

CCO HOLDINGS, LLC
CCO HOLDINGS CAPITAL CORP.
FORM 10-K — FOR THE YEAR ENDED DECEMBER 31, 2021

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This annual report on Form 10-K is for the year ended December 31, 2021. The United States Securities and Exchange Commission (“SEC”) allows us to “incorporate by reference” information that we file with the SEC, which means that we can disclose important information to you by referring you directly to those documents. Information incorporated by reference is considered to be part of this annual report. In addition, information that we file with the SEC in the future will automatically update and supersede information contained in this annual report. In this annual report, “CCO Holdings,” “we,” “us” and “our” refer to CCO Holdings, LLC and its subsidiaries.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS:

This annual report includes forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the “Securities Act”), and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), regarding, among other things, our plans, strategies and prospects, both business and financial including, without limitation, the forward-looking statements set forth in Part I. Item 1. under the heading “Business” and in Part II. Item 7. under the heading “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in this annual report. Although we believe that our plans, intentions and expectations reflected in or suggested by these forward-looking statements are reasonable, we cannot assure you that we will achieve or realize these plans, intentions or expectations. Forward-looking statements are inherently subject to risks, uncertainties and assumptions, including, without limitation, the factors described in Part I. Item 1A. under “Risk Factors” and in Part II. Item 7. under the heading, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in this annual report. Many of the forward-looking statements contained in this annual report may be identified by the use of forward-looking words such as “believe,” “expect,” “anticipate,” “should,” “planned,” “will,” “may,” “intend,” “estimated,” “aim,” “on track,” “target,” “opportunity,” “tentative,” “positioning,” “designed,” “create,” “predict,” “project,” “initiatives,” “seek,” “would,” “could,” “continue,” “ongoing,” “upside,” “increases,” “grow,” “focused on” and “potential,” among others. Important factors that could cause actual results to differ materially from the forward-looking statements we make in this annual report are set forth in this annual report and in other reports or documents that we file from time to time with the SEC, and include, but are not limited to:

- our ability to sustain and grow revenues and cash flow from operations by offering Internet, video, voice, mobile, advertising and other services to residential and commercial customers, to adequately meet the customer experience demands in our service areas and to maintain and grow our customer base, particularly in the face of increasingly aggressive competition, the need for innovation and the related capital expenditures;
- the impact of competition from other market participants, including but not limited to incumbent telephone companies, direct broadcast satellite (“DBS”) operators, wireless broadband and telephone providers, digital subscriber line (“DSL”) providers, fiber to the home providers and providers of video content over broadband Internet connections;
- general business conditions, unemployment levels and the level of activity in the housing sector and economic uncertainty or downturn, including the impacts of the Novel Coronavirus (“COVID-19”) pandemic to sales opportunities from residential move activity, our customers, our vendors and local, state and federal governmental responses to the pandemic;
- our ability to obtain programming at reasonable prices or to raise prices to offset, in whole or in part, the effects of higher programming costs (including retransmission consents and distribution requirements);
- our ability to develop and deploy new products and technologies including consumer services and service platforms;
- any events that disrupt our networks, information systems or properties and impair our operating activities or our reputation;
- the effects of governmental regulation on our business including subsidies to consumers, subsidies and incentives for competitors, costs, disruptions and possible limitations on operating flexibility related to, and our ability to comply with, regulatory conditions applicable to us;
- the ability to hire and retain key personnel;
- our ability to procure necessary services and equipment from our vendors in a timely manner and at reasonable costs;
- the availability and access, in general, of funds to meet our debt obligations prior to or when they become due and to fund our operations and necessary capital expenditures, either through (i) cash on hand, (ii) free cash flow, or (iii) access to the capital or credit markets; and
- our ability to comply with all covenants in our indentures and credit facilities, any violation of which, if not cured in a timely manner, could trigger a default of our other obligations under cross-default provisions.

All forward-looking statements attributable to us or any person acting on our behalf are expressly qualified in their entirety by this cautionary statement. We are under no duty or obligation to update any of the forward-looking statements after the date of this annual report.

PART I

Item 1. *Business.*

Introduction

We are a leading broadband connectivity company and cable operator serving more than 32 million customers in 41 states through our Spectrum brand. Over an advanced high-capacity, two-way telecommunications network, we offer 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. We also distribute award-winning news coverage, sports and high-quality original programming to our customers through Spectrum Networks and Spectrum Originals.

CCO Holdings is a holding company whose principal assets are the equity interests in its operating subsidiaries. CCO Holdings is a direct subsidiary of CCH I Holdings, LLC, which is an indirect subsidiary of Charter Communications, Inc. ("Charter"), Charter Communications Holdings, LLC ("Charter Holdings") and Spectrum Management Holding Company, LLC.

Our network, which we own and operate, passes over 54 million households and small and medium businesses ("SMBs") across the United States. Our core strategy is to use our 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 our goal of growing our customer base while selling more of our core connectivity services, which include both fixed and mobile Internet, video and voice services, to each customer. We execute this strategy by managing our operations in a consumer-friendly, efficient and cost-effective manner. Our operating strategy includes insourcing nearly all of our customer care and field operations workforces, which results in higher quality customer service. While an insourced operating model can increase the field operations and customer care costs associated with individual service transactions, the higher quality nature of insourced labor service transactions significantly reduces the volume of service transactions per customer, more than offsetting the higher investment made in each insourced service transaction. As we reduce the number of service transactions and recurring costs per customer relationship, we continue to provide our customers with products and prices that we believe provide more value than what our competitors offer. The combination of offering high quality, competitively priced products and outstanding service, allows us to both increase the number of customers we serve over our fully deployed network, and to increase the number of products we sell to each customer. This combination also reduces the number of service transactions we perform per relationship, yielding higher customer satisfaction and lower customer churn, resulting in lower costs to acquire and serve customers and greater profitability.

We have enhanced our service operations to allow our customers to (1) more frequently interact with us through our customer website and My Spectrum application, online chat and social media, (2) have their services installed at the time and in the manner of their own choosing, including self-installation, and (3) receive a variety of video packages on an increasing number of connected devices including those owned by us and those owned by the customer. By offering our customers growing levels of choices in how they receive and install their services and how they interact with us, we are driving higher overall levels of customer satisfaction and reducing our operating costs and capital expenditures per customer relationship. Ultimately, our operating strategy enables us to offer high quality, competitively priced services profitably, while continuing to invest in new products and services.

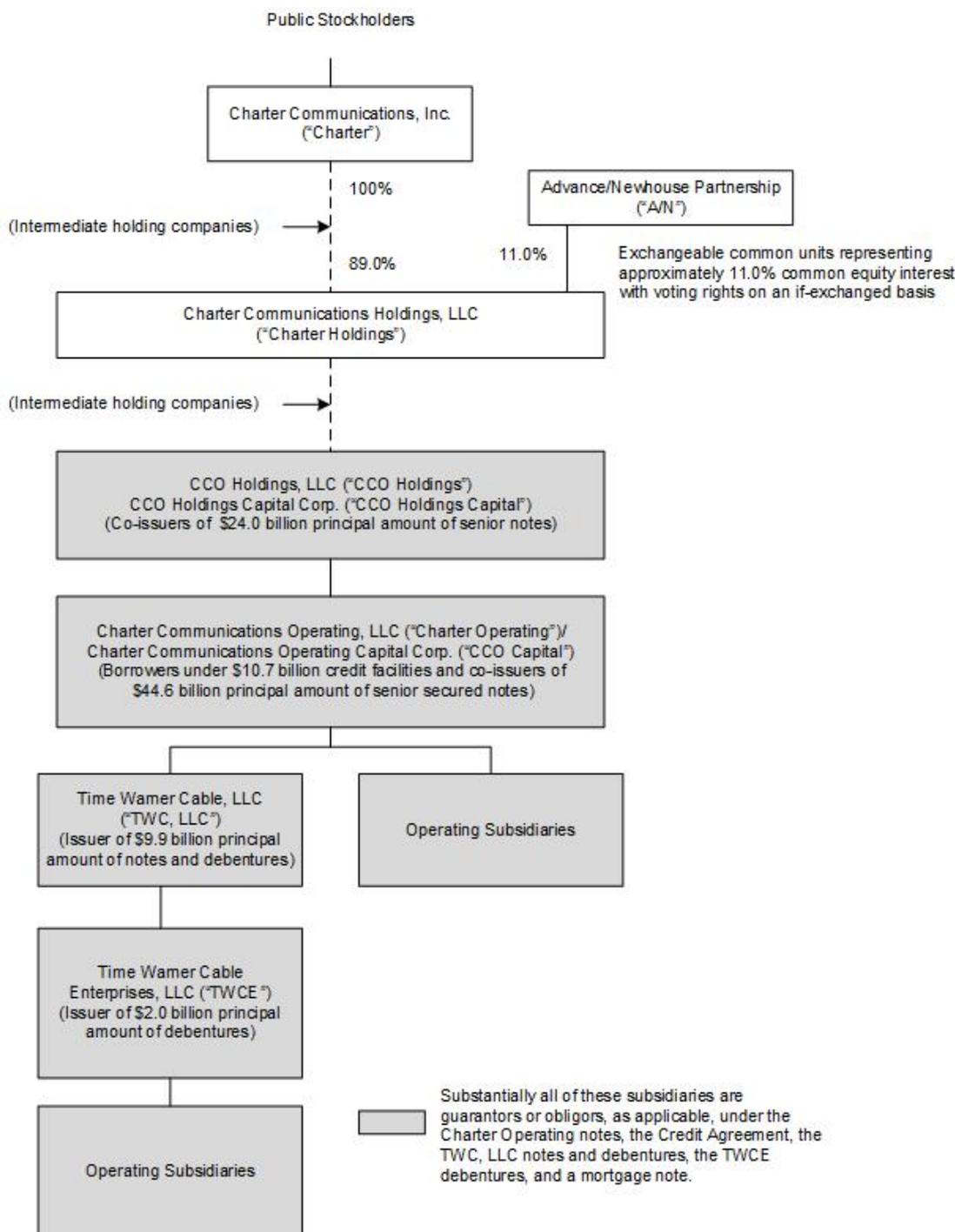
The capability and functionality of our network continues to grow in a number of areas, especially with respect to wireless connectivity. Our Internet service offers consumers the ability to wirelessly connect to our network using WiFi technology. We estimate that over 400 million devices are wirelessly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

Our principal executive offices are located at 400 Washington Blvd., Stamford, Connecticut 06902. Our telephone number is (203) 905-7801, and Charter has a website accessible at ir.charter.com. Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, and all amendments thereto, are available on Charter's website free of charge

as soon as reasonably practicable after they have been filed. The information posted on Charter's website is not incorporated into this annual report.

