has caused a significant disruption to most sectors of the economy.

We are not presently aware of any events or circumstances arising from the COVID-19 pandemic that would require us to update our estimates or judgments or revise the carrying value of our assets or liabilities. Our estimates may change, however, as new events occur and additional information is obtained, and any such changes will be recognized in the consolidated financial statements. Actual results could differ from estimates, and any such differences may be material to our financial statements.

Spin-Off Arrangements

During May 2014, the board of directors of Liberty Media Corporation and its subsidiaries ("Liberty") authorized management to pursue a plan to spin-off to its stockholders common stock of a wholly owned subsidiary, Liberty Broadband,

and to distribute subscription rights to acquire shares of Liberty Broadband's common stock (the "Broadband Spin-Off"). In connection with the Broadband Spin-Off, Liberty (for accounting purposes a related party of the Company) and Liberty Broadband entered into certain agreements in order to govern certain of the ongoing relationships between the two companies and to provide for an orderly transition, including a services agreement and a facilities sharing agreement. Additionally, in connection with a prior transaction, GCI Liberty and Qurate Retail, Inc. ("Qurate Retail") (for accounting purposes a related party of the Company) entered into a tax sharing agreement, which was assumed by Liberty Broadband as a result of the Combination. The tax sharing agreement provides for the allocation and indemnification of tax liabilities and benefits between Qurate Retail and Liberty Broadband and other agreements related to tax matters. Under the facilities sharing agreement, Liberty Broadband shares office space with Liberty and related amenities at Liberty's corporate headquarters. Liberty Broadband will reimburse Liberty for direct, out-of-pocket expenses incurred by Liberty in providing these services which will be negotiated semi-annually.

Pursuant to the services agreement, Liberty provides Liberty Broadband with general and administrative services including legal, tax, accounting, treasury and investor relations support. In December 2019, the Company entered into an amendment to the services agreement with Liberty in connection with Liberty's entry into a new employment arrangement with Gregory B. Maffei, the Company's President and Chief Executive Officer. Under the amended services agreement, components of his compensation would either be paid directly to him by each of the Company, Liberty TripAdvisor Holdings, Inc., GCI Liberty, and Qurate Retail (collectively, the "Service Companies") or reimbursed to Liberty, in each case, based on allocations among Liberty and the Service Companies set forth in the amended services agreement. This allocation percentage will be determined based on a combination of (1) relative market capitalizations, weighted 50%, and (2) a blended average of historical time allocation on a Liberty-wide and CEO basis, weighted 50%, in each case, absent agreement to the contrary by Liberty and the Service Companies in consultation with the CEO. The allocation percentage will then be adjusted annually and following certain events. For the years ended December 31, 2021 and 2020, the allocation percentage for Liberty Broadband was 37% and 18%, respectively. Following the Combination, GCI Liberty no longer participates in the services agreement arrangement. The amended services agreement provides for a five year employment term which began on January 1, 2020 and ends December 31, 2024, with an aggregate annual base salary of $3 million (with no contracted increase), an aggregate one-time cash commitment bonus of $5 million (paid in December 2019), an aggregate annual target cash performance bonus of $17 million, aggregate annual equity awards of $18 million and aggregate equity awards granted in connection with his entry into his new agreement of $90 million (the "upfront awards"). A portion of the grants made to our CEO in the years ended December 31, 2020 and 2019 related to our company's allocable portion of these upfront awards.

Under these various agreements, amounts reimbursable to Liberty were approximately $14 million and $5 million for the years ended December 31, 2021 and 2020, respectively. Liberty Broadband had a tax sharing receivable with Qurate Retail of $86 million and $119 million as of December 31, 2021 and 2020, respectively, of which zero and $24 million was in Other current assets as of December 31, 2021 and 2020, respectively.

The accompanying consolidated financial statements have been prepared in accordance with generally accepted accounting principles in the United States ("GAAP") and represent the historical consolidated financial information of GCI Holdings (as of December 18, 2020) and the Company's interest in Charter, as well as certain other assets and liabilities. All significant intercompany accounts and transactions have been eliminated in the consolidated financial statements.

(2) Summary of Significant Accounting Policies

Cash and Cash Equivalents

Cash consists of cash deposits held in global financial institutions. Cash equivalents consist of highly liquid investments with original maturities of three months or less at the time of acquisition. Cash that has restrictions upon its usage has been excluded from cash and cash equivalents. Financial instruments, which potentially subject the Company to concentration of credit risk, consist primarily of cash and cash equivalents and corporate debt securities. The Company maintains some cash and cash equivalents balances with financial institutions that are in excess of Federal Deposit Insurance Corporation insurance limits.

LIBERTY BROADBAND CORPORATION

Notes to Consolidated Financial Statements (Continued)

December 31, 2021, 2020 and 2019

Accounts Receivable and Allowance for Credit Losses

Trade accounts receivable are recorded at the invoiced amount and do not bear interest. The allowance for credit losses is the Company's best estimate of the amount of expected credit losses in its existing accounts receivable. The Company bases its estimates on the aging of its accounts receivable balances, financial health of specific customers, regional economic data, changes in its collections process, regulatory requirements and its customers' compliance with the Federal Communications Commission ("FCC") rules. The Company reviews its allowance for credit losses methodology at least annually.

Depending upon the type of account receivable the Company's allowance is calculated using a pooled basis with an allowance for all accounts greater than 120 days past due, a pooled basis using a percentage of related accounts, or a specific identification method. When a specific identification method is used, potentially uncollectible accounts due to bankruptcy or other issues are reviewed individually for collectability. Write-offs of accounts receivable balances occur when the Company deems the receivables are uncollectible. The Company does not have any off-balance-sheet credit exposure related to its customers.

Allowance for credit losses was $4 million as of December 31, 2021 and was not material as of December 31, 2020. A summary of activity in the allowance for credit losses for the year ended December 31, 2021 is as follows (amounts in millions):

		Additions	Deductions	
Description	**Balance at beginning of year**	**Charged to costs and expenses**	**Write-offs net of recoveries**	**Balance at end of year**
2021	$ —	4	—	4

Derivative Instruments and Hedging Activities

All of the Company's derivatives, whether designated in hedging relationships or not, are recorded on the balance sheet at fair value. None of the Company's derivatives are currently designated as hedges, as a result, changes in the fair value of the derivative are recognized in earnings.

The fair value of certain of the Company's derivative instruments are estimated using the Black Scholes Merton option-pricing model ("Black-Scholes model"). The Black-Scholes model incorporates a number of variables in determining such fair values, including expected volatility of the underlying security and an appropriate discount rate. The Company obtained volatility rates from pricing services based on the expected volatility of the underlying security over the remaining term of the derivative instrument. A discount rate was obtained at the inception of the derivative instrument and updated each reporting period, based on the Company's estimate of the discount rate at which it could currently settle the derivative instrument. The Company considered its own credit risk as well as the credit risk of its counterparties in estimating the discount rate. Management judgment was required in estimating the Black-Scholes variables. The Company had no outstanding derivative instruments at December 31, 2021 or December 31, 2020.

Investments in Equity Method Affiliates

For those investments in affiliates in which the Company has the ability to exercise significant influence, the equity method of accounting is used. Under this method, the investment, originally recorded at cost, is adjusted to recognize the Company's share of net earnings or losses of the affiliate as they occur rather than as dividends or other distributions are received. Losses are limited to the extent of the Company's investment in, advances to and commitments for the equity method investee. The Company determines the difference between the purchase price of the equity method investee and the underlying equity which results in an excess basis in the investment. This excess basis is allocated to the underlying assets and liabilities of the Company's equity method investee through a purchase accounting exercise and is allocated within memo accounts used for equity method accounting purposes. Depending on the applicable underlying assets, these amounts are either amortized over the applicable useful lives or determined to be indefinite lived. Changes in the Company's proportionate share of the underlying equity of an equity method investee, which result from the issuance of additional equity securities by such equity method investee, are recognized in the statement of operations through the gain (loss) on dilution of investment in affiliate line item. We periodically evaluate our equity method investment to determine if decreases in fair value below our cost basis are other than temporary. If a decline in fair value is determined to be other than temporary, we are required to reflect such decline in our consolidated statements of operations. Other than temporary declines in fair value of our equity method investment would be included in share of earnings (losses) of affiliates in our consolidated statements of operations.

The primary factors we consider in our determination of whether declines in fair value are other than temporary are the length of time that the fair value of the investment is below our carrying value; the severity of the decline; and the financial condition, operating performance and near term prospects of the equity method investee. In addition, we consider the reason for the decline in fair value, be it general market conditions, industry specific or equity method investee specific; analysts' ratings and estimates of 12 month share price targets for the equity method investee; changes in stock price or valuation subsequent to the balance sheet date; and our intent and ability to hold the investment for a period of time sufficient to allow for a recovery in fair value.

As Liberty Broadband does not control the decision making process or business management practices of our affiliates accounted for using the equity method, Liberty Broadband relies on management of its affiliates to provide it with accurate financial information prepared in accordance with GAAP that the Company uses in the application of the equity method. In addition, Liberty Broadband relies on the audit reports that are provided by the affiliates' independent auditors on the financial statements of such affiliate. The Company is not aware, however, of any errors in or possible misstatements of the financial information provided by its equity affiliates that would have a material effect on Liberty Broadband's consolidated financial statements. See note 6 for additional discussion regarding our investment in Charter.

Other Investments

All marketable equity and debt securities held by the Company are carried at fair value, generally based on quoted market prices and changes in the fair value of such securities are reported in realized and unrealized gain (losses) on financial instruments in the accompanying consolidated statements of operations. The Company elected the measurement alternative (defined as the cost of the security, adjusted for changes in fair value when there are observable prices, less impairments) for its equity securities without readily determinable fair values.

The Company performs a qualitative assessment each reporting period for its equity securities without readily determinable fair values to identify whether an equity security could be impaired. When the Company's qualitative assessment indicates that an impairment could exist, it estimates the fair value of the investment and to the extent the fair value is less than the carrying value, it records the difference as an impairment in the consolidated statements of operations.

Property and Equipment

Property and equipment is stated at depreciated cost less impairments, if any. Construction costs of facilities are capitalized. Construction in progress represents transmission equipment and support equipment and systems not placed in service on December 31, 2021, that management intends to place in service when the assets are ready for their intended use. Depreciation is computed using the straight-line method based upon the shorter of the estimated useful lives of the assets or the lease term, if applicable.

Net property and equipment consists of the following:

LIBERTY BROADBAND CORPORATION

Notes to Consolidated Financial Statements (Continued)

December 31, 2021, 2020 and 2019

	December 31,	
	2021	2020
	amounts in millions	
Land	$ 16	16
Buildings (25 years)	98	94
Telephony transmission equipment and distribution facilities (5-20 years)	705	667
Cable transmission equipment and distribution facilities (5-30 years)	94	84
Support equipment and systems (3-20 years)	97	86
Fiber optic cable systems (15-25 years)	69	68
Other (2-20 years)	40	33
Construction in progress	108	61
	1,227	1,109
Less accumulated depreciation	(196)	(10)
Property and equipment, net	$ 1,031	1,099

Depreciation of property and equipment under finance leases is included in depreciation and amortization expense in the consolidated statements of operations. Depreciation expense for the year ended December 31, 2021 and 2020 was $192 million and $9 million, respectively, and was not material for the year ended December 31, 2019.

Repairs and maintenance are charged to expense as incurred. Expenditures for major renewals and betterments are capitalized. Accumulated depreciation is removed and gains or losses are recognized at the time of sales or other dispositions of property and equipment.

Material interest costs incurred during the construction period of non-software capital projects are capitalized. Interest is capitalized in the period commencing with the first expenditure for a qualifying capital project and ending when the capital project is substantially complete and ready for its intended use. Capitalized interest costs for the year ended December 31, 2021 were $2 million and were not material for the years ended December 31, 2020 and 2019.

Impairment of Long-lived Assets

The Company periodically reviews the carrying amounts of its property and equipment and its intangible assets (other than goodwill and indefinite-lived intangible assets) to determine whether current events or circumstances indicate that such carrying amounts may not be recoverable. If the carrying amount of the asset group is greater than the expected undiscounted cash flows to be generated by such asset group, including its ultimate disposition, an impairment adjustment is to be recognized. Such adjustment is measured by the amount that the carrying value of such asset groups exceeds its fair value. The Company generally measures fair value by considering sale prices for similar asset groups or by discounting estimated future cash flows using an appropriate discount rate. Considerable management judgment is necessary to estimate the fair value of asset groups. Accordingly, actual results could vary significantly from such estimates. Asset groups to be disposed of are carried at the lower of their financial statement carrying amount or fair value less costs to sell.

Asset Retirement Obligations

The Company records the fair value of a liability for an asset retirement obligation in the period in which it is incurred in Other liabilities in the consolidated balance sheets. When the liability is initially recorded, the Company capitalizes a cost by increasing the carrying amount of the related long-lived asset. In periods subsequent to initial measurement, changes in the liability for an asset retirement obligation resulting from revisions to either the timing or the amount of the original estimate of undiscounted cash flows are recognized. Over time, the liability is accreted to its present value each period, and the capitalized cost is depreciated over the useful life of the related asset. Upon settlement of the liability, the Company either settles the obligation for its recorded amount or incurs a gain or loss upon settlement.

LIBERTY BROADBAND CORPORATION

Notes to Consolidated Financial Statements (Continued)

December 31, 2021, 2020 and 2019

The majority of the Company’s asset retirement obligations are the estimated cost to remove telephony transmission equipment and support equipment from leased property. The asset retirement obligation is in Other liabilities in the consolidated balance sheets. Following is a reconciliation of the beginning and ending aggregate carrying amounts of the liability for asset retirement obligations (amounts in millions):

Balance at December 31, 2019	$	—
Liability acquired		76
Balance at December 31, 2020		76
Liability incurred		1
Accretion expense		3
Liability settled		(1)
Balance at December 31, 2021	$	79

Certain of the Company’s network facilities are on property that requires it to have a permit and the permit contains provisions requiring the Company to remove its network facilities in the event the permit is not renewed. The Company expects to continually renew its permits and therefore cannot reasonably estimate any liabilities associated with such agreements. A remote possibility exists that the Company would not be able to successfully renew a permit, which could result in it incurring significant expense in complying with restoration or removal provisions.

Intangible Assets

Internally used software, whether developed or purchased and installed as is, is capitalized and amortized using the straight-line method over an estimated useful life of three to five years. The Company capitalizes certain costs associated with internally developed software such as payroll costs of employees devoting time to the projects, external direct costs for materials and services, and interest costs incurred. Costs associated with internally developed software to be used internally are expensed until the point 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 and training costs are expensed in the period in which they are incurred. The capitalization of software requires judgment in determining when a project has reached the development stage.

The Company has Software as a Service ("SaaS") arrangements which are accounted for as service agreements, and are not capitalized. Internal and other third party costs for SaaS arrangements are capitalized or expensed in accordance with the internal use software guidance as discussed in the preceding paragraph.

Intangible assets with estimable useful lives are amortized over their respective estimated useful lives to their estimated residual values, and reviewed for impairment upon certain triggering events. Intangible assets with estimable useful lives are being amortized over 3 to 16 year periods with a weighted-average life of 13 years.

Goodwill, cable certificates (certificates of convenience and public necessity) and other intangible assets with indefinite useful lives are not amortized, but instead are tested for impairment at least annually. Cable certificates represent certain perpetual operating rights to provide cable services. Goodwill represents the excess of cost over fair value of net assets acquired in connection with a business acquisition. The Company’s annual impairment assessment of its indefinite-lived intangible assets is performed during the fourth quarter of each year.

The accounting guidance allows entities the option to perform a qualitative impairment test for goodwill. The entity may resume performing the quantitative assessment in any subsequent period. In evaluating goodwill on a qualitative basis, the Company reviews the business performance of each reporting unit and evaluates other relevant factors as identified in the relevant accounting guidance to determine whether it was more likely than not that an indicated impairment exists for any of its reporting units. The Company considers whether there are any negative macroeconomic conditions, industry specific conditions, market changes, increased competition, increased costs in doing business, management challenges, the legal environments and how these factors might impact company specific performance in future periods. As part of the analysis the Company also considers fair value determinations for certain reporting units that have been made at various points throughout the current year and prior year for other purposes. If based on the qualitative analysis it is more likely than not that an impairment exists, the Company performs the quantitative impairment test.

The quantitative goodwill impairment test compares the estimated fair value of a reporting unit to its carrying value and to the extent the carrying value is greater than the fair value, the difference is recorded as an impairment in the consolidated statements of operations. Developing estimates of fair value requires significant judgments, including making assumptions about appropriate discount rates, perpetual growth rates, relevant comparable market multiples, public trading prices and the amount and timing of expected future cash flows. The cash flows employed in the Company's valuation analyses are based on management's best estimates considering current marketplace factors and risks as well as assumptions of growth rates in future years. There is no assurance that actual results in the future will approximate these forecasts.

The accounting guidance also permits entities to first perform a qualitative assessment to determine whether it is more likely than not that an indefinite-lived intangible asset, other than goodwill, is impaired. The accounting guidance also allows entities the option to bypass the qualitative assessment for any indefinite-lived intangible asset in any period and proceed directly to the quantitative impairment test. The entity may resume performing the qualitative assessment in any subsequent period. If the qualitative assessment supports that it is more likely than not that the carrying value of the Company's indefinite-lived intangible assets, other than goodwill, exceeds its fair value, then a quantitative assessment is performed. If the carrying value of an indefinite-lived intangible asset exceeds its fair value, an impairment loss is recognized in an amount equal to that excess.

Revenue Recognition

GCI Holdings

Revenue is measured based on consideration specified in a contract with a customer and excludes any sales incentives and amounts collected on behalf of third parties. GCI Holdings recognizes revenue when it satisfies a performance obligation by transferring control of a product or service to a customer. Substantially all of GCI Holdings' revenue is earned from services transferred over time. If at contract inception, GCI Holdings determines the time period between when it transfers a promised good or service to a customer and when the customer pays for that good or service is one year or less, it does not adjust the promised amount of consideration for the effects of a significant financing component.

Certain of GCI Holdings' customers have guaranteed levels of service. If an interruption in service occurs, GCI Holdings does not recognize revenue for any portion of the monthly service fee that will be refunded to the customer or not billed to the customer due to these service level agreements.

Taxes assessed by a governmental authority that are both imposed on, and concurrent with, a specific revenue-producing transaction that are collected by GCI Holdings from a customer, are excluded from revenue from contracts with customers.

Nature of Services and Products

Wireless

Wireless revenue is generated by providing access to, and usage of GCI Holdings' network by consumer, business, and wholesale carrier customers. Additionally, GCI Holdings generates revenue by selling wireless equipment such as handsets and tablets. In general, access revenue is billed in advance, recorded as deferred revenue on the balance sheet, and recognized as the associated services are provided to the customer. Equipment sales revenue associated with the sale of wireless devices and accessories is generally recognized when the products are delivered to and control transfers to the customer. Consideration received from the customer is allocated to the service and products based on stand-alone selling prices when purchased together.

New and existing wireless customers have the option to participate in Upgrade Now, a program that provides eligible customers with the ability to purchase certain wireless devices in installments over a period of up to 36 months. Participating customers have the right to trade-in the original equipment for a new device after making the equivalent of 12 monthly installment payments, provided their handset is in good working condition. Upon upgrade, the outstanding balance of the wireless equipment installment plan is exchanged for the used handset. GCI Holdings accounts for this upgrade option as a right of return with a reduction of Revenue and Operating expense for handsets expected to be upgraded based on historical data.

Data

Data revenue is generated by providing data network access, high-speed internet services, and product sales. Monthly service revenue for data network access and high-speed internet services is billed in advance, recorded as deferred revenue on the balance sheet, and recognized as the associated services are provided to the customer. Internet service excess usage revenue is recognized when the services are provided. GCI Holdings recognizes revenue for product sales when a customer takes possession of the equipment. GCI Holdings provides telecommunications engineering services on a time and materials basis. Revenue is recognized for these services as-invoiced.

Video

Video revenue is generated primarily from residential and business customers that subscribe to GCI Holdings' cable video plans. Video revenue is billed in advance, recorded as deferred revenue on the balance sheet, and recognized as the associated services are provided to the customer.

Voice

Voice revenue is for fixed monthly fees for voice plans as well as usage based fees for long-distance service usage. Voice plan fees are billed in advance, recorded as deferred revenue on the balance sheet, and recognized as the associated services are provided to the customer. Usage based fees are recognized as services are provided.

Arrangements with Multiple Performance Obligations

Contracts with customers may include multiple performance obligations as customers purchase multiple services and products within those contracts. For such arrangements, revenue is allocated to each performance obligation based on the relative standalone selling price for each service or product within the contract. Standalone selling prices are generally determined based on the prices charged to customers.

Significant Judgments

Some contracts with customers include variable consideration, and may require significant judgment to determine the total transaction price, which impacts the amount and timing of revenue recognized. GCI Holdings uses historical customer data to estimate the amount of variable consideration included in the total transaction price and reassess its estimate at each reporting period. Any change in the total transaction price due to a change in the estimated variable consideration is allocated to the performance obligations on the same basis as at contract inception. Any portion of a change in transaction price that is allocated to a satisfied or partially satisfied performance obligation is recognized as revenue (or a reduction in revenue) in the period of the transaction price change. Variable consideration has been constrained to reduce the likelihood of a significant revenue reversal.

Often contracts with customers include promises to transfer multiple products and services to a customer. Determining whether products and services are considered distinct performance obligations that should be accounted for separately versus together may require significant judgment.

Judgment is required to determine the standalone selling price for each distinct performance obligation. Services and products are generally sold separately, and help establish standalone selling price for services and products GCI Holdings provides.

Remaining Performance Obligations

The Company expects to recognize revenue in the future related to performance obligations that are unsatisfied (or partially unsatisfied) as of December 31, 2021 of $249 million in 2022, $123 million in 2023, $72 million in 2024, $43 million in 2025 and $44 million in 2026 and thereafter.

The Company applies certain practical expedients as permitted and does not disclose information about remaining performance obligations that have original expected durations of one year or less, information about revenue remaining from usage based performance obligations that are recognized over time as-invoiced, or variable consideration allocated to wholly unsatisfied performance obligations.

Contract Balances

The Company had receivables of $217 million and $351 million at December 31, 2021 and 2020, respectively, the long-term portion of which are included in Other assets, net. The Company had deferred revenue of $32 million and $34 million at December 31, 2021 and 2020, respectively, the long-term portion of which are included in Other liabilities. The receivables and deferred revenue are only from contracts with customers. GCI Holdings' customers generally pay for services in advance of the performance obligation and therefore these prepayments are recorded as deferred revenue. The deferred revenue is recognized as revenue in the accompanying consolidated statements of operations as the services are provided. Changes in the contract liability balance for the Company during 2021 was not materially impacted by other factors.

Assets Recognized from the Costs to Obtain a Contract with a Customer

Management expects that incremental commission fees paid to intermediaries as a result of obtaining customer contracts are recoverable and therefore the Company capitalizes them as contract costs.

Capitalized commission fees are amortized based on the transfer of goods or services to which the assets relate which typically range from two to five years, and are included in Selling, general, and administrative expenses.

The Company recognizes the incremental costs of obtaining contracts as an expense when incurred if the amortization period of the assets that otherwise would have recognized is one year or less. These costs are included in Selling, general, and administrative expenses.

LIBERTY BROADBAND CORPORATION

Notes to Consolidated Financial Statements (Continued)

December 31, 2021, 2020 and 2019

Revenue from contracts with customers, classified by customer type and significant service offerings follows:

	Years ended December 31, 2021	2020	2019
	amounts in millions		
GCI Holdings			
Consumer Revenue			
Wireless	$ 134	5	—
Data	214	7	—
Video	71	3	—
Voice	15	—	—
Business Revenue			
Wireless	68	3	—
Data	364	12	—
Video	3	—	—
Voice	24	1	—
Lease, grant, and revenue from subsidies	77	3	—
Total GCI Holdings	970	34	—
Corporate and other	18	17	15
Total	$ 988	51	15

Advertising Costs

Advertising costs generally are expensed as incurred. Advertising expense aggregated $5 million for the year ended December 31, 2021 and was not material for the years ended December 31, 2020 and 2019. Advertising costs are reflected in the selling, general and administrative, including stock-based compensation line item in our consolidated statements of operations.

Stock-Based Compensation

As more fully described in note 12, Liberty Broadband has granted to its directors, employees and employees of certain of its subsidiaries, restricted stock and stock options to purchase shares of Liberty Broadband common stock (collectively, “Awards”). Liberty Broadband measures the cost of employee services received in exchange for an equity classified Award (such as stock options and restricted stock) based on the grant-date fair value of the Award, and recognizes that cost over the period during which the employee is required to provide service (usually the vesting period of the Award). Liberty Broadband measures the cost of employee services received in exchange for a liability classified Award based on the current fair value of the Award, and remeasures the fair value of the Award at each reporting date.

Income Taxes

The Company accounts for income taxes using the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts and income tax bases of assets and liabilities and the expected benefits of utilizing net operating loss and tax credit carryforwards. The deferred tax assets and liabilities are calculated using enacted tax rates in effect for each taxing jurisdiction in which the Company operates for the year in which those temporary differences are expected to be recovered or settled. Net deferred tax assets are then reduced by a valuation allowance if the Company believes it more likely than not that such net deferred tax assets will not be realized. We consider all relevant factors when assessing the likelihood of future realization of our deferred tax assets, including our recent earnings experience by jurisdiction, expectations of future taxable income, and the carryforward periods available to us for tax reporting purposes, as well as assessing available tax planning strategies. The effect on deferred tax assets and liabilities of an enacted change in tax rates is recognized in the consolidated statements of operations in the period that includes the enactment date. Due to inherent complexities arising from the nature of our businesses, future changes in income tax law, tax sharing agreements or variances between our actual and anticipated operating results, we make certain judgments and estimates. Therefore, actual income taxes could materially vary from these estimates.

When the tax law requires interest to be paid on an underpayment of income taxes, the Company recognizes interest expense from the first period the interest would begin accruing according to the relevant tax law. Such interest expense is included in interest expense in the accompanying consolidated statements of operations. Any accrual of penalties related to underpayment of income taxes on uncertain tax positions is included in other income (expense) in the accompanying consolidated statements of operations.

We recognize in our consolidated financial statements the impact of a tax position, if that position is more likely than not to be sustained upon an examination, based on the technical merits of the position.

Certain Risks and Concentrations

GCI Holdings offers wireless and wireline telecommunication services, data services, video services, and managed services to customers primarily throughout Alaska. Because of this geographic concentration, growth of GCI Holdings' business and operations depends upon economic conditions in Alaska.

GCI Holdings receives support from each of the various Universal Service Fund ("USF") programs: rural health care, schools and libraries, high-cost, and lifeline. The programs are subject to change by regulatory actions taken by the FCC or legislative actions, therefore, changes to the programs could result in a material decrease in revenue that the Company has recorded. Historical revenue recognized from the programs was 32%, 29% and 24% of GCI Holdings' revenue for the year ended December 31, 2021, 2020 and 2019, respectively. The Company had USF net receivables of $148 million at December 31, 2021. See note 14 for more information regarding the rural health care receivables.

Contingent Liabilities

Periodically, we review the status of all significant outstanding matters to assess any potential financial exposure. When (i) it is probable that a loss has been incurred and (ii) the amount of the loss can be reasonably estimated, we record the estimated loss in our consolidated statements of operations. We provide disclosure in the notes to the consolidated financial statements for loss contingencies that do not meet both these conditions if there is a reasonable possibility that a loss may have been incurred that would be material to the financial statements. Significant judgment is required to determine the probability that a liability has been incurred and whether such liability is reasonably estimable. We base accruals made on the best information available at the time which can be highly subjective. The final outcome of these matters could vary significantly from the amounts included in the accompanying consolidated financial statements.

Comprehensive Earnings (Loss)

Comprehensive earnings (loss) consists of net earnings (loss), comprehensive earnings (loss) attributable to debt credit risk adjustments and the Company's share of the comprehensive earnings (loss) of our equity method affiliate.

Earnings per Share (EPS)

Basic earnings (loss) per common share ("EPS") is computed by dividing net earnings (loss) by the weighted average number of common shares outstanding ("WASO") for the period. Diluted EPS presents the dilutive effect on a per share basis of potential common shares as if they had been converted at the beginning of the periods presented. Potentially dilutive shares are excluded from the computation of diluted EPS during periods in which losses are reported since the result would be antidilutive.

LIBERTY BROADBAND CORPORATION

Notes to Consolidated Financial Statements (Continued)

December 31, 2021, 2020 and 2019

	Years ended December 31,		
	2021	2020	2019
	number of shares in thousands		
Basic WASO	184,540	182,036	181,531
Potentially dilutive shares	1,693	1,210	1,253
Diluted WASO	186,233	183,246	182,784

Potential common shares excluded from diluted EPS because their inclusion would be antidilutive for the years ended December 31, 2021, 2020 and 2019 are approximately 694 thousand, 694 thousand and 309 thousand, respectively.

Reclassifications

Reclassifications have been made to the prior years' consolidated financial statements to conform to the classifications used in the current year.

Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Actual results could differ from those estimates. The Company considers (i) the application of the equity method of accounting for its affiliates, (ii) non-recurring fair value measurements of non-financial instruments and (iii) accounting for income taxes to be its most significant estimates.

Recently Announced Accounting Pronouncements

In November 2021, the Financial Accounting Standards Board issued new accounting guidance which will require annual disclosures about certain government transactions that are accounted for by applying a grant or contribution accounting model by analogy, including information about the nature of the transactions, the related policy used to account for the transactions, the amounts applicable to each financial statement line item and any significant terms and conditions of the transactions, including commitments and contingencies. This guidance is effective for fiscal years beginning after December 15, 2021, with early adoption permitted. The Company does not expect a significant impact from the adoption of the standard but is currently evaluating the effect that the updated standard will have on its financial disclosures.

(3) Supplemental Disclosures to Consolidated Statements of Cash Flows

LIBERTY BROADBAND CORPORATION

Notes to Consolidated Financial Statements (Continued)

December 31, 2021, 2020 and 2019

	Years ended December 31,		
	2021	2020	2019
	amounts in millions		
Cash paid for acquisitions:			
Property and equipment	$ —	1,109	—
Investment in Charter	—	3,494	—
Intangible assets not subject to amortization	—	1,342	—
Intangible assets subject to amortization	—	639	—
Receivables and other assets	—	641	—
Net liabilities assumed	—	(3,719)	—
Deferred tax assets (liabilities)	—	(1,026)	—
Noncontrolling interests	—	(12)	—
Fair value of equity consideration	—	(3,060)	—
Cash paid (received) for acquisitions, net of cash acquired	$ —	(592)	—

	Years ended December 31,		
	2021	2020	2019
	amounts in millions		
Cash paid for interest	$ 125	24	24
Cash paid for taxes	$ 238	—	—

The following table reconciles cash and cash equivalents and restricted cash reported in the Company's consolidated balance sheets to the total amount presented in its consolidated statements of cash flows:

	Years ended December 31,		
	2021	2020	2019
	amounts in millions		
Cash and cash equivalents	$ 191	1,418	50
Restricted cash included in other current assets	15	15	—
Total cash and cash equivalents and restricted cash at end of period	$ 206	1,433	50

Restricted cash primarily relates to cash restricted for use on GCI Holdings' various arrangements to help fund projects that extended terrestrial broadband service for the first time to rural Northwestern Alaska communities via a high capacity hybrid fiber optic and microwave network.