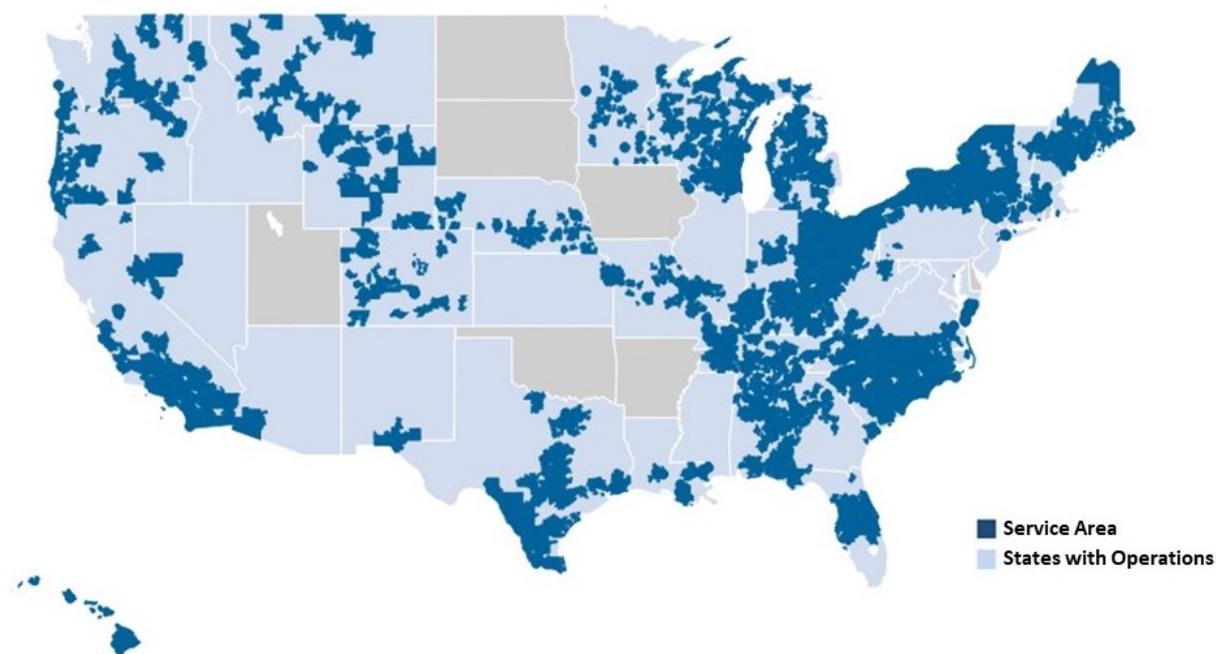
Corporate Entity Structure

The chart below sets forth our entity structure and that of our direct and indirect parents and subsidiaries. The chart does not include all of our affiliates and subsidiaries and, in some cases, we have combined separate entities for presentation purposes. The equity ownership percentages shown below are approximations. Indebtedness amounts shown below are principal amounts as of December 31, 2021. See Note 9 to the accompanying consolidated financial statements contained in “Part II. Item 8. Financial Statements and Supplementary Data,” which also includes the accreted values of the indebtedness described below.



Footprint

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



Products and Services

We offer our customers subscription-based Internet services, video services, and mobile and voice services. Our 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 our services. Bundled services are available to substantially all of our passings, and approximately 53% of our residential customers subscribe to a bundle of services including some combination of our Internet, video and/or voice products.

The following table summarizes our 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) We calculate 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

We provide our customers with a suite of connectivity services including fixed Internet, WiFi and mobile Internet which when bundled together provides our customers with a differentiated Internet connectivity experience while saving consumers and businesses money.

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

We also offer an in-home WiFi product that provides our Internet customers with high performance wireless routers and a managed WiFi service to maximize their fixed wireless Internet experience. During 2021, we completed our roll out of the Advanced Home WiFi (“AHW”) service which is now available across nearly all of our 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 our 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, we 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, we 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.

Our Spectrum Mobile service is offered to customers subscribing to our fixed Internet service, and runs on Verizon’s mobile network, combined with Spectrum WiFi. We offer nationwide 5G service at no incremental cost to our 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, we continue to focus on improving the customer experience and integrating our mobile and fixed Internet products, providing greater WiFi access, speeds and performance using more than 500,000 of our out of home WiFi access points across our footprint combined with over 20 million out of home WiFi access points of our industry partners providing near nationwide coverage.

We provide wireline voice communications services using voice over Internet protocol (“VoIP”) technology to transmit digital voice signals over our network. Our 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 our voice and video offerings, caller ID on TV is also available in most areas. In early 2021, we launched Call Guard, a new advanced caller ID and robocall blocking solution, for our residential and SMB voice customers. Call Guard reduces customer frustration and improves security by blocking malicious calls while ensuring our customers continue to receive the legitimate automated calls they need from schools or healthcare providers.

Video Services

We provide our customers with a choice of video programming services on a variety of platforms including through a digital set-top box or an Internet Protocol (“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 our customers to access the programming they want, when they want it, on any device. Our 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. Our video service also includes access to an interactive programming guide with parental controls and in virtually all of our 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. We also offer 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 our highly rated Spectrum TV® application via connected IP devices via our 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

We offer 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 our hybrid fiber coaxial network. In addition, we offer our 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 our 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. We also offer Wireless Internet Backup to our SMB customers throughout our 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

Our 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. We receive revenues from the sale of local advertising across various platforms for networks such as TBS, CNN and ESPN and on our Spectrum TV application. We insert local advertising on up to 100 channels in over 90 markets. Our 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. Our size also provides scale to invest in new technology to create more targeted and addressable advertising capabilities.

Available advertising time is generally sold by our advertising sales force. In some service areas, we have 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 we sell advertising on behalf of those operators. In other service areas, we enter into representation agreements under which another operator in the area will sell advertising on our behalf. These arrangements enable us and our partners to deliver linear commercials across wider geographic areas, replicating the reach of local broadcast television stations to the extent possible. In addition, we enter 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, we sell the advertising inventory of our owned and operated local sports and news channels, of our 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, we continued to expand our deployment of household addressability ("HHA"), which allows for more precise targeting within various parts of our footprint. Additionally, in conjunction with other MVPDs, Spectrum Reach enables affiliated cable networks to deploy HHA on their own inventory in our footprint, charging them an enablement fee. We also continue to further enhance our Ad Portal, which allows small businesses to purchase local cable advertising and/or creative services via our web portal with no sales personnel interaction at a price within their budgets. Our fully deployed Audience App, which uses our proprietary set-top box viewership data (all anonymized and aggregated), allows us 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 our 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

We have an agreement with the Los Angeles Lakers for rights to distribute all locally available Los Angeles Lakers' games through 2033. We broadcast those games on our 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, we act as the network's exclusive affiliate and advertising sales representative and have certain branding and programming rights with respect to the network. In addition, we provide certain production and technical services to American Media Productions. The affiliate, advertising, production and programming agreements continue through 2038. We also own 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

We manage 34 local news channels, including Spectrum News NY1[®] and LA1, 24-hour news channels focused on New York City and Los Angeles, respectively. Our local news channels connect the diverse communities and neighborhoods we serve providing 24/7 hyperlocal content, focusing on news, programming and storytelling that addresses the deeper needs and interests of our customers. We also provide the Spectrum News application where customers can read, watch and listen to news stories by our Spectrum News journalists and local partner publications on their mobile device.

Pricing of Our Products and Services

Our revenues are principally derived from the monthly fees customers pay for the services we provide. We typically charge a one-time installation fee which is sometimes waived or discounted in certain sales channels during certain promotional periods.

Our 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. We believe SPP:

- offers a higher quality and more value-based set of services relative to our competitors, including fast Internet speeds, hundreds of HD channels and a transparent pricing structure;
- offers simplicity for customers to understand our offers, and for our employees in service delivery;
- drives our ability to package more services at the time of sale, thus increasing revenue per customer;

- drives higher customer satisfaction, lower service calls and churn; and
- allows for gradual price increases at the end of promotional periods.

We also have specialized offerings to enhance affordability of our Internet product for qualified low-income households which include our Spectrum Internet Assist product which offers a 30 Mbps service and a free modem for a low cost. In addition, some of our customers are eligible for a subsidy through the Federal Communications Commission's ("FCC") Affordable Connectivity Program which provides eligible low-income households with up to \$30 per month towards Internet service.

Our 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, we 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. Our device portfolio includes 5G models from Apple, Google and Samsung and we offer trade-in options along with a bring-your-own-device ("BYOD") program which lowers the costs for our customers switching to Spectrum Mobile from other mobile operators.

Our Network Technology

Our network includes three key components: a national backbone, regional/metro networks and a "last-mile" network. Both our 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.

Our 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, we deliver our signals via fiber optic cable from the headend to a group of nodes, and use coaxial cable to deliver the signal from individual nodes to the homes served by that node. For our Spectrum Enterprise customers, fiber optic cable is extended to the customer's site. For certain new build and MDU sites, we increasingly bring fiber to the customer site. Our design standard allows spare fiber strands to each node to be utilized for additional residential traffic capacity, and enterprise customer needs as they arise. We believe 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 our future 5G small cell access points; and
- the ability to upgrade capacity at a lower incremental capital cost relative to our competitors.

Our systems provide a two-way all-digital platform, leveraging DOCSIS 3.1 technology and bandwidth of 750 megahertz or greater, to approximately 100% of our estimated passings. This bandwidth-rich network enables us 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. We believe as demand for data continues to grow, with our deployed DOCSIS 3.1 technology, we have the ability to increase speeds and reliability by allocating more of our plant bandwidth to both upstream and downstream IP services in a variety of ways, including moving our video services to MPEG-4 compression, moving more HD video content to switched digital video and more efficiently packaging our traditional linear video services. We are also evaluating additional network enhancements to increase the capacity of our network for next generation products and services that give us 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 we are currently developing with key vendors and industry participants. In 2022, we will continue to deploy high splits in our service areas which are a capital efficient means of enhancing our 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.

We own 210 CBRS PALs and intend to use these licenses along with unlicensed CBRS spectrum to build our own 5G data-only mobile network on targeted 5G small cell sites leveraging our 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 our cost structure. We are focused on scaling our systems to actively manage traffic on Spectrum Mobile devices using our MVNO network through WiFi and future 5G mobile network. In addition, we plan on deploying some targeted 5G small cell sites which will help us learn how to pace our broader multi-year 5G mobile network buildout based on disciplined cost reduction targets.

In 2021, we continued our rural broadband construction initiative in which we intend to expand our network and offer reliable broadband services of up to one Gbps to more than one million estimated passings in unserved areas in states where we currently operate. We expect to invest over \$5 billion over the next several years, a portion of which we expect 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 we expect to become available. In addition to construction in areas subsidized by various government grants, which could be material, we expect to continue rural construction in areas near our current plant and in areas surrounding subsidized construction where synergies can be achieved. These investments will allow us to generate long-term infrastructure-style returns by further taking advantage of the efficiencies of the scale and quality of our network and construction capabilities while offering our high quality products and services to more homes and businesses. We expect 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 our high-value SPP structure including our voice and mobile offerings, as well as our 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 the company to financial penalties.