(4) Acquisition

On December 18, 2020, the Company completed the Combination with GCI Liberty. The Company accounted for the Combination using the acquisition method of accounting.

LIBERTY BROADBAND CORPORATION

Notes to Consolidated Financial Statements (Continued)

December 31, 2021, 2020 and 2019

The following details the acquisition consideration as of December 18, 2020 (amounts in millions), which is primarily based on level 1 inputs:

Fair value of newly issued Liberty Broadband Series C and B common stock [1]	$	9,695
Fair value of newly issued Liberty Broadband Preferred Stock [2]		203
Fair value of share-based payment replacement awards [3]		105
Total fair value of consideration		10,003
Less: Fair value of Liberty Broadband shares attributable to share repurchase [4]		(6,739)
Total fair value of consideration attributable to business combination		3,264
Less: Fair value of newly issued Liberty Broadband Preferred Stock[2]		(203)
Less: Fair value of share-based payment replacement awards accounted for as liability awards		(1)
Total fair value of acquisition consideration to be allocated	$	3,060

(1) The fair value of newly issued Series C and B Liberty Broadband common stock was calculated by multiplying (i) the outstanding shares of GCI Liberty Series A and B common stock as of December 18, 2020 (ii) the exchange ratio of 0.58, and (iii) the closing share price of Liberty Broadband Series C and B common stock on December 18, 2020. Liberty Broadband issued 61.3 million shares of Series C common stock and 98 thousand shares of Series B common stock.

(2) The fair value of the newly issued Liberty Broadband Preferred Stock was calculated by multiplying (i) the outstanding shares of GCI Liberty Preferred Stock as of December 18, 2020, and (ii) the closing share price of GCI Liberty Preferred Stock on December 18, 2020. The GCI Liberty Preferred Stock was converted on a one to one ratio into Liberty Broadband Preferred Stock.

(3) This amount represents the fair value of share-based payment replacement awards.

(4) GCI Liberty owned approximately 42.7 million shares of Liberty Broadband Series C common stock. The acquisition of Liberty Broadband Series C common stock is accounted for as a share repurchase by Liberty Broadband. This amount was calculated by multiplying (i) the number of shares of Liberty Broadband Series C common stock owned by GCI Liberty as of December 18, 2020 and (ii) the closing share price of Liberty Broadband Series C common stock on December 18, 2020.

The application of the acquisition method resulted in the assignment of purchase price to the GCI Liberty assets acquired and liabilities assumed based on estimates of their acquisition date fair values (primarily level 3). The determination of the fair values of the acquired assets and liabilities (and the determination of estimated lives of depreciable tangible and identifiable intangible assets) requires significant judgment.

LIBERTY BROADBAND CORPORATION

Notes to Consolidated Financial Statements (Continued)

December 31, 2021, 2020 and 2019

The acquisition purchase price allocation for GCI Liberty is as follows (amounts in millions):

Cash and cash equivalents including restricted cash	$	592
Receivables		339
Property and equipment		1,109
Goodwill		755
Investment in Charter		3,494
Intangible assets not subject to amortization		587
Intangible assets subject to amortization		639
Other assets		302
Deferred revenue		(60)
Debt, including obligations under tower and finance leases		(2,772)
Indemnification liability		(336)
Deferred income tax liabilities		(1,026)
Preferred stock		(203)
Non-controlling interest		(12)
Other liabilities		(348)
Total fair value of acquisition consideration to be allocated	$	3,060

Goodwill is calculated as the excess of the consideration transferred over the identifiable net assets acquired and represents the future economic benefits expected to arise from other intangible assets acquired that do not qualify for separate recognition, including assembled workforce, value associated with future customers, continued innovation and non-contractual relationships. Amortizable intangible assets of $639 million were acquired and are comprised of customer relationships with a weighted average useful life of approximately 14 years and right-to-use assets with a weighted average useful life of approximately 12 years. Approximately $134 million of the acquired goodwill will be deductible for income tax purposes. As of December 31, 2021, the determination of the acquisition date fair value of the acquired assets and assumed liabilities is final.

Since the date of the acquisition, included in net earnings (loss) attributable to Liberty Broadband shareholders for the year ended December 31, 2020 was $28 million in earnings related to GCI Liberty. The unaudited pro forma revenue, net earnings and basic and diluted net earnings per common share of Liberty Broadband, prepared utilizing the historical financial statements of Liberty Broadband, giving effect to acquisition accounting related adjustments made at the time of acquisition, as if the acquisition discussed above occurred on January 1, 2019, are as follows:

	Years ended December 31,		
	2020		2019
	amounts in millions, except per share amounts		
Revenue	$	968	903
Net earnings (loss)	$	695	(172)
Net earnings (loss) attributable to Liberty Broadband shareholders	$	695	(171)
Basic net earnings (loss) attributable to Series A, Series B and Series C Liberty Broadband shareholders per common share	$	3.82	(0.86)
Diluted net earnings (loss) attributable to Series A, Series B and Series C Liberty Broadband shareholders per common share	$	3.79	(0.86)

The pro forma results include adjustments directly attributable to the business combination including adjustments related to the amortization of acquired tangible and intangible assets, revenue, interest expense, stock-based compensation, and the exclusion of transaction related costs. The pro forma information is not representative of the Company's future results of operations nor does it reflect what the Company's results of operations would have been if the acquisition had occurred previously and the Company consolidated the results of GCI Liberty during the periods presented.

LIBERTY BROADBAND CORPORATION

Notes to Consolidated Financial Statements (Continued)

December 31, 2021, 2020 and 2019

(5) Assets and Liabilities Measured at Fair Value

For assets and liabilities required to be reported at fair value, GAAP provides a hierarchy that prioritizes inputs to valuation techniques used to measure fair value into three broad levels. Level 1 inputs are quoted market prices in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date. Level 2 inputs are inputs, other than quoted market prices included within Level 1, that are observable for the asset or liability, either directly or indirectly. Level 3 inputs are unobservable inputs for the asset or liability. The Company does not have any recurring assets or liabilities measured at fair value that would be considered Level 3.

The Company's assets and liabilities measured at fair value are as follows:

	December 31, 2021			December 31, 2020		
Description	Total	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Total	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)
	amounts in millions					
Cash equivalents	$ 118	118	—	1,368	1,368	—
Indemnification obligation	$ 324	—	324	345	—	345
Exchangeable senior debentures	$ 1,428	—	1,428	1,472	—	1,472

Pursuant to an indemnification agreement initially entered into by GCI Liberty and assumed by Liberty Broadband in connection with the Combination, Liberty Broadband has agreed to indemnify Liberty Interactive LLC ("LI LLC"), a subsidiary of Qurate Retail, for certain payments made to holders of LI LLC's 1.75% exchangeable debentures due 2046 (the "1.75% Exchangeable Debentures"). An indemnity obligation in the amount of $336 million was recorded upon completion of the Combination. The indemnification liability due to LI LLC pertains to the holders' ability to exercise their exchange right according to the terms of the 1.75% Exchangeable Debentures on or before October 5, 2023. Such amount will equal the difference between the exchange value and par value of the 1.75% Exchangeable Debentures at the time the exchange occurs. The indemnification obligation recorded in the consolidated balance sheets as of December 31, 2021 and December 31, 2020 represents the fair value of the estimated exchange feature included in the 1.75% Exchangeable Debentures primarily based on observable market data as significant inputs (Level 2). As of December 31, 2021, a holder of the 1.75% Exchangeable Debentures has the ability to exchange and, accordingly, such indemnification obligation is included as a current liability in the Company's consolidated balance sheets.

The Company's exchangeable senior debentures are debt instruments with quoted market value prices that are not considered to be traded on "active markets", as defined in GAAP, and are reported in the foregoing table as Level 2 fair value.

Other Financial Instruments

Other financial instruments not measured at fair value on a recurring basis include trade receivables, trade payables, accrued and other current liabilities, current portion of debt (with the exception of the 1.75% Debentures (defined in note 8)) and long-term debt (with the exception of the 1.25% Debentures and the 2.75% Debentures (defined in note 8)). With the exception of long-term debt, the carrying amount approximates fair value due to the short maturity of these instruments as reported on our consolidated balance sheets. The carrying value of our Margin Loan Facility, the Term Loan A and revolving credit facility borrowings under the Senior Credit Facility and the Wells Fargo Note Payable all bear interest at a variable rate and therefore are also considered to approximate fair value.

LIBERTY BROADBAND CORPORATION

Notes to Consolidated Financial Statements (Continued)

December 31, 2021, 2020 and 2019

Realized and Unrealized Gains (Losses) on Financial Instruments

Realized and unrealized gains (losses) on financial instruments are comprised of changes in the fair value of the following:

	Years ended December 31, 2021	2020	2019
	amounts in millions		
Indemnification obligation	$ 21	(9)	—
Exchangeable senior debentures (1)	46	(74)	—
Other	—	—	1
	$ 67	(83)	1

(1) The Company has elected to account for its exchangeable senior debentures using the fair value option. Changes in the fair value of the exchangeable senior debentures recognized in the consolidated statements of operations are primarily due to market factors driven by changes in the fair value of the underlying shares into which debt is exchangeable. The Company isolates the portion of the unrealized gain (loss) attributable to the change in the instrument specific credit risk and recognizes such amount in other comprehensive income. The change in the fair value of the exchangeable senior debentures attributable to changes in the instrument specific credit risk before tax was a loss of $2 million and a gain of $9 million for the years ended December 31, 2021 and 2020, respectively. The cumulative change was a gain of $7 million as of December 31, 2021.

(6) Investment in Affiliates Accounted for Using the Equity Method

Charter

Through a number of prior years' transactions and the Combination, Liberty Broadband has acquired an interest in Charter. The investment in Charter is accounted for as an equity method affiliate based on our voting and ownership interest and the board seats held by individuals appointed by Liberty Broadband. As of December 31, 2021, the carrying and market value of Liberty Broadband's ownership in Charter was approximately $13.3 billion and $34.8 billion, respectively. We own an approximate 30.9% economic ownership interest in Charter, based on shares of Charter's Class A common stock issued and outstanding as of December 31, 2021.

Upon the closing of the Time Warner Cable merger, the Second Amended and Restated Stockholders Agreement, dated as of May 23, 2015, by and among Charter, Liberty Broadband and Advance/Newhouse Partnership, as amended (the "Stockholders Agreement"), became fully effective. Pursuant to the Stockholders Agreement, Liberty Broadband's equity ownership in Charter (on a fully diluted basis) is capped at the greater of 26% or the voting cap (as defined below) ("Equity Cap"). As of December 31, 2021, due to Liberty Broadband's voting interest exceeding the current voting cap of 25.01%, our voting control of the aggregate voting power of Charter is 25.01%. Under the Stockholders Agreement, Liberty Broadband has agreed to vote (subject to certain exceptions) all voting securities beneficially owned by it, or over which it has voting discretion or control that are in excess of the voting cap in the same proportion as all other votes cast by public stockholders of Charter with respect to the applicable matter.

In February 2021, Liberty Broadband was notified that its ownership interest, on a fully diluted basis, had exceeded the Equity Cap set forth in the Stockholders Agreement. On February 23, 2021, Charter and Liberty Broadband entered into a letter agreement in order to implement, facilitate and satisfy the terms of the Stockholders Agreement with respect to the Equity Cap. Pursuant to this letter agreement, following any month during which Charter purchases, redeems or buys back shares of its Class A common stock, and prior to certain meetings of Charter's stockholders, Liberty Broadband will be obligated to sell to Charter, and Charter will be obligated to purchase, such number of shares of Class A common stock as is necessary (if any) to reduce Liberty Broadband's percentage equity interest, on a fully diluted basis, to the Equity Cap (such transaction, a "Charter

LIBERTY BROADBAND CORPORATION

Notes to Consolidated Financial Statements (Continued)

December 31, 2021, 2020 and 2019

Repurchase"). The per share sale price for each share of Charter will be equal to the volume weighted average price paid by Charter in its repurchases, redemptions and buybacks of its common stock (subject to certain exceptions) during the month prior to the Charter Repurchase (or, if applicable, during the relevant period prior to the relevant meeting of Charter stockholders). Under the terms of the letter agreement, Liberty Broadband sold 6,077,664 shares of Charter Class A common stock to Charter for $4.2 billion during the year ended December 31, 2021 to maintain our fully diluted ownership percentage at 26%. Subsequent to December 31, 2021, Liberty Broadband sold 535,092 shares of Charter Class A common stock to Charter for $341 million.

During the year ended December 31, 2020, Liberty Broadband exercised its preemptive right to purchase an aggregate of approximately 35 thousand shares of Charter's Class A common stock for an aggregate purchase price of $15 million.

During the years ended December 31, 2021, 2020 and 2019, there were dilution losses of $102 million, $184 million, and $79 million, respectively, in the Company's investment in Charter. The dilution losses are attributable to stock option exercises by employees and other third parties at prices below Liberty Broadband's book basis per share, partially offset by a gain on dilution related to Charter's repurchase of Liberty Broadband's Charter shares during the year ended December 31, 2021.

The excess basis has been allocated within memo accounts used for equity method accounting purposes as follows (amounts in millions):

	Years ended December 31, 2021	2020
Property and equipment	$ 661	733
Customer relationships	2,537	2,726
Franchise fees	3,828	3,693
Trademarks	29	29
Goodwill	4,024	3,934
Debt	(535)	(602)
Deferred income tax liability	(1,626)	(1,641)
	$ 8,918	8,872

Property and equipment and customer relationships have weighted average remaining useful lives of approximately 5 years and 9 years, respectively, and indefinite lives for franchise fees, trademarks and goodwill. The excess basis of outstanding debt is amortized over the contractual period using the straight-line method. The increase in excess basis for the year ended December 31, 2021, was primarily due to Charter's share buyback program, partially offset by Liberty Broadband's participation in Charter's share buyback program. Included in our share of earnings from Charter of $1,194 million, $713 million and $286 million for the years ended December 31, 2021, 2020 and 2019, respectively, are $234 million, $144 million and $124 million, respectively, of losses, net of taxes, due to the amortization of the excess basis related to assets with identifiable useful lives and debt.

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Notes to Consolidated Financial Statements (Continued)

December 31, 2021, 2020 and 2019

Summarized financial information for Charter is as follows:

Consolidated Balance Sheets

	December 31, 2021	December 31, 2020
	amounts in millions	
Current assets	$ 3,566	3,909
Property and equipment, net	34,310	34,357
Goodwill	29,562	29,554
Intangible assets	71,406	72,937
Other assets	3,647	3,449
Total assets	$ 142,491	144,206
Current liabilities	$ 12,458	9,875
Deferred income taxes	19,096	18,108
Long-term debt	88,564	81,744
Other liabilities	4,217	4,198
Equity	18,156	30,281
Total liabilities and equity	$ 142,491	144,206

Consolidated Statements of Operations

	Years ended December 31,		
	2021	2020	2019
	amounts in millions		
Revenue	$ 51,682	48,097	45,764
Cost and expenses:			
Operating costs and expenses (excluding depreciation and amortization)	31,482	29,930	29,224
Depreciation and amortization	9,345	9,704	9,926
Other operating expenses, net	329	58	103
	41,156	39,692	39,253
Operating income	10,526	8,405	6,511
Interest expense, net	(4,037)	(3,848)	(3,797)
Other income (expense), net	(101)	(255)	(283)
Income tax (expense) benefit	(1,068)	(626)	(439)
Net earnings (loss)	5,320	3,676	1,992
Less: Net income attributable to noncontrolling interests	(666)	(454)	(324)
Net Income (loss) attributable to Charter shareholders	$ 4,654	3,222	1,668

(7) Goodwill and Intangible Assets

Goodwill and Indefinite Lived Assets

Changes in the carrying amount of goodwill are as follows:

	GCI Holdings	Corporate and other	Total
		amounts in millions	
Balance at December 31, 2019	$ —	7	7
Acquisitions	739	—	739
Balance at December 31, 2020	739	7	746
Acquisition adjustments during measurement period	16	—	16
Balance at December 31, 2021	755	7	762

As of December 31, 2021, the Company's accumulated goodwill impairment loss was $39 million and was all related to reporting units owned prior to the Combination. As presented in the accompanying consolidated balance sheets, cable certificates are the majority of the other significant indefinite lived intangible assets.

Intangible Assets Subject to Amortization, net

	December 31, 2021			December 31, 2020		
	Gross carrying amount	Accumulated amortization	Net carrying amount	Gross carrying amount	Accumulated amortization	Net carrying amount
			amounts in millions			
Customer relationships	$ 515	(49)	466	560	(14)	546
Other amortizable intangibles	138	(31)	107	138	(9)	129
Total	$ 653	(80)	573	698	(23)	675

Intangible assets are being amortized generally on an accelerated basis as reflected in amortization expense and in the future amortization table below.

Amortization expense for intangible assets with finite useful lives was $75 million, $6 million and $2 million for the years ended December 31, 2021, 2020 and 2019, respectively. Amortization expense for amortizable intangible assets for each of the five succeeding fiscal years is estimated to be (amounts in millions):

Years ending December 31,	
2022	$ 65
2023	$ 59
2024	$ 52
2025	$ 51
2026	$ 48

(8) Debt

Debt is summarized as follows:

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Notes to Consolidated Financial Statements (Continued)

December 31, 2021, 2020 and 2019

	Outstanding principal December 31, 2021	Carrying value December 31, 2021	Carrying value December 31, 2020
		amounts in millions	
Margin Loan Facility	$ 1,300	1,300	2,000
2.75% Exchangeable Senior Debentures due 2050	575	585	609
1.25% Exchangeable Senior Debentures due 2050	825	818	837
1.75% Exchangeable Senior Debentures due 2046	15	25	26
Senior notes	600	632	636
Senior credit facility	399	399	704
Wells Fargo note payable	6	6	6
Deferred financing costs		(4)	(2)
Total debt	$ 3,720	3,761	4,816
Debt classified as current		(28)	(31)
Total long-term debt		$ 3,733	4,785

Margin Loan Facility

On May 12, 2021, a bankruptcy remote wholly owned subsidiary of the Company ("SPV") entered into Amendment No. 4 to Margin Loan Agreement and Amendment No. 4 to Collateral Account Control Agreement (the "Fourth Amendment"), which amends SPV's margin loan agreement, dated as of August 31, 2017 (as amended by Amendment No. 1 to Margin Loan Agreement, dated as of August 24, 2018, as further amended by Amendment No. 2 to Margin Loan Agreement and Amendment No. 1 to Collateral Account Control Agreement, dated August 19, 2019, and as further amended by Amendment No. 3 to Margin Loan Agreement and Amendment No. 2 to Collateral Account Control Agreement, dated August 12, 2020, and as otherwise amended, supplemented or modified from time to time, the "Existing Margin Loan Agreement"; the Existing Margin Loan Agreement, as amended by the Fourth Amendment, the "Margin Loan Agreement"), with a group of lenders. Upon the effectiveness of the Fourth Amendment (the date on which such effectiveness occurred, the "Fourth Amendment Effective Date"), the Margin Loan Agreement provided for (x) a term loan credit facility in an aggregate principal amount of $1.15 billion (the "Term Loan Facility" and proceeds of such facility, the "Term Loans"), (y) a revolving credit facility in an aggregate principal amount of $1.15 billion (the "Revolving Loan Facility" and proceeds of such facility, the "Revolving Loans"; the Revolving Loans, collectively with the Term Loans, the "Loans") and (z) an uncommitted incremental term loan facility in an aggregate principal amount of up to $200 million (collectively, the "Margin Loan Facility"). No additional borrowings under the Margin Loan Agreement were made on the Fourth Amendment Effective Date and, after giving effect to the transactions occurring on such date, there were (i) $1.15 billion in Term Loans outstanding under the Term Loan Facility and (ii) $0.00 of Revolving Loans outstanding. SPV's obligations under the Margin Loan Facility are secured by first priority liens on the shares of Charter owned by SPV.

On the Fourth Amendment Effective Date, substantially simultaneously but after the effectiveness of the Fourth Amendment, SPV repaid $850 million of outstanding Revolving Loans. In the third quarter of 2021, SPV drew down an additional $350 million on the Revolving Loans and in the fourth quarter of 2021, SPV repaid $200 million on the Revolving Loans.

In the third quarter of 2020, SPV drew down an additional $125 million on the existing margin loan facilities in place at the time. Upon the completion of the Combination on December 18, 2020, SPV borrowed an additional $1.3 billion on the Margin Loan Facility in order to repay an existing margin loan at GCI Liberty.

Outstanding borrowings under the Margin Loan Agreement and the Existing Margin Loan Agreement were $1.3 billion and $2.0 billion as of December 31, 2021 and December 31, 2020, respectively. As of December 31, 2021, SPV was permitted to borrow an additional $1.0 billion under the Margin Loan Agreement, subject to certain funding conditions, which may be drawn until five business days prior to the maturity date. The maturity date of the loans under the Margin Loan Agreement is May 12, 2024 (except for any additional loans incurred thereunder to the extent SPV and the incremental lenders agree to a later maturity date). Prior to the completion of the Combination, borrowings under the Margin Loan Agreement bore interest at the three-month LIBOR rate plus a per annum spread of 1.5%, which increased to a per annum spread of 1.85% from and after the completion of the Combination until the Fourth Amendment Effective Date, when the per annum spread decreased to 1.5%. The Margin Loan Agreement also provides for customary LIBOR replacement provisions.

The Margin Loan Agreement contains various affirmative and negative covenants that restrict the activities of SPV (and, in some cases, the Company and its subsidiaries with respect to shares of Charter owned by the Company and its subsidiaries). The Margin Loan Agreement does not include any financial covenants. The Margin Loan Agreement does contain restrictions related to additional indebtedness and events of default customary for margin loans of this type.

SPV's obligations under the Margin Loan Agreement are secured by first priority liens on a portion of the Company's ownership interest in Charter, sufficient for SPV to meet the loan to value requirements under the Margin Loan Agreement. The Margin Loan Agreement indicates that no lender party shall have any voting rights with respect to the shares pledged as collateral, except to the extent that a lender party buys any shares in a sale or other disposition made pursuant to the terms of the loan agreements. As of December 31, 2021, 12.3 million shares of Charter with a value of $8.0 billion were pledged as collateral pursuant to the Margin Loan Agreement.

Exchangeable Senior Debentures

On August 27, 2020, the Company closed a private offering of $575 million aggregate original principal amount of its 2.75% Exchangeable Senior Debentures due 2050 (the "2.75% Debentures"), including debentures with an aggregate original principal amount of $75 million issued pursuant to the exercise of an option granted to the initial purchasers. Upon an exchange of 2.75% Debentures, the Company, at its election, may deliver shares of Charter Class A common stock, the value thereof in cash, or any combination of shares of Charter Class A common stock and cash. Initially, 1.1661 shares of Charter Class A common stock are attributable to each $1,000 original principal amount of 2.75% Debentures, representing an initial exchange price of approximately $857.56 for each share of Charter Class A common stock. A total of 670,507 shares of Charter Class A common stock are attributable to the 2.75% Debentures. Interest is payable quarterly on March 31, June 30, September 30 and December 31 of each year, commencing December 31, 2020. The 2.75% Debentures may be redeemed by the Company, in whole or in part, on or after October 5, 2023. Holders of the 2.75% Debentures also have the right to require the Company to purchase their 2.75% Debentures on October 5, 2023. The redemption and purchase price will generally equal 100% of the adjusted principal amount of the 2.75% Debentures plus accrued and unpaid interest to the redemption date, plus any final period distribution. As of December 31, 2021, a holder of the 2.75% Debentures does not have the ability to exchange and, accordingly, the 2.75% Debentures are classified as long-term debt in the consolidated balance sheets.

On November 23, 2020, the Company closed a private offering of $825 million aggregate original principal amount of its 1.25% Exchangeable Senior Debentures due 2050 (the "1.25% Debentures"), including debentures with an aggregate original principal amount of $75 million issued pursuant to the exercise of an option granted to the initial purchasers. Upon an exchange of 1.25% Debentures, the Company, at its election, may deliver shares of Charter Class A common stock, the value thereof in cash, or any combination of shares of Charter Class A common stock and cash. Initially, 1.1111 shares of Charter Class A common stock are attributable to each $1,000 original principal amount of 1.25% Debentures, representing an initial exchange price of approximately $900.00 for each share of Charter Class A common stock. A total of 916,657 shares of Charter Class A common stock are attributable to the 1.25% Debentures. Interest is payable quarterly on March 31, June 30, September 30 and December 31 of each year, commencing March 31, 2021. The 1.25% Debentures may be redeemed by the Company, in whole or in part, on or after October 5, 2023. Holders of the 1.25% Debentures also have the right to require the Company to purchase their debentures on October 5, 2023. The redemption and purchase price will generally equal 100% of the adjusted principal amount of the 1.25% Debentures plus accrued and unpaid interest to the redemption date, plus any final period distribution. As of December 31, 2021, a holder of the 1.25% Debentures does not have the ability to exchange and, accordingly, the 1.25% Debentures are classified as long-term debt in the consolidated balance sheets.

In connection with the closing of the Combination on December 18, 2020, the Company assumed GCI Liberty's outstanding approximately $15 million aggregate original principal 1.75% exchangeable senior debentures due 2046 (the "1.75%

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Debentures) at fair value. The total fair value of the acquired 1.75% Debentures was approximately $26 million. The 1.75% Debentures were initially issued on June 18, 2018 by GCI Liberty. Upon an exchange of 1.75% Debentures, the Company, at its option, may deliver Charter Class A common stock, cash or a combination of Charter Class A common stock and cash. Initially, 2.6989 shares of Charter Class A common stock are attributable to each $1,000 principal amount of 1.75% Debentures, representing an initial exchange price of approximately $370.52 for each share of Charter Class A common stock. A total of 39,231 shares of Charter Class A common stock are attributable to the 1.75% Debentures. Interest is payable quarterly on March 31, June 30, September 30 and December 31 of each year. The 1.75% Debentures may be redeemed by the Company, in whole or in part, on or after October 5, 2023. Holders of the 1.75% Debentures also have the right to require the Company to purchase their debentures on October 5, 2023. The redemption and purchase price will generally equal 100% of the adjusted principal amount of the 1.75% Debentures plus accrued and unpaid interest. As of December 31, 2021, the holders of the 1.75% Debentures will have the ability to exchange their debentures for the period from January 1, 2022 through March 31, 2022 given that the trading value of the reference shares exceeded 130% of the par value for twenty of the last thirty trading days in the fourth quarter of 2021. Given the holders' ability to exchange the debentures within a one-year period from the balance sheet date and the Company's option to settle any exchange in cash, shares of Charter Class A common stock, or a combination of cash and shares of Charter Class A common stock, the 1.75% Debentures have been classified as current within the consolidated balance sheets as of December 31, 2021.

The Company elected to account for all exchangeable senior debentures at fair value in its consolidated financial statements. Accordingly, changes in the fair value of these instruments are recognized in unrealized gains (losses) in the accompanying consolidated statements of operations. See note 5 for information related to unrealized gains (losses) on debt measured at fair value. The Company reviews the terms of all the debentures on a quarterly basis to determine whether an event has occurred to require current classification on the consolidated balance sheets.

Senior Notes

In connection with the closing of the Combination on December 18, 2020, GCI, LLC became an indirect wholly owned subsidiary of the Company. GCI, LLC is the issuer of $600 million 4.75% senior notes due 2028 (the "Senior Notes"). The Senior Notes were issued by GCI, LLC on October 7, 2020 and are unsecured. Interest on the Senior Notes is payable semi-annually in arrears. The Senior Notes are redeemable at the Company's option, in whole or in part, at a redemption price defined in the respective indentures, and accrued and unpaid interest (if any) to the date of redemption. The Senior Notes are stated net of an aggregate unamortized premium of $32 million at December 31, 2021. Such premium is being amortized to interest expense in the accompanying consolidated statements of operations.

Senior Credit Facility

In connection with the closing of the Combination on December 18, 2020, GCI, LLC became an indirect wholly owned subsidiary of the Company. GCI, LLC is the borrower under the Senior Credit Facility (as defined below).

On October 15, 2021, GCI, LLC entered into an Eighth Amended and Restated Credit Agreement (the "Senior Credit Facility"), which includes a $550 million revolving credit facility, with a $25 million sublimit for standby letters of credit, that matures on October 15, 2026 and a $250 million Term Loan A that matures on October 15, 2027. Additionally, the $400 million Term Loan B which existed prior to the amendment, was repaid in full using the proceeds from the new Term Loan A together with $150 million in borrowings under the revolving credit facility. The revolving credit facility borrowings under the Senior Credit Facility that are alternate base rate loans bear interest at a per annum rate equal to the alternate base rate plus a margin that varies between 0.50% and 1.75% depending on GCI, LLC's total leverage ratio. The revolving credit facility borrowings under the Senior Credit Facility that are LIBOR loans bear interest at a per annum rate equal to the applicable LIBOR plus a margin that varies between 1.50% and 2.75% depending on GCI, LLC's total leverage ratio. Term Loan A borrowings that are alternate base rate loans bear interest at a per annum rate equal to the alternate base rate plus a margin that varies between 1.00% and 2.25% depending on GCI, LLC's total leverage ratio. Term Loan A borrowings that are LIBOR loans bear interest at a per annum rate equal to the applicable LIBOR plus a margin that varies between 2.00% and 3.25% depending on GCI, LLC's total leverage ratio. Principal payments are due quarterly on the Term Loan A equal to 0.25% of the original principal amount, which may step

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up to 1.25% of the original principal amount of the Term Loan A depending on GCI, LLC's secured leverage ratio. Each loan may be prepaid at any time and from time to time without penalty other than customary breakage costs. Any amounts prepaid on the revolving credit facility may be reborrowed. The Senior Credit Facility also provides for customary LIBOR replacement provisions.

Prior to the amendment, the borrowings under the Senior Credit Facility bore interest at either the alternate base rate or LIBOR (based on an interest period selected by GCI, LLC of one month, two months, three months or six months) at the election of GCI, LLC in each case plus a margin. The revolving credit facility borrowings that were alternate base rate loans bore interest at a per annum rate equal to the alternate base rate plus a margin that varied between 0.50% and 1.75% depending on GCI, LLC's total leverage ratio. The revolving credit facility borrowings that were LIBOR loans bore interest at a per annum rate equal to the applicable LIBOR plus a margin that varied between 1.50% and 2.75% depending on GCI, LLC's total leverage ratio. Term Loan B borrowings that were alternate base rate loans bore interest at a per annum rate equal to the alternate base rate plus a margin of 1.75%. Term Loan B borrowings that were LIBOR loans bore interest at a per annum rate equal to the applicable LIBOR plus a margin of 2.75% with a LIBOR floor of 0.75%.