Management, Customer Operations and Marketing

Our 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 our network which is located outdoors. Our field operations strategy includes completing a significant portion of our activity with our employees which we find drives consistent and higher quality services. In 2021, our in-house field operations workforce handled approximately 80% of our customer premise service transactions.

We continue to focus on improving the customer experience through enhanced product offerings, reliability of services, and delivery of quality customer service. As part of our operating strategy, we insource most of our customer operations workload. Our in-house call centers handle nearly all of our total customer service calls. We manage our customer service call centers centrally to ensure a consistent, high quality customer experience. In addition, we route 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 our call centers continues to become more efficient as a result of new tool enhancements that give our 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. Our call center agent desktop interface tool enables virtualization of all call centers thereby better serving our customers. Virtualization allows calls to be routed across our call centers regardless of the location origin of the call, reducing call wait times, and saving costs. We continue to migrate our call centers to full virtualization and expect all our call centers to be fully virtualized by late 2022.

We also provide customers with the opportunity to interact with us in the manner they choose through self-service options on our customer website and mobile device applications, or via telephonic communication, online chat and social media. Our 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, our 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.

We sell our residential and commercial services using national brand platforms known as Spectrum, Spectrum Business, Spectrum Enterprise and Spectrum Reach. These brands reflect our comprehensive approach to industry-leading products, driven by speed, performance and innovation. Our marketing strategy emphasizes the sale of our bundled services through

targeted direct response marketing programs to existing and potential customers, and increases awareness and the value of the Spectrum brand. Our marketing organization creates and executes marketing programs intended to grow customer relationships, increase the number of services we sell per relationship, retain existing customers and cross-sell additional products to current customers. We monitor the effectiveness of our marketing efforts, customer perception, competition, pricing, and service preferences, among other factors, in order to increase our responsiveness to our customers and to improve our sales and customer retention. The marketing organization manages all residential and SMB sales channels including inbound, direct sales, on-line, outbound telemarketing and stores.

Programming

We believe that offering a wide variety of video programming choices influences a customer's decision to subscribe to and retain our cable video services. We obtain 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 us for a license fee, which is generally paid based on the number of customers to whom we make 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, we typically receive a percentage of the revenue attributable to our customers' purchases. We also offer 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 our programming budget, recently we have begun entering into agreements to co-produce or exclusively license original content which give us the right to provide our customers with certain exclusive content for a period of time.

Our programming costs have historically increased in excess of customary inflationary and cost-of-living type increases. We expect programming costs per customer to increase due to a variety of factors including, annual increases pursuant to our 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 our 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 us to carry their most popular networks to a large percentage of our video subscribers, have limited our 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, we are 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 our programming costs or require us to cease carriage of popular programming, potentially leading to a loss of customers in affected service areas.

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

Our 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. We will seek to renew these agreements on terms that we believe are favorable. There can be no assurance, however, that these agreements will be renewed on favorable or comparable terms. To the extent that we are unable to reach agreements with certain programmers on terms that we believe are reasonable, we have been, and may in the future be, forced to remove such programming channels from our line-up, which may result in a loss of customers.

Competition

Residential Services

We 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

Our residential Internet service faces competition across our footprint from fiber-to-the-home ("FTTH"), fiber-to-the-node ("FTTN"), fixed wireless broadband, Internet delivered via satellite and DSL services. AT&T, Frontier Communications Corporation's ("Frontier") fiber optic service ("FiOS" or "Fios") and Verizon's Fios are our primary FTTH competitors. Given the FTTH deployments of our 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 our footprint. In several markets, we 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 Long Term Evolution ("LTE") or 5G delivered fixed wireless home Internet service in an increasing number of our markets. DSL service is offered across our footprint often at prices lower than our Internet services, although typically at speeds much lower than the minimum speeds we offer as part of SPP. 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. We face 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 our operating areas, respectively.

Video Competition

Our residential video service faces competition from DBS service providers, which have a national footprint and compete in all of our 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 our residential video service. Our 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 our operating areas.

Our residential video service also faces growing competition across our footprint 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 we currently purchase 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, we have generally viewed SVOD online video services as complementary to our own video offering, and we have 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 our video product.

Voice Competition

Our residential voice service competes with wireless and wireline phone providers across our footprint, as well as other forms of communication, such as text messaging on cellular phones, instant messaging, social networking services, video conferencing and email. We 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 we operate our residential voice service.

Mobile Competition

Our mobile service faces 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. 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 Department of Justice ("DOJ") have imposed a timeline on Dish Network Corporation (70% by June 2023) for 5G network development and expansion. We also compete for retail activations with other resellers that buy bulk wholesale service from wireless service providers for resale.

Regional Competitors

In some of our operating areas, other competitors have built networks that offer Internet, video and voice services that compete with our services. For example, in certain service areas, our 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 ("SMATV") systems serving MDUs, such as condominiums, apartment complexes, and private residential communities.

Business Services

We face intense competition across each of our business services product offerings. Our SMB Internet, video and voice services face competition from a variety of providers as described above. Our 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.

Advertising

We 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. We 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.

Seasonality and Cyclicity

Our business is subject to seasonal and cyclical variations. Our results are impacted by the seasonal nature of customers receiving our cable services in college and vacation service areas. Our revenue is subject to cyclical advertising patterns and changes in viewership levels. Our advertising revenue is generally higher in the second and fourth calendar quarters of each year, due in part to increases in consumer advertising in the spring and in the period leading up to and including the holiday season. U.S. advertising revenue is also cyclical, benefiting in even-numbered years from advertising related to candidates running for political office and issue-oriented advertising. Our capital expenditures and trade working capital are also subject to significant seasonality based on the timing of subscriber growth, network programs, specific projects and construction.

Regulation and Legislation

The following summary addresses the key regulatory and legislative developments affecting the cable industry and our 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 us to substantial penalties. Our business 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.

We could be materially disadvantaged in the future if we are subject to new laws, regulations or regulatory actions that do not equally impact our key competitors. For example, Internet-delivered streaming video services compete with our traditional video service, but they are not subject to the same level of federal, state, and local regulation. We cannot provide assurance that the already extensive regulation of our business will not be expanded in the future. In addition, we are subject to Charter-specific conditions regarding certain business practices as a result of the FCC's approval of the merger in 2016 with Time Warner Cable Inc. ("TWC") and acquisition of Bright House Networks, LLC ("Bright House").

Video Service

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 popular 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 our operating costs.

Pole Attachments

The Communications Act of 1934, as amended (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 services, including when offered together with Internet service, 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.

Other FCC Regulatory Matters

The Communications Act and FCC regulations cover a variety of additional areas applicable to our 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 our business practices to varying degrees and may impose additional costs on our operations.

The FCC regulates spectrum usage in ways that could impact our operations including for microwave backhaul, broadcast, unlicensed WiFi and CBRS. Our ability to access and use 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 our 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 we cannot predict at this time how that might impact our business.

Copyright

The carriage of television and radio broadcast signals by cable systems are subject to a federal compulsory copyright license. The copyright law provides copyright owners the right to audit our 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 our ability to obtain desired broadcast programming.

Franchise Matters

Our 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 Communications Act provides for an orderly franchise renewal process in which granting authorities may not unreasonably deny renewals. If we fail to obtain renewals of franchises representing a significant number of our customers, it could have a material adverse effect on our consolidated financial condition, results of operations, or our 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.

Internet Service

The FCC originally classified broadband Internet access services, such as those we 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 2017, the FCC reversed its 2015 decision and eliminated the 2015 rules, other than a transparency requirement, which obligates us 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 our Internet services could adversely affect our business.

The 2017 FCC decision 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 U.S. 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 were eliminated by the FCC, and the California rules are subject to a pending preemption challenge in federal court.

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. We cannot predict what other legislation and regulations may be adopted by states or how challenges to such requirements will be resolved.

In recent years, the 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 we already serve and to promote 5G wireless broadband services create regulatory imbalances that could adversely affect our business.

We have opposed such subsidies when directed to areas that are already served, and have sought and expect to continue to seek subsidies for our own broadband construction in unserved and underserved areas including RDOF, ARPA, Capital Projects Fund, National Telecommunications and Information Administration grants and the Infrastructure Act. We were the winning bidder for RDOF awards in the amount of \$1.2 billion over ten years that will partially fund, along with our 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 we fail to meet these obligations, we could be subject to substantial government penalties.

Aside from the FCC's generally applicable regulations, we made certain commitments to comply with the FCC's order in connection with the FCC's approval of the merger with TWC and acquisition of Bright House.

Wireline Voice Service

The FCC has never classified the VoIP wireline telephone services we 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), Universal Service Fund 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 our VoIP telephone services in the future.

Our 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, we have chosen in the RDOF areas to offer certain of our VoIP telephone services, such as our federal or state Lifeline services, subject to traditional federal and state common carrier regulations. Except where we have chosen to offer VoIP telephone services in such a manner we believe that our VoIP telephone services should be governed primarily by federal regulation – e.g., some state regulations also apply to our VoIP service including consumer protection and 911 rules. A federal appellate court affirmed our successful challenge to Minnesota's attempt to generally apply telephone regulation to our VoIP services, but that ruling is limited to the seven states in the 8th circuit. Some states have attempted to subject cable VoIP services, such as our VoIP telephone service, to state level regulation. California has imposed reporting and other obligations on our VoIP services, including backup power requirements. We have registered with or obtained certificates or authorizations from the FCC and the state regulatory authorities in those states in which we offer competitive voice services in order to ensure the continuity of our 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 our fixed telephone services.

Mobile Service

Our Spectrum Mobile service offers mobile Internet access and telephone service. We provide this service as an MVNO using Verizon's network and our network through Spectrum WiFi. As an MVNO, we are 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 our business generally.

Privacy and Information Security Regulation

The Communications Act limits our ability to collect, use, and disclose customers' personally identifiable information for our Internet, video and voice services. We 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 our 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 our use and disclosure of certain customer information.

Our 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 framework 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 cybersecurity framework 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 cybersecurity framework, including the FCC, which is also considering expansion of its cybersecurity guidelines or the adoption of cybersecurity requirements. We voluntarily follow NIST as part of our overall cybersecurity program.

Many states and local authorities have considered legislative or other actions that would impose restrictions on our ability to collect, use and disclose, and safeguard certain consumer information, particularly with regard to our 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 Consumer Privacy Rights Act ("CPRA"), 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 our business. Congress may also adopt new privacy and data security obligations. We cannot predict whether any of these efforts will be successful or preempted, or how new legislation and regulations, if any, would affect our business.

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

In connection with approval of the 2016 merger with TWC and acquisition of Bright House (the "Transactions"), federal and state regulators imposed a number of post-transaction conditions on us, 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 us 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 ("OVDs"). We will not be able to avail ourselves 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 we may petition the DOJ to eliminate the conditions after five years. We do not currently expect to so petition.