GCI, LLC's First Lien Leverage Ratio (as defined in the Senior Credit Facility) may not exceed 4.00 to 1.00.

The terms of the Senior Credit Facility include customary representations and warranties, customary affirmative and negative covenants and customary events of default. At any time after the occurrence of an event of default under the Senior Credit Facility, the lenders may, among other options, declare any amounts outstanding under the Senior Credit Facility immediately due and payable and terminate any commitment to make further loans under the Senior Credit Facility. The obligations under the Senior Credit Facility are secured by a security interest on substantially all of the assets of GCI, LLC and the subsidiary guarantors, as defined in the Senior Credit Facility, and on the stock of GCI Holdings.

As of December 31, 2021, there was $249 million outstanding under the Term Loan A, $150 million outstanding under the revolving portion of the Senior Credit Facility and $3 million in letters of credit under the Senior Credit Facility, leaving $397 million available for borrowing.

During the year ended December 31, 2021, GCI, LLC repaid $305 million on its revolving credit facility and completed an internal restructuring whereby GCI, LLC transferred the subsidiary that holds the Charter shares to Liberty Broadband parent.

Wells Fargo Note Payable

In connection with the closing of the Combination on December 18, 2020, the Company assumed GCI Holdings' outstanding $6 million under its Wells Fargo Note Payable (as defined below).

GCI Holdings issued a note to Wells Fargo that matures on July 15, 2029 and is payable in monthly installments of principal and interest (the "Wells Fargo Note Payable"). The interest rate is variable at one month LIBOR plus 2.25%. The note also provides for customary LIBOR replacement provisions.

The note is subject to similar affirmative and negative covenants as the Senior Credit Facility. The obligations under the note are secured by a security interest and lien on the building purchased with the note.

Debt Covenants

GCI, LLC is subject to covenants and restrictions under its Senior Notes and Senior Credit Facility. The Company and GCI, LLC are in compliance with all debt maintenance covenants as of December 31, 2021.

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Five Year Maturities

The annual principal maturities of debt, based on stated maturity dates, for each of the next five years is a follows (amounts in millions):

2022	$	3
2023	$	3
2024	$	1,303
2025	$	3
2026	$	153

Fair Value of Debt

The fair value of the Senior Notes was $616 million at December 31, 2021.

Due to the variable rate nature of the Margin Loan, Senior Credit Facility and Wells Fargo Note Payable, the Company believes that the carrying amount approximates fair value at December 31, 2021.

(9) Leases

Leasing activity was not material to Liberty Broadband until the closing of the Combination with GCI Liberty on December 18, 2020. Prior to the closing of the Combination, Liberty Broadband’s only leases were for office space and accounted for as operating leases. Their impact to the consolidated balance sheet, statements of operations and statements of cash flows was not material for any of the prior years.

In 2016 and 2017, GCI Holdings sold certain tower sites and entered into a master lease agreement in which it leased back space on those tower sites. At the time, GCI Holdings determined that it was precluded from applying sales-leaseback accounting. We also considered whether the Combination resulted in a completed sale-leaseback transaction and concluded that the transaction did not meet the criteria and should continue to be accounted for in the same manner as previously determined.

GCI Holdings has entered into finance lease agreements with satellite providers for transponder capacity to transmit voice and data traffic in rural Alaska. GCI Holdings is also party to finance lease agreements for an office building and certain retail store locations. GCI Holdings also leases office space, land for towers and communication facilities, satellite transponders, fiber capacity, and equipment. These leases are classified as operating leases. Operating lease right-of-use (“ROU”) assets and operating lease liabilities are recognized based on the present value of the future lease payments using our incremental borrowing rate at the commencement date of the lease.

The Company has leases with remaining lease terms that range from less than one year up to 29 years. Certain of the Company’s leases may include an option to extend the term of the lease with such options to extend ranging from 4 years up to 37 years. The Company also has the option to terminate certain of its leases early with such options to terminate ranging from as early as 30 days up to 16 years from December 31, 2021.

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The components of lease cost during the years ended December 31, 2021 and 2020 were as follows:

	Year ended December 31, 2021	2020
	amounts in millions	
Operating lease cost (1)	$ 60	3
Finance lease cost		
Depreciation of leased assets	$ 1	1
Interest on lease liabilities	—	—
Total finance lease cost	$ 1	1

(1) Included within operating lease costs were short-term lease costs and variable lease costs, which were not material to the financial statements.

Total operating lease cost for the year ended December 31, 2019 was $1 million.

The remaining weighted-average lease term and the weighted-average discount rate were as follows:

	December 31, 2021	December 31, 2020
Weighted-average remaining lease term (years):		
Finance leases	4.5	3.1
Operating leases	4.2	4.8
Weighted-average discount rate:		
Finance leases	4.3 %	3.9 %
Operating leases	4.0 %	4.2 %

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Supplemental balance sheet information related to leases was as follows:

	December 31, 2021	December 31, 2020
	amounts in millions	
Operating leases:		
Operating lease ROU assets, net (1)	$ 154	99
Current operating lease liabilities (2)	$ 50	34
Operating lease liabilities (3)	102	61
Total operating lease liabilities	$ 152	95
Finance Leases:		
Property and equipment, at cost	$ 4	10
Accumulated depreciation	(1)	(1)
Property and equipment, net	$ 3	9
Current obligations under finance leases (4)	$ 1	4
Obligations under finance leases	2	4
Total finance lease liabilities	$ 3	8

(1) Operating lease ROU assets, net are included within the Other assets, net line item in the accompanying consolidated balance sheets.
(2) Current operating lease liabilities are included within the Other current liabilities line item in the accompanying consolidated balance sheets.
(3) Operating lease liabilities are included within the Other liabilities line item in the accompanying consolidated balance sheets.
(4) Current obligations under finance leases are included within the Other current liabilities line item in the accompanying consolidated balance sheets.

Supplemental cash flow information related to leases was as follows:

	Year ended December 31, 2021	Year ended December 31, 2020
	amounts in millions	
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash outflows from operating leases	$ 55	3
Operating cash outflows from finance leases	$ —	—
Financing cash outflows from finance leases	$ 2	—
ROU assets obtained in exchange for lease obligations		
Operating leases	$ 108	—
Finance leases	$ —	—

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Future lease payments under finance leases, operating leases and tower obligations with initial terms of one year or more at December 31, 2021 consisted of the following:

	Finance Leases	Operating Leases	Tower Obligations
		amounts in millions	
2022	$ 1	50	7
2023	1	48	8
2024	1	41	8
2025	—	7	8
2026	—	5	8
Thereafter	—	15	109
Total payments	3	166	148
Less: imputed interest	—	14	59
Total liabilities	$ 3	152	89

(10) Income Taxes

Income tax benefit (expense) consists of:

	Years ended December 31,		
	2021	2020	2019
		amounts in millions	
Current:			
Federal	$ (233)	—	—
State and local	—	—	—
	(233)	—	—
Deferred:			
Federal	4	(116)	(31)
State and local	11	153	(7)
	15	37	(38)
Income tax benefit (expense)	$ (218)	37	(38)

Income tax benefit (expense) differs from the amounts computed by applying the applicable U.S. federal income tax rate of 21%as a result of the following:

	Years ended December 31,		
	2021	2020	2019
		amounts in millions	
Computed expected tax benefit (expense)	$ (200)	(76)	(33)
State and local taxes, net of federal income taxes	(8)	(12)	(5)
Change in valuation allowance	4	(3)	—
Change in tax rate - other	14	133	—
Executive compensation	(14)	(1)	—
Litigation settlement	(22)	—	—
Other	8	(4)	—
Income tax (expense) benefit	$ (218)	37	(38)

For the year ended December 31, 2021, the significant reconciling items, as noted in the table above, are primarily due to a non-deductible litigation settlement and non-deductible executive compensation, partially offset by tax benefits from a change in effective tax rate used to measure deferred taxes on certain Charter shares.

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For the year ended December 31, 2020, the significant reconciling item, as noted in the table above, is primarily the result of a change in the effective state tax rate used to measure deferred taxes due to the Combination.

For the year ended December 31, 2019, the significant reconciling item, as noted in the table above, is the result of state income taxes.

The tax effects of temporary differences and tax attributes that give rise to significant portions of the deferred income tax assets and deferred income tax liabilities are presented below:

	December 31, 2021	December 31, 2020
	amounts in millions	
Deferred tax assets:		
Tax loss and tax credit carryforwards	$ 96	215
Accrued stock-based compensation	14	15
Deferred revenue	13	14
Debt	6	21
Operating lease liability	42	26
Other future deductible amounts	42	44
Other accrued liabilities	15	13
Total deferred tax assets	228	348
Less: valuation allowance	(7)	(12)
Net deferred tax assets	221	336
Deferred tax liabilities:		
Investments	(1,677)	(1,756)
Fixed assets	(206)	(220)
Intangible assets	(293)	(310)
Other	(43)	(28)
Total deferred tax liabilities	(2,219)	(2,314)
Net deferred tax asset (liability)	$ (1,998)	(1,978)

The Company's valuation allowance decreased $5 million in 2021, of which $4 million affected tax expense and $1 million affected equity.

At December 31, 2021, Liberty Broadband had a deferred tax assets of $96 million for federal and state net operating losses, capital loss carryforwards, interest expense carryforwards and tax credit carryforwards. Of the $96 million, $31 million are carryforwards with no expiration. The remaining carryforwards expire at certain future dates. These carryforwards are expected to be utilized prior to expiration, except for $7 million which based on current projections, may expire unused and accordingly are subject to a valuation allowance. The carryforwards that are expected to be utilized begin to expire in 2022.

As of December 31, 2021, the Company had not recorded tax reserves related to unrecognized tax benefits for uncertain tax positions.

As of December 31, 2021, the IRS has completed its examination of Liberty Broadband's 2018 and 2019 tax years. Because Liberty Broadband's ownership of Charter is less than the required 80%, Charter is not consolidated with Liberty Broadband for federal income tax purposes. As of December 31, 2021, there are no GCI Liberty tax years under IRS examination. Prior to the March 9, 2018 GCI Liberty split-off from Qurate Retail, certain GCI Liberty businesses were part of the Qurate Retail, Inc. consolidated federal tax group. The IRS has completed its examinations of Qurate Retail's 2018 tax year. Various states are currently examining Qurate's prior years' state income tax returns.

(11) Stockholders' Equity

Preferred Stock

Liberty Broadband's preferred stock is issuable, from time to time, with such designations, preferences and relative participating, optional or other rights, qualifications, limitations or restrictions thereof, as shall be stated and expressed in a resolution or resolutions providing for the issue of such preferred stock adopted by Liberty Broadband's board of directors.

Liberty Broadband Preferred Stock was issued as a result of the Combination on December 18, 2020. Each share of GCI Liberty Preferred Stock outstanding immediately prior to the closing of the Combination was converted into one share of newly issued Liberty Broadband Preferred Stock. The Company is required to redeem all outstanding shares of Liberty Broadband Preferred Stock out of funds legally available, at the liquidation price plus all unpaid dividends (whether or not declared) accrued from the most recent dividend payment date through the redemption date, on the first business day following March 8, 2039. There were 7,300,000 shares of Liberty Broadband Preferred Stock authorized and 7,187,251 shares issued and outstanding at December 31, 2021. An additional 42,700,000 shares of preferred stock of the Company are authorized and are undesignated as to series. The Liberty Broadband Preferred Stock is accounted for as a liability on the Company's consolidated balance sheets because it is mandatorily redeemable. As a result, all dividends paid on the Liberty Broadband Preferred Stock are recorded as interest expense in the Company's consolidated statements of operations. Liberty Broadband Preferred Stock has one-third of a vote per share.

The liquidation price is measured per share and shall mean the sum of (i) $25, plus (ii) an amount equal to all unpaid dividends (whether or not declared) accrued with respect to such share have been added to and then remain part of the liquidation price as of such date. The fair value of Liberty Broadband Preferred Stock of $203 million was recorded at the time of the Combination.

The holders of shares of Liberty Broadband Preferred Stock are entitled to receive, when and as declared by the Liberty Broadband board of directors, out of legally available funds, preferential dividends that accrue and cumulate as provided in the certificate of designations for the Liberty Broadband Preferred Stock.

Dividends on each share of Liberty Broadband Preferred Stock accrue on a daily basis at a rate of 7.00% per annum of the liquidation price.

Accrued dividends are payable quarterly on each dividend payment date, which is January 15, April 15, July 15, and October 15 of each year, commencing January 15, 2021. If Liberty Broadband fails to pay cash dividends on the Liberty Broadband Preferred Stock in full for any four consecutive or non-consecutive dividend periods then the dividend rate shall increase by 2.00% per annum of the liquidation price until cured. On December 8, 2021, the Company announced that its board of directors had declared a quarterly cash dividend of approximately $0.44 per share of Liberty Broadband Preferred Stock which was paid on January 18, 2022 to shareholders of record of the Liberty Broadband Preferred Stock at the close of business on December 31, 2021.

Common Stock

Liberty Broadband's Series A common stock has one vote per share, Liberty Broadband's Series B common stock has ten votes per share and Liberty Broadband's Series C common stock has no votes per share (except as otherwise required by applicable law). Each share of the Series B common stock is exchangeable at the option of the holder for one share of Series A common stock. All series of our common stock participate on an equal basis with respect to dividends and distributions.

As of December 31, 2021, Liberty Broadband reserved 4 million shares of Series A, Series B and Series C common stock for issuance under exercise privileges of outstanding stock Awards.

Purchases of Common Stock

There were no repurchases of Liberty Broadband common stock made pursuant to the Company's authorized repurchase program during the year ended December 31, 2019.

During the year ended December 31, 2020, the Company repurchased 4 million shares of Liberty Broadband Series C common stock for aggregate cash consideration of $597 million under the authorized repurchase program. There were no repurchases of Series A or Series B common stock during the year ended December 31, 2020.

During the year ended December 31, 2021, the Company repurchased 26.1 million shares of Liberty Broadband Series A and Series C common stock for aggregate cash consideration of $4.3 billion. There were no repurchases of Series B common stock during the year ended December 31, 2021.

All of the foregoing shares obtained have been retired and returned to the status of authorized and available for issuance. As of December 31, 2021, the Company had $669 million available to be used for share repurchases under the Company's share repurchase program.

(12) Stock-Based Compensation

Included in the accompanying consolidated statements of operations are the following amounts of stock-based compensation for the years ended December 31, 2021, 2020 and 2019 (amounts in millions):

	December 31,		
	2021	2020	2019
Selling, general and administrative	$ 41	9	10
	$ 41	9	10

Liberty Broadband - Incentive Plans

Liberty Broadband grants, to certain of its directors, employees and employees of its subsidiaries, restricted stock units ("RSUs") and stock options to purchase shares of its common stock (collectively, "Awards"). The Company measures the cost of employee services received in exchange for an equity classified Award (such as stock options and restricted stock) based on the grant-date fair value ("GDFV") of the Award, and recognizes that cost over the period during which the employee is required to provide service (usually the vesting period of the Award). The Company measures the cost of employee services received in exchange for a liability classified Award based on the current fair value of the Award, and re-measures the fair value of the Award at each reporting date.

Pursuant to the Liberty Broadband 2019 Omnibus Incentive Plan, as amended, the Company may grant Awards to be made in respect of a maximum of 6.0 million shares of Liberty Broadband common stock. In addition, and in connection with the Combination at the close of business on December 18, 2020 (the "Effective Date"), the number of shares of common stock of GCI Liberty that remained available for issuance immediately prior to the Effective Date of the Combination under the GCI Liberty, Inc. 2018 Omnibus Incentive Plan ("GCI Liberty 2018 Plan"), as amended, were converted to 3.7 million shares of Liberty Broadband common stock and are available for use provided that:

i. the period during which such shares are available for Awards is not extended beyond the period during which they would have been available under the GCI Liberty 2018 Plan, absent the Combination, and

ii. such Awards are not granted to individuals who were employed by the Company or its subsidiaries immediately prior to the Effective Date.

Awards generally vest over 1-5 years and have a term of 7-10 years. Liberty Broadband issues new shares upon exercise of equity awards.

Liberty Broadband – Grants

During the years ended December 31, 2021, 2020 and 2019, Liberty Broadband granted 167 thousand, 389 thousand and 302 thousand options, respectively, to purchase shares of Series C Liberty Broadband common stock ("LBRDK") to our CEO. Such options had a weighted average GDFV of $40.05, $38.23 and $31.12 per share, respectively, at the time they were granted and vested or will vest, as applicable, on December 31, 2021, December 31, 2024 and December 31, 2023, respectively. The 2020 and 2019 grants include two upfront option grants related to the CEO's employment agreement. See discussion in note 1 regarding the compensation agreement with the Company's CEO.

During the year ended December 31, 2020, Liberty Broadband granted 2 thousand time-based RSUs of LBRDK to our CEO. The RSUs had a GDFV of $120.71 per share and cliff vested on December 10, 2020. This RSU grant was issued in lieu of our CEO receiving 50% of his remaining base salary for the last three quarters of calendar year 2020, and he waived his right to receive the other 50%, in each case, in light of the ongoing financial impact of COVID-19.

During the year ended December 31, 2019, Liberty Broadband granted 25 thousand performance-based RSUs of LBRDK to our CEO. The RSUs had a GDFV of $88.99 per share at the time they were granted and cliff vested one year from the month of grant, subject to satisfaction of certain performance objectives. Performance objectives, which are subjective, are considered in determining the timing and amount of compensation expense recognized. When the satisfaction of the performance objectives becomes probable, the Company records compensation expense. The probability of satisfying the performance objectives is assessed at the end of each reporting period.

During the years ended December 31, 2021, 2020 and 2019, Liberty Broadband granted to its employees 30 thousand, 151 thousand and 41 thousand options, respectively, to purchase shares of LBRDK. Such options had a weighted average GDFV of $40.61, $41.06 and $32.21 per share, respectively, and vest between two and five years.

During the years ended December 31, 2021, 2020 and 2019, Liberty Broadband granted 26 thousand, 15 thousand and 8 thousand options, respectively, to purchase shares of LBRDK to its non-employee directors with a weighted average GDFV of $41.71, $37.78 and $31.18 per share, respectively, which mainly cliff vest over a one year vesting period.

There were no options to purchase shares of Series A Liberty Broadband common stock ("LBRDA") or Series B Liberty Broadband common stock ("LBRDB") granted during 2021, 2020 or 2019.

The Company has calculated the GDFV for all of its equity classified awards and any subsequent re-measurement of its liability classified awards using the Black-Scholes Model. The Company estimates the expected term of the Awards based on historical exercise and forfeiture data. For grants made in 2021, 2020 and 2019, the range of expected terms was 5.1 to 6.3 years. The volatility used in the calculation for Awards is based on the historical volatility of Liberty Broadband common stock. For grants made in 2021, 2020 and 2019, the range of volatilities was 25.1% to 27.4%. The Company uses a zero dividend rate and the risk-free rate for Treasury Bonds with a term similar to that of the subject option.

In connection with the Combination, on the Effective Date:

i. Each outstanding stock option to purchase shares of Series A GCI Liberty common stock ("GLIBA") or Series B GCI Liberty common stock ("GLIBB" and, together with GLIBA, "GLIBA/B") was converted to 0.58 of a corresponding stock option to purchase LBRDK or LBRDB (together, "LBRDK/B"), respectively, rounded down to the nearest whole share. Additionally, the exercise price of the GLIBA/B stock option was divided by 0.58, with the resulting LBRDK/B exercise price rounded up to the nearest cent. Except as described above, all other terms and restrictions of the LBRDK/B stock options are the same as the corresponding original GLIBA/B stock options.

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ii. Each outstanding GLIBA RSU was converted to 0.58 of a corresponding LBRDK RSU, rounded down to the nearest whole LBRDK RSU. No cash was paid in lieu of fractional LBRDK RSUs. All terms of the LBRDK RSUs are subject to the same terms and restrictions as those applicable to the corresponding original GLIBA RSUs.

iii. Each outstanding GLIBA share of restricted stock ("RSA") was converted to 0.58 of a corresponding LBRDK RSA, rounded down to the nearest whole LBRDK RSA. Cash was issued in lieu of fractional LBRDK RSAs. All terms of the LBRDK RSAs are subject to the same terms and restrictions as those applicable to the corresponding original GLIBA RSAs.

iv. Each outstanding GCI Liberty Series A Cumulative Redeemable Preferred Stock ("GLIBP") RSA was converted into one Liberty Broadband Series A Cumulative Redeemable Preferred Stock ("LBRDP") RSA. All terms of the LBRDP RSAs are subject to the same terms and restrictions as those applicable to the corresponding original GLIBP RSAs.

Liberty Broadband – Outstanding Awards

The following table presents the number and weighted average exercise price ("WAEP") of Awards to purchase Liberty Broadband common stock granted to certain officers, employees and directors of the Company, as well as the weighted average remaining life and aggregate intrinsic value of the Awards.

	Series C (in thousands)	WAEP	Weighted average remaining contractual life (in years)	Aggregate intrinsic value (in millions)
Outstanding at January 1, 2021	3,327	$ 92.35		
Granted	223	$ 152.91		
Exercised	(67)	$ 72.16		
Forfeited/Cancelled	—	$ —		
Outstanding at December 31, 2021	3,483	$ 96.61	4.2	$ 227
Exercisable at December 31, 2021	2,179	$ 67.08	3.4	$ 205

As of December 31, 2021, Liberty Broadband also had 1 thousand LBRDA options outstanding and exercisable at a WAEP of $35.81 and a weighted average remaining contractual life of 1.0 year.

During the year ended December 31, 2021, our CEO exercised 370 thousand LBRDB options at an exercise price of $97.21 per share. Immediately following this exercise, the resulting LBRDB shares were exchanged for the same number of LBRDK shares pursuant to the terms of a stipulation and order where Mr. Maffei agreed to exchange LBRDB shares for LBRDK shares following the exercise of certain stock options. As of December 31, 2021, Liberty Broadband had 352 thousand LBRDB options outstanding and exercisable at a WAEP of $96.35, a weighted average remaining contractual life of 2.2 years and aggregate intrinsic value of $23 million.

As of December 31, 2021, the total unrecognized compensation cost related to unvested Liberty Broadband Awards was approximately $51 million. Such amount will be recognized in the Company's consolidated statements of operations over a weighted average period of approximately 1.5 years.

As of December 31, 2021, Liberty Broadband reserved 4 million shares of Series A, Series B and Series C common stock for issuance under exercise privileges of outstanding stock Awards.

Liberty Broadband – Exercises

The aggregate intrinsic value of all options exercised during the years ended December 31, 2021, 2020 and 2019 was $27 million, $1 million and $92 million, respectively.

Liberty Broadband – Restricted Stock and Restricted Stock Units

The aggregate fair value of all LBRDA, LBRDK and LBRDP RSAs and RSUs that vested during the years ended December 31, 2021, 2020 and 2019 was $28 million, $5 million and $3 million, respectively.

As of December 31, 2021, the Company had approximately 261 thousand unvested RSAs and RSUs of LBRDA, LBRDK and LBRDP held by certain directors, officers and employees of the Company with a weighted average GDFV of $150.51 per share.

(13) Employee Benefit Plans

Subsidiaries of the Company sponsor 401(k) plans, which provide their employees an opportunity to make contributions to a trust for investment. The Company's subsidiaries make matching contributions to their plans based on a percentage of the amount contributed by employees. Employer cash contributions to all plans aggregated $12 million, $1 million and $1 million for the years ended December 31, 2021, 2020 and 2019, respectively.

(14) Commitments and Contingencies

Guaranteed Service Levels

Certain customers have guaranteed levels of service with varying terms. In the event the Company is unable to provide the minimum service levels, it may incur penalties or issue credits to customers.

General Litigation

The Company has contingent liabilities related to legal and tax proceedings and other matters arising in the ordinary course of business. Although it is reasonably possible the Company may incur losses upon conclusion of such matters, an estimate of any loss or range of loss cannot be made. In the opinion of management, it is expected that amounts, if any, which may be required to satisfy such contingencies will not be material in relation to the accompanying consolidated financial statements.

Hollywood Firefighters' Pension Fund, et al. v. GCI Liberty, Inc., et al. On October 9, 2020, a putative class action complaint was filed by two purported GCI Liberty stockholders in the Court of Chancery of the State of Delaware under the caption *Hollywood Firefighters' Pension Fund, et al. v. GCI Liberty, Inc., et al.*, Case No. 2020-0880. A new version of the complaint was filed on October 11, 2020. The complaint named as defendants GCI Liberty, as well as the members of the GCI Liberty board of directors. The complaint alleged, among other things, that Mr. Gregory B. Maffei, a director and the President and Chief Executive Officer of Liberty Broadband and, prior to the Combination, GCI Liberty, and Mr. John C. Malone, the Chairman of the board of directors of Liberty Broadband and, prior to the Combination, GCI Liberty, in their purported capacities as controlling stockholders and directors of GCI Liberty, and the other directors of GCI Liberty, breached their fiduciary duties by approving the Combination. The complaint also alleged that various prior and current relationships among members of the GCI Liberty special committee, Mr. Malone and Mr. Maffei rendered the members of the GCI Liberty special committee not independent.

The complaint sought certification of a class action, declarations that Messrs. Maffei and Malone and the other directors of GCI Liberty breached their fiduciary duties and the recovery of damages and other relief.

On December 23, 2020, the plaintiffs filed a Second Amended Complaint, which, among other things, included a new count of breach of fiduciary duty against Mr. Maffei and Mr. Gregg Engles, the other former member of the GCI Liberty special committee, and new allegations that the price of GCI Liberty was depressed as a result of statements and omissions by Mr. Maffei in November of 2019. During the first quarter of 2021, the parties were conducting discovery with the trial scheduled for November 2021. We believed the lawsuit was without merit.

During March 2021 and in advance of the expenditure of significant time and costs to conduct the depositions proposed to have been taken in this action, the parties began negotiations with the class of plaintiffs for a potential settlement of this action. On May 5, 2021, the plaintiffs (on behalf of themselves and other members of a proposed settlement class) and defendants entered into an agreement in principle to settle the litigation pursuant to which the parties agreed that the plaintiffs will dismiss their claims with prejudice, with customary releases, in return for a settlement payment of $110 million to be paid by Merger LLC (as successor by merger to GCI, Liberty, Inc.) and/or insurers for the defendants and for GCI Liberty, which was recorded as a litigation settlement expense within operating income in the consolidated statements of operations. During the second half of the year, the Company made a payment of $110 million in accordance with the settlement agreement.

On June 17, 2021, the parties filed a Stipulation and Agreement of Settlement, Compromise, and Release. On June 30, 2021, the Court preliminarily certified, solely for purposes of effectuating the proposed settlement, the action as a non-opt out class action on behalf of a settlement class consisting of all holders of GCI Liberty Series A common stock as of December 18, 2020. The Court set a settlement hearing for October 5, 2021, to determine whether to permanently certify the class, whether the proposed settlement is fair, reasonable, and adequate to the settlement class, and whether to enter a judgment dismissing the action with prejudice, among other things. On October 18, 2021, subsequent to that hearing, the Court issued a final order permanently certifying the Class and approving the settlement. The Court also awarded Plaintiffs' Counsel $22 million in attorneys' fees, which shall be paid out of the settlement fund. Plaintiffs also requested that the Court issue an additional fee award, which Defendant opposed, not to be paid out of the settlement fund, in connection with a certain claim that was mooted earlier in the case (a "mootness fee"). On November 8, 2021, the Court awarded Plaintiffs' Counsel a $9 million mootness fee, which Defendant subsequently paid and recorded as a litigation settlement expense within operating income in the consolidated statements of operations.

In addition, during the third quarter of 2021, the Company agreed to final settlement amounts with all five of its insurance carriers for insurance recoveries of approximately $24 million, which is recorded net of the litigation settlement expense on the consolidated statement of operations.

Rural Health Care ("RHC") Program

GCI Holdings receives support from various USF programs including the RHC Program. The USF programs are subject to change by regulatory actions taken by the FCC, interpretations of or compliance with USF program rules, or legislative actions. Changes to any of the USF programs that GCI Holdings participates in could result in a material decrease in revenue and accounts receivable, which could have an adverse effect on GCI Holdings' business and the Company's financial position, results of operations or liquidity. The following paragraphs describe certain separate matters related to the RHC Program that impact or could impact the revenue earned and receivables recognized by the Company. As of December 31, 2021, the Company had net accounts receivable from the RHC Program in the amount of approximately $120 million, which is included within Trade and other receivables in the consolidated balance sheets.

FCC Rate Reduction. In November 2017, the Universal Service Administrative Company requested further information in support of the rural rates charged to a number of GCI Holdings' RHC customers in connection with the funding requests for the year that runs July 1, 2017 through June 30, 2018. On October 10, 2018, GCI Holdings received a letter from the FCC's Wireline Competition Bureau ("Bureau") notifying it of the Bureau's decision to reduce the rural rates charged to RHC customers for the funding year that ended on June 30, 2018 by approximately 26% resulting in a reduction of total support payments of $28 million. The FCC also informed GCI Holdings that the same cost methodology used for the funding year that ended on June 30, 2018 would be applied to rates charged to RHC customers in subsequent funding years. In response to the Bureau's letter, GCI Holdings filed an Application for Review with the FCC.

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On October 20, 2020, the Bureau issued two separate letters approving the cost-based rural rates GCI Holdings historically applied when recognizing revenue for services provided to its RHC customers for the funding years that ended on June 30, 2019 and June 30, 2020. GCI Holdings collected approximately $175 million in accounts receivable relating to these two funding years during the year ended December 31, 2021. GCI Holdings also filed an Application for Review of these determinations. Subsequently, GCI identified rates for similar services provided by a competitor that would justify higher rates for certain GCI satellite services in the funding years that ended on June 30, 2018, June 30, 2019, and June 30, 2020. GCI submitted that information to the Bureau on September 7, 2021. The Applications for Review remain pending.

On June 25, 2020, GCI Holdings submitted cost studies with respect to a number of its rates for services provided to its RHC customers for the funding year ended June 30, 2021, which require approval by the Bureau. GCI Holdings further updated those studies on November 12, 2020, to reflect the completion of the bidding season for that funding year. On May 24, 2021, the FCC approved the cost studies submitted by GCI Holdings for the funding year ended June 30, 2021. Subsequently, on August 16, 2021, GCI submitted a request for approval of rates for 17 additional sites, which remains pending.

RHC Program Funding Cap. The RHC program has a funding cap for each individual funding year that is annually adjusted for inflation, and which the FCC can increase by carrying forward unused funds from prior funding years. In recent years, including the current year, this funding cap has not limited the amount of funding received by participants; however, management continues to monitor the funding cap and its potential impact on funding in future years.