Human Capital Management

Successful execution of our strategy is dependent on attracting, developing and retaining key employees and members of our management team. We may be constrained in hiring and retaining sufficient qualified employees to support our growth strategy due to general labor shortages, including potential employee attrition in connection with government or customer COVID-19 vaccine or testing mandates.

We believe the substantial skills, experience and industry knowledge of our employees and our training of our customer-facing employees benefit our operations and performance. There are several ways in which we attract, develop, and retain highly qualified talent, including:

- **Training and investing in our employees to be masters of their craft.** With competitive wages, robust healthcare benefits, a generous retirement program with company match, and opportunities for job training and advancement, our employees develop skills and expertise necessary to build careers. Our Broadband Technician Apprenticeship Program is one of our promising strategies for building our skilled workforce. This program, certified by the U.S. Department of Labor, is aligned with our broadband technician career progression and includes thousands of hours of on-the-job training along with classroom instruction. When enrolled employees complete the program, they are certified broadband technicians.

The majority of our employees are customer-facing, interacting with thousands of people every day. In March 2021, we increased our minimum wage from \$16.50 to \$18.00 per hour and committed that in 2022 all hourly employees will have a minimum starting rate of \$20 per hour. A \$20 per hour minimum wage will enable us to build and retain our highly skilled workforce.

- **Enabling a diverse and inclusive culture.** At Charter, diversity and inclusion mean more than legal or compliance requirements. We are committed to diversity and inclusion in every aspect of our business. We strive to deliver high-quality products and services that exceed our customers' expectations, and embrace the unique perspectives and experiences of our employees and partners and the communities we serve. Our diversity and inclusion efforts are guided by our Executive Steering Committee, External Diversity & Inclusion Council and Diversity & Inclusion team, who regularly assess our progress to ensure we are achieving our goals. Charter's Board of Directors also reviews diversity and inclusion progress annually. We are striving to enhance diversity at every level of our organization, including among our senior leaders.

We have five Business Resource Groups ("BRGs") focused on people with disabilities, the LGBTQ+ community, employees with multicultural backgrounds, veterans and women. These voluntary groups connect employees with shared characteristics, life experiences, and interests, and enable them to engage in activities that advance our culture of inclusion and contribute to business success. Our BRGs have empowered our team members to grow and succeed by providing networking, mentorship and skill-building opportunities. In 2021, we continued our Charter Inclusion Talks, an internal speaker series built around cultural heritage and identity. Charter Inclusion Talks, which are held across our footprint, raise awareness of the many identities and heritages that contribute to our success and promote inclusive behaviors for the workplace.

- **Focusing on a safe and healthy workplace.** We value our employees and are committed to providing a safe and healthy workplace. All employees are required to comply with company safety rules and expectations, and are expected to actively contribute to making our company a safer place to work, including in response to COVID-19.

Employees

As of December 31, 2021, we had approximately 93,700 active full-time equivalent employees.

Item 1A. Risk Factors.

Risks Related to Our Business

We operate in a very competitive business environment, which affects our ability to attract and retain customers and can adversely affect our business, operations and financial results.

The industry in which we operate is highly competitive and has become more so in recent years. In some instances, we compete 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 our competitors, either through access to financing, resources, or efficiencies of scale including the ability to launch new video services.

Our 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. Our 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 our ability to attract and retain customers.

Our 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 we face.

The increasing number of choices available to audiences, including low-cost or free choices, could negatively impact not only consumer demand for our products and services, but also advertisers' willingness to purchase advertising from us. We compete 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 our service offerings to businesses continues to increase as well, as more companies deploy more fiber to more buildings, which may negatively impact our growth and/or put pressure on margins.

Our failure to effectively anticipate or adapt to new technologies and changes in customer expectations and behavior could significantly adversely affect our competitive position with respect to the leisure time and discretionary spending of our customers and, as a result, affect our business and results of operations. Competition may also reduce our expected growth of future cash flows which may contribute to future impairments of our franchises and goodwill and our ability to meet cash flow requirements, including debt service requirements. For additional information regarding the competition we face, see "Item 1. Business -Competition" and "-Regulation and Legislation."

The ongoing COVID-19 pandemic could materially affect our financial condition and results of operations.

The ongoing COVID-19 pandemic has increased economic and demand uncertainty. The current pandemic and continued spread of COVID-19 has caused economic disruption. At this time, we cannot predict the duration of any business disruption and the ultimate impact of COVID-19 on our business, including the depth and duration of the economic impact to household formation and growth, our residential and business customers' ability to pay for our products and services and the long-term impact on our business, including from consumer behavior, after the pandemic is over. In addition, there is uncertainty regarding the impact of government emergency declarations, the ability of our suppliers and vendors to provide products and services to us, the pace of new housing construction, the pace of households moving residences, changes in business spend in our local and national ad sales business, the effects to our employees' health and safety and resulting reorientation of our work activities, and the risk of limitations on the deployment and maintenance of our services (including by limiting our customer support and on-site service repairs and installations). The degree to which COVID-19 impacts our results will depend on future developments, which are highly uncertain and cannot be predicted, including, but not limited to, the duration and spread of the outbreak, its severity, the actions to contain the virus or treat its impact, the distribution and acceptance of vaccines and how quickly and to what extent normal economic and operating conditions can resume.

We depend on third-party service providers, suppliers and licensors; thus, if we are unable to procure the necessary services, equipment, software or licenses on reasonable terms and on a timely basis, our ability to offer services could be impaired, and our growth, operations, business, financial results and financial condition could be materially adversely affected.

We depend 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 our services. Some of our hardware, software and operational support vendors, and service providers represent our sole source of supply or have, either through contract or as a result of intellectual property rights, a position of some exclusivity. Our 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 our ability to serve our customers, if any of these parties experience or engage in the following:

- breach or terminate or elect not to renew their agreements with us 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 we pay;
- experience operating or financial difficulties;
- significantly increase the amount we are 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 we need in a timely manner at our specifications and at reasonable prices.

Our 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 our 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 our 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 our ability to retain and attract customers and our operations, business, financial results and financial condition.

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

Video programming has been, and is expected to continue to be, our 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. We expect 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 our customers has had, and is expected in the future to have, an adverse impact on our cash flow and operating margins associated with the video product. Programming contracts often restrict the structure of the video packages we offer which impacts the affordability and competitive positioning of our 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 our own 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 revenues at risk, and which in turn may cause certain programmers to seek even higher programming fees from us. The ability for consumers to receive the same content for free through such unauthorized channels has devalued our video product which could impact sales, customer retention and our ability to pass through programming costs to consumers, which increases the risk of non-renewal when programmers seek increases.

To the extent that we are unable to reach agreement with certain programmers on terms that we believe are reasonable, we have been, and may be in the future, forced to remove such programming channels from our line-up, which may result in a loss of customers. Our failure to carry programming that is attractive to our customers could adversely impact our 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 our 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, we are not allowed to carry the station's signal without that station's permission. In some cases, we carry stations under short-term arrangements while we attempt to negotiate new long-term retransmission agreements. If negotiations with these programmers prove unsuccessful, they could require us to cease carrying their signals, possibly for an indefinite period. Any loss of stations could make our 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 our programming expenses and diminish the amount of capacity we have available to introduce new services, which could have an adverse effect on our business and financial results.

Our inability to respond to technological developments and meet customer demand for new products and services could adversely affect our ability to compete effectively.

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

The ability of some of our competitors to introduce new technologies, products and services more quickly than we do may adversely affect our competitive position. Furthermore, advances in technology, decreases in the cost of existing technologies or changes in competitors' product and service offerings may require us 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 we currently offer to customers separately or at a premium. In addition, the uncertainty of our ability, and the costs, to obtain intellectual property rights from third parties could impact our ability to respond to technological advances in a timely and effective manner.

Our inability to maintain and expand our upgraded systems and provide advanced services in a timely manner, or to anticipate the demands of the marketplace, could materially adversely affect our ability to attract and retain customers. In addition, as we continue to grow our mobile services using virtual network operator rights from a third party, we expect 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 we provide devices pursuant to equipment installation plans. We also continue 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, we now hold CBRS PALs to support existing and future mobile services. These licenses are subject to revocation and expiration. Although we expect to be able to maintain and renew these licenses, the loss of one or more licenses could significantly impair our ability to offload mobile traffic and achieve cost reductions. If we are unable to continue to grow our mobile business and achieve the outcomes we expect from our investments in the mobile business, our growth, financial condition and results of operations could be adversely affected.

Our business may be adversely affected if we cannot continue to license or enforce the intellectual property rights on which our business depends.

We rely on patent, copyright, trademark and trade secret laws and licenses and other agreements with our employees, customers, suppliers and other parties to establish and maintain our intellectual property rights in technology and the products and services used in our operations. Also, because of the rapid pace of technological change, we both develop our own technologies, products and services and rely on technologies developed or licensed by third parties. However, any of our intellectual property rights, or the rights of our suppliers, could be challenged or invalidated, or such intellectual property rights may not be sufficient to permit us 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. We 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 us 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 us to change our business practices or offerings and limit our 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 our business. Infringement claims continue to be brought frequently in the communications and entertainment industries, and we are also often a party to such litigation alleging that certain of our services or technologies infringe the intellectual property rights of others.

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

Network and information systems technologies are critical to our operating activities, both for our internal uses, such as network management and supplying services to our 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 we develop and maintain 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. We, and the third parties on which we rely, may be unable to anticipate these techniques or implement adequate preventive measures. While from time to time attempts have been made to access our network, these attempts have not as yet resulted in any material release of information, degradation or disruption to our network and information systems.

Our 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. Our system redundancy may be ineffective or inadequate, and our disaster recovery planning may not be sufficient for all eventualities.

Any of these events, if directed at, or experienced by, us or technologies upon which we depend, could have adverse consequences on our network, our customers and our business, including degradation of service, service disruption, excessive call volume to call centers, and damage to our or our 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 we maintain against losses resulting from any such events or security breaches may not be sufficient to cover our losses or otherwise adequately compensate us for any disruptions to our business that may result. Any such significant service disruption could result in damage to our 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 our growth, financial condition and results of operations.

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

We process, store, and transmit large amounts of data, including the personal information of our 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 our information-related risks. We could be exposed to significant costs if such risks were to materialize, and such events could damage our reputation, credibility and business and have a negative impact on our revenue. We 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. We also could be required to expend significant capital and other resources to remedy any such security breach.

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

We are exposed to risks associated with the economic conditions of our current and potential customers, the potential financial instability of our customers and their financial ability to purchase our products. If there were a general economic downturn, we may experience increased cancellations or non-payment by our 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 our ability to attract customers, increase rates and maintain or increase revenue. In addition, our ability to gain new customers is dependent to some extent on growth in occupied housing in our service areas, which is influenced by both national and local economic conditions. Weak economic conditions may also have a negative impact on our advertising revenue. These events have adversely affected us in the past, and may adversely affect our cash flow, results of operations and financial condition if a downturn were to occur.

In addition, we are susceptible to risks associated with the potential financial instability of the vendors and third parties on which we rely to provide products and services or to which we outsource certain functions. The same economic conditions that may affect our 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 our vendors or third parties upon which we rely. Any interruption in the services provided by our vendors or by third parties could adversely affect our cash flow, results of operation and financial condition.

If we are unable to retain key employees, our ability to manage our business could be adversely affected.

Our operational results have depended, and our future results will depend, upon the retention and continued performance of our management team. Our 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 our ability to manage our business and our future operational and financial results.

Risks Related to Our Indebtedness

We have a significant amount of debt and expect to incur significant additional debt, including secured debt, in the future, which could adversely affect our financial health and our ability to react to changes in our business.

We have a significant amount of debt and expect to (subject to applicable restrictions in our 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, our total principal amount of debt was approximately \$91.2 billion and Charter's leverage ratio was 4.4 times Adjusted EBITDA.

Our significant amount of debt could have consequences, such as:

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

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

In addition, our variable rate indebtedness may use London Interbank Offering Rate ("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 our variable rate indebtedness.

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

Our credit facilities and the indentures governing our debt contain a number of significant covenants that could adversely affect our ability to operate our business, our liquidity, and our results of operations. These covenants restrict, among other things, our and our 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 our 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 our long-term indebtedness. In addition, the secured lenders under our notes and the Charter Operating credit facilities could foreclose on their collateral, which includes equity interests in substantially all of our subsidiaries, and exercise other rights of secured creditors.

Risks Related to Ownership Position of Liberty Broadband Corporation and Advance/Newhouse Partnership

Liberty Broadband Corporation ("Liberty Broadband") and Advance/Newhouse Partnership ("A/N") have governance rights that give them influence over corporate transactions and other matters.

Liberty Broadband currently owns a significant amount of Charter Class A common stock and is entitled to certain governance rights with respect to Charter and us. A/N currently owns Charter Class A common stock and a significant amount of membership interests in our indirect parent company, Charter Holdings, which are convertible into Charter Class A common stock, and is entitled to certain governance rights with respect to Charter. Members of the Charter board of directors include a director who is also an officer and director of Liberty Broadband and directors who are current or former officers and directors of A/N. Mr. Greg Maffei is the President and Chief Executive Officer of Liberty Broadband. Steven Miron is the Chief Executive Officer of A/N and Michael Newhouse is an officer or director of several of A/N's affiliates. As of December 31, 2021, Liberty Broadband beneficially held approximately 27.51% of Charter's voting stock and A/N beneficially held approximately 12.62% of Charter's voting stock. Pursuant to the Amended and Restated Stockholders Agreement with Charter, Liberty Broadband and A/N, dated as of May 23, 2015 (as amended, the "Stockholders Agreement"), Liberty Broadband currently has the right to designate up to three directors as nominees for Charter's board of directors and A/N currently has the right to designate up to two directors as nominees for Charter's board of directors. Each of A/N and Liberty Broadband is entitled to nominate at least one director to each of the committees of Charter's board of directors, subject to applicable stock exchange listing rules and certain specified voting or equity ownership thresholds for each of A/N and Liberty Broadband, and provided that the Nominating and Corporate Governance Committee and the Compensation and Benefit Committee each have at least a majority of directors independent from A/N, Liberty Broadband and Charter (referred to as the "unaffiliated directors" in the Stockholders Agreement).

The Stockholders Agreement and Charter's amended and restated certificate of incorporation fixes the size of the board at 13 directors. Liberty Broadband and A/N are required to vote (subject to the applicable voting cap) their respective shares of Charter Class A common stock and Charter Class B common stock for the director nominees nominated by the nominating and corporate governance committee of the board of directors, including the respective designees of Liberty Broadband and A/N, and against any other nominees, except that, with respect to the unaffiliated directors, Liberty Broadband and A/N must instead vote in the same proportion as the voting securities are voted by stockholders other than A/N and Liberty Broadband or any group which includes any of them are voted, if doing so would cause a different outcome with respect to the unaffiliated directors. As a result of their rights under the Stockholders Agreement and their significant equity and voting stakes in Charter, Liberty Broadband and/or A/N, who may have interests different from those of other stockholders, will be able to exercise substantial influence over certain matters relating to the governance of Charter, including the approval of significant corporate actions, such as mergers and other business combination transactions.

Risks Related to Regulatory and Legislative Matters

Our business is subject to extensive governmental legislation and regulation, which could adversely affect our business.

Regulation of the cable industry has increased cable operators' operational and administrative expenses and limited their revenues. 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 our ability to enter into exclusive agreements with multiple dwelling unit complexes and control our inside wiring;
- equal employment opportunity;
- the resiliency of our 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 our costs or impose additional restrictions on our 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 our business.

There are ongoing efforts to amend or expand the federal, state, and local regulation of some of the services offered over our cable systems, particularly our retail broadband Internet access service. Potential legislative and regulatory changes could adversely impact our business by increasing our costs and competition and limiting our ability to offer services in a manner that that would maximize our revenue potential. These changes could include, for example, the reclassification of Internet services as regulated telecommunications services; restrictions on how we manage our Internet access services and networks; the adoption of new privacy restrictions on our 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 our business; new restraints on our discretion over programming decisions; new restrictions on the rates we charge to consumers for one or more of the services we offer; 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 our 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 our 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 our VoIP telephone service and our ability to interconnect our VoIP telephone service with incumbent providers of traditional telecommunications service.

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

If any laws or regulations are enacted that would expand the regulation of our services, they could affect our operations and require significant expenditures. We cannot predict future developments in these areas, and any changes to the regulatory framework for our Internet, video, mobile or VoIP services could have a negative impact on our 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 us, including on our programming agreements, customer privacy and the user experience. In addition, the FCC, the FTC, and various state agencies and attorney generals actively investigate industry practices and could impose substantial forfeitures for alleged regulatory violations.

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

We operate cable systems in locations throughout the United States and, as a result, we are 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 our effective tax rate or tax payments. Certain states and localities have imposed or are considering imposing new or additional taxes or fees on our services or changing the methodologies or base on which certain fees and taxes are computed. Potential changes include additional taxes or fees on our services which could impact our 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 our income, franchise, sales, use and/or property tax liabilities. For example, some local franchising authorities have imposed franchise fee assessments on our broadband Internet access service (in addition to our video service), and more may do so in the future. If challenges to such assessments are unsuccessful, it could adversely impact our 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 our tax positions will not be challenged by relevant tax authorities or that we would be successful in any such challenge.

Our 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 our business.

Our 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 we have operated and are operating under either temporary operating agreements or without a franchise while negotiating renewal terms with the local franchising authorities.

We cannot assure you that we will be able to comply with all significant provisions of our franchise agreements and certain of our franchisers have from time to time alleged that we have not complied with these agreements. Additionally, although historically we have renewed our franchises without incurring significant costs, we cannot assure you that we will be able to renew, or to renew as favorably, our franchises in the future. A termination of or a sustained failure to renew a franchise in one or more service areas could adversely affect our business in the affected geographic area.

Our 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 us on more favorable terms.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

Our principal physical assets consist of cable distribution plant and equipment, including signal receiving, encoding and decoding devices, headend reception facilities, distribution systems, and customer premise equipment for each of our cable systems.

Our cable plant and related equipment are generally attached to utility poles under pole rental agreements with local public utilities and telephone companies, and in certain locations are buried in underground ducts or trenches. We own or lease real property for signal reception sites, and own our service vehicles.

We generally lease space for business offices. Our headend and tower locations are located on owned or leased parcels of land, and we generally own the towers on which our equipment is located.

The physical components of our cable systems require maintenance as well as periodic upgrades to support the new services and products we introduce. See “Item 1. Business – Our Network Technology.” We believe that our properties are generally in good operating condition and are suitable for our business operations.

Item 3. Legal Proceedings.

The legal proceedings information set forth in Note 20 to the accompanying consolidated financial statements contained in “Part II. Item 8. Financial Statements and Supplementary Data” in this Annual Report on Form 10-K is incorporated herein by reference.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

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

Our membership interests are not publicly traded. All of the membership interests of CCO Holdings are owned by CCH I Holdings, LLC. All of the outstanding capital stock of CCO Holdings Capital Corp. is owned by CCO Holdings.

Securities Authorized for Issuance Under Equity Compensation Plans

The following information is provided as of December 31, 2021 with respect to Charter's equity compensation plans:

Plan Category	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights	Weighted Average Exercise Price of Outstanding Warrants and Rights	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans
Equity compensation plans approved by security holders	9,726,801 (1)	\$ 373.80	12,326,587 (1)
Equity compensation plans not approved by security holders	—	\$ —	—
TOTAL	9,726,801 (1)		12,326,587 (1)

(1) This total does not include 4,627 shares issued pursuant to restricted stock grants made under Charter's 2019 Stock Incentive Plan, which are subject to vesting based on continued service.

For information regarding securities issued under Charter's equity compensation plans, see Note 16 to our accompanying consolidated financial statements contained in "Part II. Item 8. Financial Statements and Supplementary Data."

Item 6. [Reserved]

Not applicable.

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

Reference is made to "Part I. Item 1A. Risk Factors" and "Cautionary Statement Regarding Forward-Looking Statements," which describe important factors that could cause actual results to differ from expectations and non-historical information contained herein. In addition, the following discussion should be read in conjunction with the audited consolidated financial statements and accompanying notes thereto of CCO Holdings included in "Part II. Item 8. Financial Statements and Supplementary Data."

Overview

We are a leading broadband connectivity company and cable operator serving more than 32 million customers in 41 states through our Spectrum brand. Over an advanced high-capacity, two-way telecommunications network, we offer 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. We also distribute award-winning news coverage, sports and high-quality original programming to our customers through Spectrum Networks and Spectrum Originals. See "Part I. Item 1. Business — Products and Services" for further description of these services, including customer statistics for different services.

The COVID-19 pandemic significantly impacted how our customers use our products and services, how they interact with us, and how our employees provide services to our 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. We 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, we remain focused on driving customer relationship growth by deploying superior products and services with attractive pricing. In October 2021, we 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, we expect 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.

Our Spectrum Mobile service is offered to customers subscribing to our Internet service and runs on Verizon's mobile network combined with Spectrum WiFi. We continue to explore ways to drive even more mobile traffic to our network. We intend to use CBRS PALs we purchased in 2020, along with unlicensed CBRS spectrum, to build our own 5G mobile data-only network on our existing infrastructure in targeted geographies where there is high outdoor cellular traffic volume. This effort, in combination with our expanding WiFi network and continued 5G enhancements within the Verizon MVNO partnership agreement, should position our mobile product for continued customer experience and cost structure improvements.