Enforcement Bureau and Related Inquiries. On March 23, 2018, GCI Holdings received a letter of inquiry and request for information from the Enforcement Bureau of the FCC relating to the period beginning January 1, 2015 and including all future periods, to which it is in the process of responding. This includes inquiry into the rates charged by GCI Holdings, and presently it is unable to assess the ultimate outcome of this rate inquiry. Other aspects related to the Enforcement Bureau's review of GCI Holdings' compliance with program rules are discussed separately below. The ongoing uncertainty in program funding, as well as the uncertainty associated with the rate review, could have an adverse effect on its business, financial position, results of operations or liquidity.

In the fourth quarter of 2019, GCI Holdings became aware of potential RHC Program compliance issues related to certain of GCI Holdings' currently active and expired contracts with certain of its RHC customers. The Company and its external experts performed significant and extensive procedures to determine whether GCI Holdings' currently active and expired contracts with its RHC customers would be deemed to be in compliance with the RHC Program rules. GCI Holdings notified the FCC of the potential compliance issues in the fourth quarter of 2019.

On May 28, 2020, GCI Holdings received a second letter of inquiry from the Enforcement Bureau in the same matter noted above. This second letter, which was in response to a voluntary disclosure made by GCI Holdings to the FCC, extended the scope of the original inquiry to also include various questions regarding compliance with the records retention requirements related to the (i) original inquiry and (ii) RHC Program.

On December 17, 2020, GCI Holdings received a Subpoena Duces Tecum from the FCC's Office of the Inspector General requiring production of documents from January 1, 2009 to the present related to a single RHC customer and related contracts, information regarding GCI Holdings' determination of rural rates for a single customer, and to provide information regarding persons with knowledge of pricing practices generally.

On April 21, 2021, representatives of the Department of Justice ("DOJ") informed GCI Holdings that a qui tam action has been filed in the Western District of Washington arising from the subject matter under review by the Enforcement Bureau. The DOJ is investigating whether GCI Holdings submitted false claims and/or statements in connection with GCI's participation in the FCC's RHC Program. On July 14, 2021, the DOJ issued a Civil Investigative Demand with regard to the qui tam action.

GCI Holdings continues to work with the FCC and the DOJ to resolve all enforcement inquiries discussed above. With respect to the ongoing inquiries from the FCC's Enforcement Bureau and the FCC's Office of the Inspector General, GCI Holdings recognized a liability of approximately $12 million in 2019 for contracts that were deemed probable of not complying with the RHC Program rules. GCI Holdings also identified certain contracts where additional loss was reasonably possible and such loss could range from zero to $44 million. An accrual was not made for the amount of the reasonably possible loss in accordance with the applicable accounting guidance. GCI Holdings could also be assessed fines and penalties, but such amounts could not be reasonably estimated. With respect to the ongoing inquiries from the DOJ regarding the qui tam action, the Company is unable to assess the ultimate outcome of this action given the confidentiality of the qui tam process and is unable to determine whether any type of fine or penalty would ultimately be assessed as is permitted under the applicable law.

Off-Balance Sheet Arrangements

Liberty Broadband did not have any off-balance sheet arrangements that have, or are reasonably likely to have, a current or future effect on the Company's financial condition, results of operations, liquidity, capital expenditures or capital resources.

(15) Segment Information

Liberty Broadband identifies its reportable segments as (A) those consolidated companies that represent 10% or more of its consolidated annual revenue, annual Adjusted OIBDA or total assets and (B) those equity method affiliates whose share of earnings or losses represent 10% or more of Liberty Broadband's annual pre-tax earnings (losses).

During the first quarter of 2021, as a result of the closing of the Combination on December 18, 2020, Skyhook Holding, Inc., a wholly owned subsidiary of the Company, is no longer significant to the Company and has been included in Corporate and other for presentation purposes. The revised segment reporting structure includes the following reportable segments: (1) GCI Holdings and (2) Charter. All prior period segment disclosure information has been reclassified to conform to the current reporting structure. These reclassifications had no effect on our consolidated financial statements in any period.

Liberty Broadband evaluates performance and makes decisions about allocating resources to its operating segments based on financial measures such as revenue and Adjusted OIBDA. In addition, Liberty Broadband reviews nonfinancial measures such as subscriber growth.

For segment reporting purposes, Liberty Broadband defines Adjusted OIBDA as revenue less operating expenses and selling, general and administrative expenses (excluding stock-based compensation and transaction costs). Liberty Broadband believes this measure is an important indicator of the operational strength and performance of its businesses by identifying those items that are not directly a reflection of each business' performance or indicative of ongoing business trends. In addition, this measure allows management to view operating results and perform analytical comparisons and benchmarking between businesses and identify strategies to improve performance. This measure of performance excludes depreciation and amortization, stock based compensation, transaction costs, separately reported litigation settlements and restructuring and impairment charges that are included in the measurement of operating income pursuant to GAAP. Accordingly, Adjusted OIBDA should be considered in addition to, but not as a substitute for, operating income, net earnings, cash flow provided by operating activities and other measures of financial performance prepared in accordance with GAAP. Liberty Broadband generally accounts for intersegment sales and transfers as if the sales or transfers were to third parties, that is, at current prices.

For the year ended December 31, 2021, Liberty Broadband has identified the following consolidated company and equity method investment as its reportable segments:

- GCI Holdings – a wholly owned subsidiary of the Company that provides a full range of wireless, data, video, voice, and managed services to residential, businesses, governmental entities, and educational and medical institutions primarily in Alaska.
- Charter—an equity method investment that is one of the largest providers of cable services in the United States, offering a variety of entertainment, information and communications solutions to residential and commercial customers.

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Liberty Broadband's operating segments are strategic business units that offer different products and services. They are managed separately because each segment requires different technologies, distribution channels and marketing strategies. The accounting policies of the segments that are also consolidated companies are the same as those described in the Company's summary of significant accounting policies in the Company's annual financial statements. We have included amounts attributable to Charter in the tables below. Although Liberty Broadband owns less than 100% of the outstanding shares of Charter, 100% of the Charter amounts are included in the schedule below and subsequently eliminated in order to reconcile the account totals to the Liberty Broadband consolidated financial statements.

Performance Measures

	Years ended December 31,					
	2021		2020		2019	
	Revenue	Adjusted OIBDA	Revenue	Adjusted OIBDA	Revenue	Adjusted OIBDA
	amounts in millions					
GCI Holdings	$ 970	354	34	10	—	—
Charter	51,682	20,301	48,097	18,460	45,764	16,752
Corporate and other	18	(49)	17	(24)	15	(17)
	52,670	20,606	48,148	18,446	45,779	16,735
Eliminate equity method affiliate	(51,682)	(20,301)	(48,097)	(18,460)	(45,764)	(16,752)
Consolidated Liberty Broadband	$ 988	305	51	(14)	15	(17)

Other Information

	December 31, 2021			December 31, 2020		
	Total assets	Investments in affiliates	Capital expenditures	Total assets	Investments in affiliates	Capital expenditures
	amounts in millions					
GCI Holdings	$ 3,451	—	134	3,677	—	2
Charter	142,491	—	7,635	144,206	—	7,415
Corporate and other	13,517	13,261	—	17,696	16,179	—
	159,459	13,261	7,769	165,579	16,179	7,417
Eliminate equity method affiliate	(142,491)	—	(7,635)	(144,206)	—	(7,415)
Consolidated Liberty Broadband	$ 16,968	13,261	134	21,373	16,179	2

Revenue by Geographic Area

	Years ended December 31,		
	2021	2020	2019
	amounts in millions		
United States	$ 986	49	13
Other countries	2	2	2
	$ 988	51	15

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The following table provides a reconciliation of Adjusted OIBDA to Operating income (loss) and earnings (loss) before income taxes:

	Years ended December 31,		
	2021	2020	2019
	amounts in millions		
Consolidated segment Adjusted OIBDA	$ 305	(14)	(17)
Stock-based compensation	(41)	(9)	(10)
Depreciation and amortization	(267)	(15)	(2)
Litigation settlement, net of recoveries	(95)	—	—
Transaction costs	—	(22)	—
Operating income (loss)	(98)	(60)	(29)
Interest expense	(117)	(28)	(25)
Share of earnings (loss) of affiliates, net	1,194	713	286
Gain (loss) on dilution of investment in affiliate	(102)	(184)	(79)
Realized and unrealized gains (losses) on financial instruments, net	67	(83)	1
Other, net	6	3	1
Earnings (loss) before income taxes	$ 950	361	155

PART III

The following required information is incorporated by reference to our definitive proxy statement for our 2022 Annual Meeting of Stockholders presently scheduled to be held in the second quarter of 2022:

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

We expect to file our definitive proxy statement for our 2022 Annual Meeting of Shareholders with the Securities and Exchange Commission on or before May 2, 2022.

PART IV.

Item 15. Exhibits and Financial Statement Schedules.

(a)(1) *Financial Statements*

Included in Part II of this report:

(a)(2) *Financial Statement Schedules*

(i) All schedules have been omitted because they are not applicable, not material or the required information is set forth in the financial statements or notes thereto.

(ii) The audited consolidated financial statements of Charter Communications, Inc. as of December 31, 2021 and 2020, and for each of the years ended December 31, 2021, 2020 and 2019, as well as the accompanying notes thereto and the related Report of Independent Registered Public Accounting Firm, are contained in Charter Communications, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2021, filed with the SEC on January 28, 2022 and are incorporated herein by reference as Exhibit 99.1.

(a)(3) Exhibits

Listed below are the exhibits which are filed as a part of this Report (according to the number assigned to them in Item 601 of Regulation S-K):

2 - Plan of Acquisition, Reorganization, Arrangement, Liquidation or Succession:

2.1	Agreement and Plan of Merger, dated as of August 6, 2020, by and among GCI Liberty, Inc., Liberty Broadband Corporation, Grizzly Merger Sub 1, LLC, and Grizzly Merger Sub 2, Inc. (incorporated by reference to Annex A to the Prospectus filed by Liberty Broadband Corporation on October 30, 2020 with the SEC pursuant to Rule 424(b)(3) of the Securities Act (File No. 333-248854) (the "Prospectus")).

3 - Articles of Incorporation and Bylaws:

3.1	Restated Certificate of Incorporation of Liberty Broadband Corporation (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed on November 10, 2014 (File No. 001-36713)).
3.2	Amended and Restated Bylaws of Liberty Broadband Corporation (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed on August 13, 2015 (File No. 001-3671)).
3.3	Certificate of Designations of Series A Cumulative Redeemable Preferred Stock of Liberty Broadband Corporation (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed December 22, 2020 (File No. 001-36713)).

4 - Instruments Defining the Rights of Securities Holders, including Indentures:

4.1	Specimen Certificate for shares of Series A Common Stock of the Registrant (incorporated by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-1 filed on July 25, 2014 (File No. 333-197619) (the "S-1")).
4.2	Specimen Certificate for shares of Series B Common Stock of the Registrant (incorporated by reference to Exhibit 4.2 to the S-1).
4.3	Specimen Certificate for shares of Series C Common Stock of the Registrant (incorporated by reference to Exhibit 4.3 to the S-1).
4.4	Margin Loan Agreement, dated as of August 31, 2017, among LBC Cheetah 6, LLC, as Borrower, various lenders and Bank of America, N.A., as Calculation Agent and Bank of America, N.A., as Administrative Agent (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2017 filed on November 1, 2017 (File No. 001-36713)).
4.5	Form of Amendment No. 1 to Margin Loan Agreement, dated as of August 24, 2018 (incorporated by reference to Exhibit 4.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2018 filed on November 1, 2018 (File No. 001-36713)).
4.6	Form of Amendment No. 2 to Margin Loan Agreement and Amendment No. 1 to Collateral Account Control Agreement, dated as of August 19, 2019 (incorporated by reference to Exhibit 4.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2019 filed on November 1, 2019 (File No. 001-36713)).
4.7	Form of Amendment No. 3 to Margin Loan Agreement and Amendment No. 2 to Collateral Account Control Agreement, dated as of August 12, 2020 (incorporated by reference to Exhibit 4.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2020 filed on November 4, 2020 (File No. 001-36713)).
4.8	Form of Amendment No. 4 to Margin Loan Agreement and Amendment No. 4 to Collateral Account Control Agreement, dated as of May 12, 2021 (incorporated by reference to Exhibit 4.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2021 filed on August 6, 2021 (File No. 001-36713)).
4.9	Description of the Registrant's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934 (incorporated by reference to Exhibit 4.8 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2020 filed on February 26, 2021 (File No. 001-36713) (the "2020 Form 10-K")).
4.10	Specimen Certificate for shares of Series A Cumulative Redeemable Preferred Stock of Liberty Broadband Corporation (incorporated by reference to Exhibit 4.3 to Liberty Broadband's Amendment No. 2 to its Registration Statement on Form S-4 filed on October 29, 2020 (File No. 333-248854)).
4.11	The Registrant undertakes to furnish to the Securities and Exchange Commission, upon request, a copy of all instruments with respect to long-term debt not filed herewith.

10 - Material Contracts:

10.1+	Liberty Broadband Corporation 2014 Omnibus Incentive Plan (Amended and Restated as of March 11, 2015) (incorporated by reference to Annex A to the Registrant's Proxy Statement on Schedule 14A filed on April 22, 2015 (File No. 001-36713)).
10.2+	Liberty Broadband Corporation Transitional Stock Adjustment Plan (incorporated by reference to Exhibit 99.1 to the Registrant's Registration Statement on Form S-8 filed on November 21, 2014 (File No. 333-200436)).

10.3	Stockholders Agreement, dated as of March 19, 2013, by and among Charter Communications, Inc. and Liberty Media Corporation (incorporated by reference to Exhibit 10.1 to Liberty Media Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2013 filed on May 9, 2013 (File No. 001-35707)).
10.4	Amendment to Stockholders Agreement, dated as of September 29, 2014, by and among Charter Communications, Inc., Liberty Media Corporation and Liberty Broadband Corporation (incorporated by reference to Exhibit 7(d) to Liberty Media Corporation's Schedule 13D in respect of common stock of Charter Communications, Inc., filed on October 10, 2014 (File No. 005-57191)).
10.5	Second Amended and Restated Stockholders Agreement, dated May 23, 2015, by and among Charter Communications, Inc., CCH I, LLC, Liberty Broadband Corporation, and Advance/Newhouse Partnership (incorporated by reference to Annex C to CCH I, LLC's Registration Statement on Form S-4 filed on June 26, 2015 (File No. 333-205240)).
10.6	Letter Agreement to the Second Amended and Restated Stockholders Agreement, dated May 18, 2016, by and among Liberty Broadband Corporation, Advance/Newhouse Partnership, CCH I, LLC and Charter Communications, Inc. (incorporated by reference to Exhibit 7(p) to Amendment No. 3 to Liberty Broadband Corporation's Schedule 13D in respect of common stock of Charter Communications, Inc., filed on May 26, 2016 (File No. 005-57191)).
10.7	Proxy and Right of First Refusal Agreement, dated as of May 18, 2016, by and among Liberty Broadband Corporation, Advance/Newhouse Partnership, Charter Communications, Inc. and CCH I, LLC (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on May 20, 2016 (File No. 001-36713)).
10.8	Aircraft Time Sharing Agreements, dated as of November 6, 2015, by and between Liberty Broadband Corporation and Liberty Media Corporation (incorporated by reference to Exhibit 10.19 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2015 filed on February 12, 2016 (File No. 001-36713) (the "2015 10-K")).
10.9+	Form of Non-Qualified Stock Option Agreement under the Liberty Broadband Corporation 2014 Omnibus Incentive Plan (Amended and Restated as of March 11, 2015) (incorporated by reference to Exhibit 10.21 to the 2015 10-K).
10.10+	Form of Restricted Stock Award Agreement under the Liberty Broadband Corporation 2014 Omnibus Incentive Plan (Amended and Restated as of March 11, 2015) (incorporated by reference to Exhibit 10.22 to the 2015 10-K).
10.11	Registration Rights Agreement, dated as of May 18, 2016, by and among Liberty Broadband Corporation, Advance/Newhouse Partnership and Charter Communications, Inc. (incorporated by reference to Exhibit 10.3 to Charter Communications, Inc.'s Current Report on Form 8-K filed on May 20, 2016 (File No. 001-33664)).
10.12+	Amendment, dated March 12, 2018, of certain Liberty Broadband Corporation incentive plans (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2018 filed on May 2, 2018 (File No. 001-36713)).
10.13	Form of Amended and Restated Indemnification Agreement between the Registrant and its executive officers/directors (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019 filed on May 2, 2019 (File No. 001-36713)).
10.14+	Liberty Broadband Corporation 2019 Omnibus Incentive Plan (incorporated by reference to Annex A to the Registrant's Proxy Statement on Schedule 14A, filed on April 18, 2019 (File No. 001-36713)).
10.15+	Form of Non-Qualified Stock Option Agreement under the Liberty Broadband Corporation 2019 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.17 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2019 filed on February 3, 2020 (File No. 001-36713) (the "2019 10-K")) .