We believe Spectrum-branded mobile services will drive higher sales of our core products, create longer customer lives and increase profitability and cash flow over time. As a result of growth costs associated with our new mobile product line, we cannot be certain that we will be able to grow revenues or maintain our margins at recent historical rates. During the years ended December 31, 2021 and 2020, our mobile product line increased revenues by \$2.2 billion and \$1.4 billion, respectively, reduced Adjusted EBITDA by approximately \$311 million and \$401 million, respectively, and reduced free cash flow by approximately \$853 million and \$1.1 billion, respectively. We expect mobile Adjusted EBITDA will continue to be negative primarily as a result of growth-related sales and marketing and other customer acquisition costs for mobile services, and depending on the pace of that growth. We also expect to continue to see negative free cash flow from the timing of device-related cash flows when we sell devices to customers pursuant to equipment installment plans and capital expenditures related to retail store and CBRS build-out.

We realized revenue, Adjusted EBITDA and income from operations during the periods presented as follows (in millions; all percentages are calculated using whole numbers. Minor differences may exist due to rounding).

	Years ended December 31,		
	2021	2020	2021 vs. 2020 Growth
Revenues	\$ 51,674	\$ 48,088	7.5 %
Adjusted EBITDA	\$ 20,538	\$ 18,401	11.6 %
Income from operations	\$ 10,481	\$ 8,298	26.3 %

Adjusted EBITDA is defined as net income attributable to CCO Holdings member plus net income attributable to noncontrolling interest, net interest expense, income taxes, depreciation and amortization, stock compensation expense, other income (expenses), net and other operating (income) expenses, net, such as special charges and (gain) loss on sale or retirement of assets. See “—Use of Adjusted EBITDA and Free Cash Flow” for further information on Adjusted EBITDA and free cash flow.

Growth in total revenue was primarily due to growth in our residential Internet, mobile and commercial customers and price adjustments. Adjusted EBITDA and income from operations growth was impacted by growth in revenue and increases in operating costs and expenses, primarily mobile, programming and regulatory, connectivity and produced content costs.

Approximately 91% of our revenues for each of the years ended December 31, 2021 and 2020 are attributable to monthly subscription fees charged to customers for our Internet, video, voice, mobile and commercial services as well as regional sports and news channels. Generally, these customer subscriptions may be discontinued by the customer at any time subject to a fee for certain commercial customers. The remaining 9% of revenue is derived primarily from advertising revenues, franchise and other regulatory fee revenues (which are collected by us but then paid to local authorities), sales of mobile and video devices, processing fees or reconnection fees charged to customers to commence or reinstate service, installation, VOD and pay-per-view programming, and commissions related to the sale of merchandise by home shopping services.

Critical Accounting Policies and Estimates

Certain of our accounting policies require our management to make difficult, subjective and/or complex judgments. Management has discussed these policies with the Audit Committee of Charter's board of directors, and the Audit Committee has reviewed the following disclosure. We consider the following policies to be the most critical in understanding the estimates, assumptions and judgments that are involved in preparing our financial statements, and the uncertainties that could affect our results of operations, financial condition and cash flows:

- Capitalization of labor and overhead costs
- Valuation and impairment of franchises and goodwill
- Defined benefit pension plans

Capitalization of labor and overhead costs

Costs associated with network construction or upgrades, placement of the customer drop to the dwelling and the placement of outlets within a dwelling along with the costs associated with the deployment of new customer premise equipment necessary to provide Internet, video or voice services, are capitalized. Costs capitalized include materials, direct labor and certain indirect costs. These indirect costs consist of compensation and overhead costs associated with support functions. While our capitalization is based on specific activities, once capitalized, we track these costs on a composite basis by fixed asset category at the cable system level, and not on a specific asset basis. For assets that are sold or retired, we remove the estimated applicable cost and accumulated depreciation. The costs of disconnecting service and removing customer premise equipment from a dwelling and the costs to reconnect a customer drop or to redeploy previously installed customer premise equipment are charged to operating expense as incurred. Costs for repairs and maintenance are charged to operating expense as incurred, while plant and equipment replacement, including replacement of certain components, betterments, and replacement of cable drops and outlets, are capitalized.

We make judgments regarding the installation and construction activities to be capitalized. We capitalized direct labor and overhead of \$1.7 billion and \$1.6 billion for the years ended December 31, 2021 and 2020, respectively. We capitalize direct labor and overhead using standards developed from actual costs and applicable operational data. We calculate standards annually (or more frequently if circumstances dictate) for items such as the labor rates, overhead rates, and the actual amount of time required to perform a capitalizable activity. For example, the standard amounts of time required to perform capitalizable activities are based on studies of the time required to perform such activities. Overhead rates are established based on an analysis of the nature of costs incurred in support of capitalizable activities, and a determination of the portion of costs that is directly attributable to capitalizable activities. The impact of changes that resulted from these studies were not material in the periods presented.

Labor costs directly associated with capital projects are capitalized. Capitalizable activities performed in connection with installations include such activities as:

- dispatching a "truck roll" to the customer's dwelling or business for service connection or placement of new equipment;
- costs to package and ship new equipment to a customer's home for self-installation;
- verification of serviceability to the customer's dwelling or business (i.e., determining whether the customer's dwelling is capable of receiving service by our cable network);
- customer premise activities performed by in-house field technicians and third-party contractors in connection with the installation, replacement and betterment of equipment and materials to enable Internet, video or voice services; and
- verifying the integrity of the customer's network connection by initiating test signals downstream from the headend to the customer premise equipment, as well as testing signal levels at the utility pole or pedestal.

Judgment is required to determine the extent to which overhead costs incurred result from specific capital activities, and therefore should be capitalized. The primary costs that are included in the determination of the overhead rate are (i) employee benefits and payroll taxes associated with capitalized direct labor, (ii) direct variable costs associated with capitalizable activities, (iii) the cost of support personnel, such as care personnel and dispatchers, who assist with capitalizable installation activities, and (iv) indirect costs directly attributable to capitalizable activities.

While we believe our existing capitalization policies are appropriate, a significant change in the nature or extent of our operating practices could affect management's judgment about the extent to which we should capitalize direct labor or overhead in the future. We monitor the appropriateness of our capitalization policies, and perform updates to our internal studies on an ongoing basis to determine whether facts or circumstances warrant a change to our capitalization policies.

Valuation and impairment of franchises

The net carrying value of franchises as of both December 31, 2021 and 2020 was approximately \$67.3 billion (representing 48% and 47% of total assets, respectively). Franchise assets are aggregated into essentially inseparable units of accounting to conduct valuations. The units of accounting generally represent geographical clustering of our cable systems into groups. For more information and a complete discussion of how we value and test franchise assets for impairment, see Note 5 to the accompanying consolidated financial statements contained in “Part II, Item 8. Financial Statements and Supplementary Data.”

We perform an impairment assessment of franchise assets annually or more frequently as warranted by events or changes in circumstances. We performed a qualitative assessment in 2021. Our assessment included consideration of a multitude of factors that affect the fair value of our franchise assets. Examples of such factors include environmental and competitive changes within our operating footprint, actual and projected operating performance, the consistency of our operating margins, equity and debt market trends, including changes in our market capitalization, and changes in our regulatory and political landscape, among other factors. Based on our assessment, we concluded that it was more likely than not that the estimated fair values of our franchise assets equals or exceeds their carrying values and that a quantitative impairment test is not required.

Valuation and impairment of goodwill

The net carrying value of goodwill as of both December 31, 2021 and 2020 was approximately \$29.6 billion (representing 21% of total assets). We have determined that we have one reporting unit for purposes of the assessment of goodwill impairment. For more information and a complete discussion on how we test goodwill for impairment, see Note 5 to the accompanying consolidated financial statements contained in “Part II, Item 8. Financial Statements and Supplementary Data.” We perform our impairment assessment of goodwill annually as of November 30. As with our franchise impairment testing, we elected to perform a qualitative assessment of goodwill in 2021. Given the completion of the assessment and absence of significant adverse changes in factors impacting our fair value estimates, we concluded that it is more likely than not that our goodwill is not impaired.

Defined benefit pension plans

We sponsor qualified and unqualified defined benefit pension plans that provide pension benefits to a majority of employees who were employed by TWC before the merger with TWC. As of December 31, 2021, the accumulated benefit obligation and fair value of plan assets was \$3.4 billion and \$3.5 billion, respectively, and the net funded asset was recorded as a \$114 million noncurrent asset, \$4 million current liability and \$27 million long-term liability. As of December 31, 2020, the accumulated benefit obligation and fair value of plan assets was \$3.7 billion and \$3.5 billion, respectively, and the net underfunded liability was recorded as a \$1 million noncurrent asset, \$5 million current liability and \$222 million long-term liability.

Pension benefits are based on formulas that reflect the employees’ years of service and compensation during their employment period. Actuarial gains or losses are changes in the amount of either the benefit obligation or the fair value of plan assets resulting from experience different from that assumed or from changes in assumptions. We have elected to follow a mark-to-market pension accounting policy for recording the actuarial gains or losses annually during the fourth quarter, or earlier if a remeasurement event occurs during an interim period. We use a December 31 measurement date for our pension plans.

We recognized net periodic pension benefit of \$305 million and net periodic pension cost of \$66 million in 2021 and 2020, respectively. Net periodic pension benefit or expense is determined using certain assumptions, including the expected long-term rate of return on plan assets, discount rate and mortality assumptions. We determined the discount rate used to compute pension expense based on the yield of a large population of high-quality corporate bonds with cash flows sufficient in timing and amount to settle projected future defined benefit payments. In developing the expected long-term rate of return on assets, we considered the current pension portfolio’s composition, past average rate of earnings, and our asset allocation targets. We used a discount rate of 3.01% to determine the December 31, 2021 pension plan benefit obligation. A decrease in the discount rate of 25 basis points would result in a \$155 million increase in our pension plan benefit obligation as of December 31, 2021 and net periodic pension expense recognized in 2021 under our mark-to-market accounting policy. The expected long-term rate of return on plan assets used to determine net periodic pension benefit for the year ended December 31, 2022 is expected to be 5.00%. A decrease in the expected long-term rate of return of 25 basis points to 4.75%, while holding all other assumptions constant, would result in an increase in our 2022 net periodic pension expense of approximately \$8 million. See Note 21 to the accompanying consolidated financial statements contained in “Part II, Item 8. Financial Statements and Supplementary Data” for additional discussion on these assumptions.

Results of Operations

A discussion of changes in our results of operations during the year ended December 31, 2020 compared to the year ended December 31, 2019 has been omitted from this Annual Report on Form 10-K, but may be found in “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations” in our Annual Report on Form 10-K for the year ended December 31, 2020, filed with the SEC on February 5, 2021, which is available free of charge on the SECs website at www.sec.gov and on Charter's investor relations website at ir.charter.com.

The following table sets forth the consolidated statements of operations for the periods presented (dollars in millions):

	Year Ended December 31,	
	2021	2020
Revenues	\$ 51,674	\$ 48,088
Costs and Expenses:		
Operating costs and expenses (exclusive of items shown separately below)	31,566	30,038
Depreciation and amortization	9,321	9,685
Other operating expenses, net	306	67
	<u>41,193</u>	<u>39,790</u>
Income from operations	<u>10,481</u>	<u>8,298</u>
Other Income (Expenses):		
Interest expense, net	(4,023)	(3,866)
Other expenses, net	(104)	(237)
	<u>(4,127)</u>	<u>(4,103)</u>
Income before income taxes	6,354	4,195
Income tax expense	(41)	(29)
Consolidated net income	6,313	4,166
Less: Net income attributable to noncontrolling interests	(2)	(1)
Net income attributable to CCO Holdings member	<u>\$ 6,311</u>	<u>\$ 4,165</u>

Revenues. Total revenues grew \$3.6 billion or 7.5% during the year ended December 31, 2021 as compared to 2020 primarily due to increases in the number of residential Internet, mobile and commercial customers and price adjustments.

Revenues by service offering were as follows (dollars in millions; all percentages are calculated using whole numbers. Minor differences may exist due to rounding):

	Years ended December 31,		
	2021	2020	% Growth
Internet	\$ 21,094	\$ 18,521	13.9 %
Video	17,630	17,432	1.1 %
Voice	1,598	1,806	(11.5)%
Residential revenue	<u>40,322</u>	<u>37,759</u>	6.8 %
Small and medium business	4,170	3,964	5.2 %
Enterprise	2,573	2,468	4.3 %
Commercial revenue	<u>6,743</u>	<u>6,432</u>	4.9 %
Advertising sales	1,594	1,699	(6.2)%
Mobile	2,178	1,364	59.6 %
Other	837	834	0.3 %
	<u>\$ 51,674</u>	<u>\$ 48,088</u>	7.5 %

The increase in Internet revenues from our residential customers was attributable to the following (dollars in millions):

	2021 compared to 2020
Increase related to rate, product mix and bundle allocation changes	\$ 1,490
Increase in average residential Internet customers	1,083
	<u>\$ 2,573</u>

The increase related to rate, product mix and bundle allocation changes was primarily due to price adjustments, promotional roll-off and higher bundled revenue allocation as well as \$34 million of credits related to prior year's Keep Americans Connected ("KAC") Pledge and certain state-mandated programs which reduced revenue during the year ended December 31, 2020. Residential Internet customers grew by 1,114,000 in 2021 compared to 2020.

Video revenues consist primarily of revenues from basic and digital video services provided to our residential customers, as well as franchise fees, equipment service fees and video installation revenue. The increase in video revenues was attributable to the following (dollars in millions):

	2021 compared to 2020
Customer credits due to COVID-19	\$ 223
Increase related to rate, product mix and bundle allocation changes	283
Decrease in average residential video customers	(250)
Decrease in video on demand and pay-per-view	(44)
Decrease in installation	(14)
	<u>\$ 198</u>

We recorded \$39 million and \$218 million of estimated customer credits related to canceled sporting events during the years ended December 31, 2021 and 2020, respectively, and \$44 million of credits related to prior year's KAC program which reduced revenue during the year ended December 31, 2020. The increase related to rate, product mix and bundle allocation changes was primarily due to price adjustments and promotional roll-off and was partly offset by a higher mix of lower cost video packages within our video customer base and lower bundled revenue allocation. Residential video customers decreased by 423,000 in 2021 compared to 2020.

The decrease in voice revenues from our residential customers was attributable to the following (dollars in millions):

	2021 compared to 2020
Decrease related to rate and bundle allocation changes	\$ (132)
Decrease in average residential voice customers	(76)
	<u>\$ (208)</u>

The decrease related to rate and bundle allocation changes was impacted by value-based pricing and changes in bundled revenue allocations. Residential wireline voice customers decreased by 594,000 in 2021 compared to 2020.

The increase in SMB commercial revenues was attributable to the following (dollars in millions):

	2021 compared to 2020
Increase in SMB customers	\$ 209
Increase related to COVID-19 programs which reduced prior year revenue	36
Decrease related to rate and product mix changes	(39)
	<u>\$ 206</u>

SMB customers increased by 92,000 in 2021 compared to 2020. The decrease related to rate and product mix changes during the year ended December 31, 2021 as compared to 2020 was primarily due to value-based pricing related to SPP net of promotional roll-off and price adjustments.

Enterprise revenues increased \$105 million during the year ended December 31, 2021 as compared to the corresponding period in 2020 primarily due to an increase in Internet PSUs, \$18 million of impacts from COVID-19 related programs which reduced revenues in the year ended December 31, 2020 as well as a \$16 million one-time benefit incurred during the year ended December 31, 2021 offset by lower wholesale PSUs. Enterprise PSUs increased by 13,000 in 2021 compared to 2020.

Advertising sales revenues consist primarily of revenues from commercial advertising customers, programmers and other vendors, as well as local cable and advertising on regional sports and news channels. Advertising sales revenues decreased \$105 million during the year ended December 31, 2021 as compared to the corresponding period in 2020 primarily due to a decrease in political offset by an increase in advanced advertising revenues and local and national advertising revenues as well as the impacts of COVID-19 that lowered revenues in 2020.

During the years ended December 31, 2021 and 2020, mobile revenues included approximately \$909 million and \$658 million of device revenues, respectively, and approximately \$1.3 billion and \$706 million of service revenues, respectively. The increases in revenues are a result of an increase of 1,189,000 lines from December 31, 2020 to December 31, 2021.

Other revenues consist of revenue from regional sports and news channels (excluding intercompany charges or advertising sales on those channels), home shopping, late payment fees, video device sales, wire maintenance fees and other miscellaneous revenues. Other revenues remained relatively consistent during the year ended December 31, 2021 as compared to the corresponding period in 2020.

Operating costs and expenses. The increase in our operating costs and expenses, exclusive of items shown separately in the consolidated statements of operations, was attributable to the following (dollars in millions):

	2021 compared to 2020
Programming	\$ 443
Regulatory, connectivity and produced content	311
Costs to service customers	(79)
Marketing	40
Mobile	724
Other	89
	<u>\$ 1,528</u>

Programming costs were approximately \$11.8 billion and \$11.4 billion for the years ended December 31, 2021 and 2020, respectively, representing 38% of operating costs and expenses. Programming costs consist primarily of costs paid to programmers for basic, digital, premium, video on demand, and pay-per-view programming. Programming costs increased as a result of \$124 million of 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 our video customer base. We expect 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. We have been unable to fully pass these increases on to our customers and do not expect to be able to do so in the future without a potential loss of customers.

Regulatory, connectivity and produced content increased \$311 million during the year ended December 31, 2021 compared to the corresponding period in 2020 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 as the prior period had cancellation of MLB games and the current period had additional games due to the delayed start of the 2020 - 2021 NBA season as a result of COVID-19.

Costs to service customers decreased \$79 million during the year ended December 31, 2021 compared to the corresponding period in 2020 despite 3.0% customer growth primarily due to fewer transactions and a decrease in bad debt expense partly

driven by government stimulus packages offset by the higher labor costs associated with our commitment to a minimum \$20 per hour wage in 2022.

Mobile costs of \$2.5 billion and \$1.8 billion for the years ended December 31, 2021 and 2020, respectively, were comprised of mobile device costs and mobile service, customer acquisition and operating costs. The increase is attributable to an increase in the number of mobile lines.

The increase in other expense was attributable to the following (dollars in millions):

	2021 compared to 2020
Stock compensation expense	\$ 79
Enterprise	21
Corporate costs	20
Property tax and insurance	17
Advertising sales expense	(21)
Other	(27)
	<u>\$ 89</u>

Stock compensation expense increased primarily due to changes in certain equity award provisions that result in additional expense at the time of grant.

Depreciation and amortization. Depreciation and amortization expense decreased by \$364 million during the year ended December 31, 2021 compared to the corresponding period in 2020 primarily due to certain assets acquired in acquisitions becoming fully depreciated offset by an increase in depreciation as a result of more recent capital expenditures.

Other operating expenses, net. The increase in other operating expenses, net was attributable to the following (dollars in millions):

	2021 compared to 2020
Special charges, net	\$ 162
(Gain) loss on sale of assets, net	77
	<u>\$ 239</u>

For more information, see Note 14 to the accompanying consolidated financial statements contained in “Part II. Item 8. Financial Statements and Supplementary Data.”

Interest expense, net. Net interest expense increased by \$157 million in 2021 from 2020 primarily due to an increase in weighted average debt outstanding of approximately \$7.1 billion primarily as a result of the issuance of notes in 2020 and 2021 for general corporate purposes including distributions to parent companies for stock buybacks and debt repayments offset by a decrease in weighted average interest rates.

Other expenses, net. The decrease in other expenses, net is attributable to the following (dollars in millions):

	2021 compared to 2020
Loss on extinguishment of debt (see Note 9)	\$ (1)
Loss on financial instruments, net (see Note 11)	(71)
Net periodic pension benefit (cost) (see Note 21)	371
Loss on equity investments, net (see Note 6)	(166)
	<u>\$ 133</u>

See Note 15 and the Notes referenced above to the accompanying consolidated financial statements contained in “Item 1. Financial Statements” for more information.

Income tax expense. We recognized income tax expense of \$41 million and \$29 million for the years ended December 31, 2021 and 2020, respectively. Income tax expense increased during the year ended December 31, 2021 compared to the corresponding period in 2020 primarily as a result of higher pretax income. For more information, see Note 17 to the accompanying consolidated financial statements contained in “Part II. Item 8. Financial Statements and Supplementary Data.”

Net income attributable to noncontrolling interest. Net income attributable to noncontrolling interest relates to our third-party interest in CV of Viera, LLP, a consolidated joint venture in a small cable system in Florida.

Net income attributable to CCO Holdings member. Net income attributable to CCO Holdings member was \$6.3 billion and \$4.2 billion for the years ended December 31, 2021 and 2020, respectively, primarily as a result of the factors described above.

Use of Adjusted EBITDA and Free Cash Flow

We use certain measures that are not defined by U.S. generally accepted accounting principles (“GAAP”) to evaluate various aspects of our business. Adjusted EBITDA and free cash flow are non-GAAP financial measures and should be considered in addition to, not as a substitute for, net income attributable to CCO Holdings member and net cash flows from operating activities reported in accordance with GAAP. These terms, as defined by us, may not be comparable to similarly titled measures used by other companies. Adjusted EBITDA and free cash flow are reconciled to net income attributable to CCO Holdings member and net cash flows from operating activities, respectively, below.

Adjusted EBITDA eliminates the significant non-cash depreciation and amortization expense that results from the capital-intensive nature of our businesses as well as other non-cash or special items, and is unaffected by our capital structure or investment activities. However, this measure is limited in that it does not reflect the periodic costs of certain capitalized tangible and intangible assets used in generating revenues and our cash cost of financing. These costs are evaluated through other financial measures.