10.16+	Form of Performance-Based Restricted Stock Units Award Agreement under the Liberty Broadband Corporation 2019 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.18 to the 2019 10-K).
10.17+	Services Agreement, dated as of November 4, 2014, by and between Liberty Media Corporation and Liberty Broadband Corporation (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K, filed on November 14, 2014 (File No. 001-36713)).
10.18+	Form of First Amendment to Services Agreement, effective as of December 13, 2019, between Liberty Media Corporation and Qurate Retail, Inc., Liberty Broadband Corporation, GCI Liberty, Inc. and Liberty TripAdvisor Holdings, Inc. (incorporated by reference to Exhibit 10.20 to the 2019 10-K).
10.19+	Executive Employment Agreement, dated effective as of December 13, 2019, between Liberty Media Corporation and Gregory B. Maffei (incorporated by reference to Exhibit 10.1 to Liberty Media Corporation's Current Report on Form 8-K, filed on December 19, 2019 (File No. 001-35707)).
10.20+	Form of Annual Option Award Agreement between Liberty Broadband Corporation and Gregory B. Maffei under the Liberty Broadband Corporation 2019 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.3 to the Registrant's Current Report on Form 8-K filed on December 19, 2019 (Filed No. 001-36713) (the "December 2019 8-K")).
10.21+	Form of Annual Performance-based Restricted Stock Unit Award Agreement between Liberty Broadband Corporation and Gregory B. Maffei under the Liberty Broadband Corporation 2019 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.4 to the December 2019 8-K).
10.22+	Form of Upfront Award Agreement between Liberty Broadband Corporation and Gregory B. Maffei under the Liberty Broadband Corporation 2019 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.5 to the December 2019 8-K).
10.23	Assumption and Joinder Agreement to Tax Sharing Agreement, made and entered into as of August 6, 2020, by and among Liberty Broadband Corporation, GCI Liberty, Inc. and Qurate Retail, Inc. (incorporated by reference to Annex H to the Prospectus).
10.24	Tax Sharing Agreement, dated as of March 9, 2019, by and between GCI Liberty, Inc. and Qurate Retail, Inc. (incorporated by reference to Exhibit 10.1 to GCI Liberty, Inc.'s Current Report on Form 8-K filed on March 14, 2018 (File No. 001-38385) (the "March 2018 8-K")).
10.25	Assumption and Joinder Agreement to Indemnification Agreement, made and entered into as of August 6, 2020, by and among Liberty Broadband Corporation, GCI Liberty, Inc., Qurate Retail, Inc., Liberty Interactive LLC and LV Bridge, LLC (incorporated by reference to Annex I to the Prospectus).
10.26	Indemnification Agreement, dated as of March 9, 2018, by and among GCI Liberty, Inc., Liberty Interactive Corporation, Liberty Interactive LLC and LV Bridge, LLC (incorporated by reference to Exhibit 10.2 to the March 2018 8-K).
10.27	Assignment and Assumption Agreement, dated as of August 6, 2020, by and among Liberty Broadband Corporation, GCI Liberty, Inc., Grizzly Merger Sub 1, LLC, Qurate Retail, Inc. and Liberty Interactive LLC (incorporated by reference to Annex J to the Prospectus).
10.28	Agreement and Plan of Reorganization, dated as of April 4, 2017, by and among Liberty Interactive Corporation, Liberty Interactive LLC and General Communication, Inc. (incorporated by reference to Exhibit 2.1 to GCI Liberty, Inc.'s Current Report on Form 8-K/A filed on May 1, 2017 (File No. 000-15279)).
10.29	Amendment No. 1 to Reorganization Agreement, dated as of July 19, 2017, by and among Liberty Interactive Corporation, Liberty Interactive LLC, and General Communication, Inc. (incorporated by reference to Exhibit 10.4 to GCI Liberty, Inc.'s Quarterly Report on Form 10-Q for the quarter ended September 30, 2017 filed on November 2, 2017 (File No. 000-15279)).
10.30	Amendment No. 2 to Reorganization Agreement, dated as of November 8, 2017, by and among Liberty Interactive Corporation, Liberty Interactive LLC and General Communication, Inc. (incorporated by

	reference to Exhibit 10.1 to GCI Liberty, Inc.'s Current Report on Form 8-K filed on November 9, 2017 (File No. 000-15279)).
10.31	GCI Liberty, Inc. Transitional Stock Adjustment Plan (incorporated by reference to Exhibit 99.1 to GCI Liberty, Inc.'s Registration Statement on Form S-8 filed on March 15, 2018 (File No. 333-223667)).
10.32	Amendment, dated November 26, 2018, to the Amended and Restated 1986 Stock Option Plan of GCI Liberty, Inc. (Restated Effective September 26, 2014) (incorporated by reference to Exhibit 10.14 to GCI Liberty, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2018 filed on February 28, 2019 (File No. 001-38385)).
10.33	GCI Liberty, Inc. 2018 Omnibus Incentive Plan (incorporated by reference to Annex A to GCI Liberty's Proxy Statement on Schedule 14A filed on May 22, 2018 (File No. 001-38385)).
10.34	Amendment to The Liberty Broadband Corporation 2019 Omnibus Incentive Plan (incorporated by reference to Exhibit 99.7 to Liberty Broadband Corporation's Registration Statement on Form S-8 filed on December 22, 2020 (File No. 333-251570)).
10.35+	Form of Nonqualified Stock Option Agreement under the Liberty Broadband Corporation 2019 Omnibus Incentive Plan, as amended from time to time, for Nonemployee Directors (incorporated by reference to Exhibit 10.35 to the 2020 Form 10-K).
10.36+	Form of Restricted Stock Units Agreement under the Liberty Broadband Corporation 2019 Omnibus Incentive Plan, as amended from time to time, for Nonemployee Directors (incorporated by reference to Exhibit 10.36 to the 2020 Form 10-K).
10.37+	Form of Nonqualified Stock Option Agreement under the Liberty Broadband Corporation 2019 Omnibus Incentive Plan, as amended from time to time, for certain officers (incorporated by reference to Exhibit 10.37 to the 2020 Form 10-K).
10.38+	Form of Performance-Based Restricted Stock Units Agreement under the Liberty Broadband Corporation 2019 Omnibus Incentive Plan, as amended from time to time, for certain officers (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2021 filed on May 7, 2021 (File No. 001-36713)).
21	Subsidiaries of Liberty Broadband Corporation.*
23.1	Consent of KPMG LLP.*
23.2	Consent of KPMG LLP.*
31.1	Rule 13a-14(a)/15d - 14(a) Certification.*
31.2	Rule 13a-14(a)/15d - 14(a) Certification.*
32	Section 1350 Certification.**
99.1	Audited consolidated financial statements of Charter Communications, Inc. as of December 31, 2021 and 2020 and for each of the years ended December 31, 2021, 2020 and 2019 (incorporated by reference to Charter Communications, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2021 (File No. 001-33664), filed on January 28, 2022).
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because its XBRL tags are embedded with the Inline XBRL document.*
101.SCH	Inline XBRL Taxonomy Extension Schema Document.*
101.CAL	Inline XBRL Taxonomy Calculation Linkbase Document.*
101.LAB	Inline XBRL Taxonomy Label Linkbase Document.*
101.PRE	Inline XBRL Taxonomy Presentation Linkbase Document.*

101.DEF	Inline XBRL Taxonomy Definition Document.*
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

* Filed herewith.
** Furnished herewith.
\+ This document has been identified as a management contract or compensatory plan or arrangement.

Item 16. Form 10-K Summary.

Not applicable.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

LIBERTY BROADBAND CORPORATION

Date: February 25, 2022	By:	/s/ GREGORY B. MAFFEI Gregory B. Maffei *President and Chief Executive Officer*
Date: February 25, 2022	By:	/s/ BRIAN J. WENDLING Brian J. Wendling *Chief Accounting Officer and Principal Financial Officer*

Pursuant to the requirements of the Securities Exchange Act of 1934, this 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/John C. Malone John C. Malone	Chairman of the Board and Director	February 25, 2022
/s/Gregory B. Maffei Gregory B. Maffei	Director, Chief Executive Officer and President	February 25, 2022
/s/Brian J. Wendling Brian J. Wendling	Chief Accounting Officer and Principal Financial Officer	February 25, 2022
/s/J. David Wargo J. David Wargo	Director	February 25, 2022
/s/Richard R. Green Richard R. Green	Director	February 25, 2022
/s/John E. Welsh III John E. Welsh III	Director	February 25, 2022
/s/Sue Ann Hamilton Sue Ann Hamilton	Director	February 25, 2022
/s/Gregg L. Engles Gregg L. Engles	Director	February 25, 2022
/s/ Julie D. Frist Julie D. Frist	Director	February 25, 2022

Exhibit 21

As of December 31, 2021

A table of subsidiaries of Liberty Broadband Corporation is set forth below, indicating as to each the state or jurisdiction of organization and the names under which such subsidiaries do business. Subsidiaries not included in the table are inactive or, considered in the aggregate as a single subsidiary, would not constitute a significant subsidiary.

Entity Name	**Domicile**
Alaska United Fiber System Partnership	AK
BBN, Inc.	AK
Bortek, LLC	DE
Broadband Holdco, LLC	DE
Celebrate Interactive LLC (fka Celebrate Interactive Holdings, LLC)	DE
Communication Capital, LLC	DE
Cycle30, Inc.	AK
Denali Media Anchorage, Corp.	AK
Denali Media Holdings, Corp.	AK
Denali Media Juneau, Corp.	AK
Denali Media Southeast, Corp.	AK
GCI Cable, Inc.	AK
GCI Communication Corp.	AK
GCI Fiber Communication Co., Inc.	AK
GCI Holdings, LLC	DE
GCI NADC LLC	AK
GCI SADC LLC	AK
GCI Wireless Holdings, LLC	AK
GCI, LLC	DE
Grizzly Merger Sub 1, LLC	DE
Integrated Logic LLC	AK
JJCK, LLC (dba EmFinders)	TX
Kodiak-Kenai Cable Company, LLC	AK
Kodiak Kenai Fiber Link, Inc.	AK
LBC Cheetah 1, LLC	DE
LBC Cheetah 5, LLC	DE
LBC Cheetah 6, LLC	DE
LMC Cheetah 1, LLC	DE
LMC Cheetah 4, LLC	DE
LMC Social, LLC	DE
LV Bridge, LLC	DE
Potter View Development Co., Inc.	AK
Provide Gifts, Inc.	DE
Skyhook Holding, Inc. (fka TruePosition, Inc.)	DE
Skyhook International, Inc.	DE
Skyhook Wireless, Inc.	DE
Supervision, Inc.	AK
The Alaska Wireless Network, LLC	DE
TP Israel, LLC	DE

TP Nigeria, LLC (fka TruePosition Nigeria, LLC; fka TP Nigeria, LLC)	DE
TP UK, LLC	DE
Unicom, Inc.	AK
United Utilities, Inc.	AK
United2, LLC	AK
United-KUC, Inc.	AK
Ventures Holdco, LLC	DE
Ventures Holdco II, LLC	DE
Yukon Tech, Inc.	AK
Yukon Telephone Company, Inc.	AK

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following registration statements of our reports dated February 25, 2022, with respect to the consolidated financial statements of Liberty Broadband Corporation and subsidiaries and the effectiveness of internal control over financial reporting.

Description	Registration Statement No.	Description
S-8	333-200436	Liberty Broadband Corporation Transitional Stock Adjustment Plan, as amended
S-8	333-200438	Liberty Broadband Corporation 2014 Omnibus Incentive Plan (Amended and Restated as of March 11, 2015), as amended
S-8	333-233258	Liberty Broadband Corporation 2019 Omnibus Incentive Plan
S-3ASR	333-251569	Registration of shares of Liberty Broadband Corporation’s Series C Common Stock
S-8	333-251570	GCI Liberty, Inc. Transitional Stock Adjustment Plan; GCI 401(k) Plan; GCI Liberty, Inc. 2018 Omnibus Incentive Plan; Liberty Broadband Corporation 2019 Omnibus Incentive Plan, as amended

/s/ KPMG LLP

Denver, Colorado
February 25, 2022

Exhibit 23.2

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the registration statement Nos. 333-200436, 333-200438, 333-233258 and 333-251570 on Form S-8 and No. 333-251569 on Form S-3ASR of Liberty Broadband Corporation of our report dated January 27, 2022, with respect to the consolidated financial statements of Charter Communications Inc. which report is incorporated by reference in the Form 10-K of Liberty Broadband Corporation dated February 25, 2022.

/s/ KPMG LLP

St. Louis, Missouri
February 24, 2022

EXHIBIT 31.1

CERTIFICATION

I, Gregory B. Maffei, certify that:

1. I have reviewed this annual report on Form 10-K of Liberty Broadband Corporation, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: February 25, 2022

/s/ GREGORY B. MAFFEI
Gregory B. Maffei
President and Chief Executive Officer

EXHIBIT 31.2

CERTIFICATION

I, Brian J. Wendling, certify that:

1. I have reviewed this annual report on Form 10-K of Liberty Broadband Corporation, Inc.;
2. Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this annual report;
3. Based on my knowledge, the financial statements and other financial information included in this annual report fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this annual report;
4. The registrant's other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f))for the registrant and we have:
   a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;
   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures as of the end of the period covered by this annual report based on such evaluation; and
   d) disclosed in this annual report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officers and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent function):
   a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 25, 2022

/s/ BRIAN J. WENDLING
Brian J. Wendling
Chief Accounting Officer and Principal Financial Officer

Exhibit 32

Certification

Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
(Subsections (a) and (b) of Section 1350, Chapter 63 of Title 18, United States Code)

Pursuant to section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of section 1350, chapter 63 of title 18, United States Code), each of the undersigned officers of Liberty Broadband Corporation, a Delaware corporation (the "Company"), does hereby certify, to such officer's knowledge, that:

The Annual Report on Form 10-K for the period ended December 31, 2021 (the "Form 10-K") of the Company fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934 and information contained in the Form 10-K fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated:	February 25, 2022	/s/ GREGORY B. MAFFEI
		Gregory B. Maffei *President and Chief Executive Officer*
Dated:	February 25, 2022	/s/ BRIAN J. WENDLING
		Brian J. Wendling *Chief Accounting Officer and Principal Financial Officer*

The foregoing certification is being furnished solely pursuant to section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of section 1350, chapter 63 of title 18, United States Code) and is not being filed as part of the Form 10-K or as a separate disclosure document.