Free cash flow is defined as net cash flows from operating activities, less capital expenditures and changes in accrued expenses related to capital expenditures.

Management and Charter’s board of directors use Adjusted EBITDA and free cash flow to assess our performance and our ability to service our debt, fund operations and make additional investments with internally generated funds. In addition, Adjusted EBITDA generally correlates to the leverage ratio calculation under our credit facilities or outstanding notes to determine compliance with the covenants contained in the facilities and notes (all such documents have been previously filed with the SEC). For the purpose of calculating compliance with leverage covenants, we use Adjusted EBITDA, as presented, excluding certain expenses paid by our operating subsidiaries to other Charter entities. Our debt covenants refer to these expenses as management fees, which fees were in the amount of \$1.3 billion for each of the years ended December 31, 2021 and 2020.

A reconciliation of Adjusted EBITDA and free cash flow to net income attributable to CCO Holdings member and net cash flows from operating activities, respectively, is as follows (dollars in millions).

	Years ended December 31,	
	2021	2020
Net income attributable to CCO Holdings member	\$ 6,311	\$ 4,165
Plus: Net income attributable to noncontrolling interest	2	1
Interest expense, net	4,023	3,866
Income tax expense	41	29
Depreciation and amortization	9,321	9,685
Stock compensation expense	430	351
Other expenses, net	410	304
Adjusted EBITDA	<u>\$ 20,538</u>	<u>\$ 18,401</u>
Net cash flows from operating activities	\$ 16,160	\$ 14,463
Less: Purchases of property, plant and equipment	(7,608)	(7,415)
Change in accrued expenses related to capital expenditures	80	(77)
Free cash flow	<u>\$ 8,632</u>	<u>\$ 6,971</u>

Liquidity and Capital Resources

Overview

We have significant amounts of debt. The principal amount of our debt as of December 31, 2021 was \$91.2 billion, consisting of \$10.7 billion of credit facility debt, \$56.5 billion of investment grade senior secured notes and \$24.0 billion of high-yield senior unsecured notes. Our business requires significant cash to fund principal and interest payments on our debt.

Our projected cash needs and projected sources of liquidity depend upon, among other things, our actual results, and the timing and amount of our expenditures. As we continue to grow our mobile services, we expect an initial funding period to grow a new product as well as negative working capital impacts from the timing of device-related cash flows when we sell devices to customers pursuant to equipment installment plans. Further, in 2022, Charter expects to become a meaningful federal cash tax payer as the majority of net operating losses will have been utilized. Free cash flow was \$8.6 billion and \$7.0 billion for the years ended December 31, 2021 and 2020, respectively. See table below for factors impacting free cash flow during the year ended December 31, 2021 compared to 2020. As of December 31, 2021, the amount available under our credit facilities was approximately \$3.9 billion and cash on hand was approximately \$321 million. We expect to utilize free cash flow, cash on hand and availability under our credit facilities as well as future refinancing transactions to further extend the maturities of our obligations. The timing and terms of any refinancing transactions will be subject to market conditions among other considerations. Additionally, we may, from time to time, and depending on market conditions and other factors, use cash on hand and the proceeds from securities offerings or other borrowings to retire our debt through open market purchases, privately negotiated purchases, tender offers or redemption provisions. We believe we have sufficient liquidity from cash on hand, free cash flow and Charter Operating's revolving credit facility as well as access to the capital markets to fund our projected cash needs.

We continue to evaluate the deployment of our cash on hand and anticipated future free cash flow including to invest in our business growth and other strategic opportunities, including expanding the capacity of our network, the expansion of our network through our rural broadband construction project, the build-out and deployment of our CBRS spectrum, and mergers and acquisitions as well as distributions to parent companies for stock repurchases and dividends. Charter's target leverage of net debt to the last twelve months Adjusted EBITDA remains at 4 to 4.5 times Adjusted EBITDA, and up to 3.5 times Adjusted EBITDA at the consolidated first lien level. Our leverage ratio was 4.4 times Adjusted EBITDA as of December 31, 2021. As Adjusted EBITDA grows, we expect to increase the total amount of our indebtedness to maintain leverage within Charter's target leverage range. Excluding purchases from Liberty Broadband discussed below, during the years ended December 31, 2021 and 2020, Charter purchased in the public market approximately 15.9 million and 18.4 million shares, respectively, of Charter Class A common stock for approximately \$10.9 billion and \$10.6 billion, respectively. Since the beginning of its buyback program in September 2016 through the year ended December 31, 2021, Charter has purchased in the public market approximately 125.6 million shares of Class A common stock and Charter Holdings common units for approximately \$56.8 billion, including purchases from Liberty Broadband discussed below.

In February 2021, Charter and Liberty Broadband entered into a letter agreement (the "LBB Letter Agreement"). The LBB Letter Agreement implements Liberty Broadband's obligations under the Stockholders Agreement to participate in share repurchases by Charter. Under the LBB Letter Agreement, Liberty Broadband will sell to Charter, generally on a monthly basis, a number of shares of Charter Class A common stock representing an amount sufficient for Liberty Broadband's ownership of Charter to be reduced such that it does not exceed the ownership cap then applicable to Liberty Broadband under the Stockholders Agreement at a purchase price per share equal to the volume weighted average price per share paid by Charter for shares repurchased during such immediately preceding calendar month other than (i) purchases from A/N, (ii) purchases in privately negotiated transactions or (iii) purchases for the withholding of shares of Charter Class A common stock pursuant to equity compensation programs of Charter. Charter purchased from Liberty Broadband 6.1 million shares of Charter Class A common stock for approximately \$4.2 billion during the year ended December 31, 2021. In January 2022, Charter purchased from Liberty Broadband an additional 0.5 million shares of Charter Class A common stock for approximately \$341 million.

In December 2016, Charter and A/N entered into a letter agreement, as amended in December 2017 (the "A/N Letter Agreement"), that requires A/N to sell to Charter or to Charter Holdings, on a monthly basis, a number of shares of Charter Class A common stock or Charter Holdings common units that represents a pro rata participation by A/N and its affiliates in any repurchases of shares of Charter Class A common stock from persons other than A/N effected by Charter during the immediately preceding calendar month, at a purchase price equal to the average price paid by Charter for the shares repurchased from persons other than A/N during such immediately preceding calendar month. A/N and Charter both have the right to terminate or suspend the pro rata repurchase arrangement on a prospective basis. During the years ended December 31, 2021 and 2020, Charter Holdings purchased from A/N 3.3 million and 2.6 million Charter Holdings common units, respectively, for approximately \$2.2 billion and \$1.5 billion, respectively.

As of December 31, 2021, Charter had remaining board authority to purchase an additional \$1.9 billion of Charter's Class A common stock and/or Charter Holdings common units, excluding purchases from Liberty Broadband. Although Charter expects to continue to buy back its common stock consistent with its leverage target range, Charter is not obligated to acquire any particular amount of common stock, and the timing of any purchases that may occur cannot be predicted and will largely depend on market conditions and other potential uses of capital. Purchases may include open market purchases, tender offers or negotiated transactions. To the extent such purchases occur, CCO Holdings and its subsidiaries are the primary source for funding such purchases through distributions to their parent companies.

As possible acquisitions, swaps or dispositions arise, we actively review them against our objectives including, among other considerations, improving the operational efficiency, geographic clustering of assets, product development or technology capabilities of our business and achieving appropriate return targets, and we may participate to the extent we believe these possibilities present attractive opportunities. However, there can be no assurance that we will actually complete any acquisitions, dispositions or system swaps, or that any such transactions will be material to our operations or results.

Recent Events

In January 2022, CCO Holdings and CCO Holdings Capital Corp. jointly issued \$1.2 billion of 4.750% senior unsecured notes due February 2032 at par. The net proceeds were used for general corporate purposes, including distributions to parent companies to fund buybacks of Charter Class A common stock and Charter Holdings common units, to repay certain indebtedness and to pay related fees and expenses.

In addition to the debt issued in January 2022 as described above, CCO Holdings and CCO Holdings Capital Corp. jointly issued \$3.75 billion aggregate principal amount of senior unsecured notes in 2021 at varying rates, prices and maturity dates, and Charter Operating and Charter Communications Operating Capital Corp. jointly issued \$9.8 billion aggregate principal amount of senior secured notes in 2021 at varying rates, prices and maturity dates. The net proceeds were used to pay related fees and expenses and for general corporate purposes, including distributions to parent companies to fund buybacks of Charter Class A common stock and Charter Holdings common units as well as repaying certain indebtedness.

Free Cash Flow

Free cash flow increased \$1.7 billion during the year ended December 31, 2021 compared to the corresponding prior period due to the following (dollars in millions).

	2021 compared to 2020
Increase in Adjusted EBITDA	\$ 2,137
Increase in capital expenditures	(193)
Increase in cash paid for interest, net	(179)
Change in working capital, excluding change in accrued interest	(165)
Other, net	61
	<u>\$ 1,661</u>

Free cash flow was reduced by \$853 million and \$1.1 billion during the years ended December 31, 2021 and 2020, respectively, due to mobile with impacts negatively affecting working capital, capital expenditures and Adjusted EBITDA.

Financial Information about Guarantors, Issuers of Guaranteed Securities, Affiliates Whose Securities Collateralize a Registrant's Securities and Consolidated Subsidiaries

Each of CCO Holdings, Charter Operating, Time Warner Cable, LLC and Time Warner Cable Enterprises LLC (collectively, the "Issuers") and substantially all of Charter Operating's direct and indirect subsidiaries (the "Obligor Subsidiaries" and together with the Issuers, collectively, the "Obligor Group" and each an "Obligor") jointly, severally, fully and unconditionally guarantee the outstanding debt securities of the respective Issuers (other than the CCO Holdings unsecured notes) and Charter Operating's credit facilities on a senior basis (collectively, the "Guaranteed and Secured Debt"). Such guarantees are pari passu in right of payment with all senior indebtedness of the guarantors and senior in right of payment to subordinated obligations of the guarantors. Each guarantee will be limited to the maximum amount that can be guaranteed by the relevant guarantor without rendering the relevant guarantee, as it relates to that guarantor, voidable or otherwise ineffective or limited under applicable law, and enforcement of each guarantee would be subject to certain generally available defenses. The Guaranteed and Secured Debt is structurally subordinated to the creditors (including trade creditors) and preference shareholders (if any) of Charter Operating's non-guarantor subsidiaries.

The Guaranteed and Secured Debt and the subsidiary guarantees thereof are also secured by (i) a lien on substantially all of the assets of Charter Operating and the Obligor Subsidiaries, to the extent such lien can be perfected under the Uniform Commercial Code by the filing of a financing statement, and (ii) a pledge of substantially all of the equity interests of subsidiaries owned by Charter Operating or the Obligor Subsidiaries (the "Pledged Equity Interests"), as well as intercompany obligations owing to it by any of such entities ((i) and (ii) collectively, the "Collateral"). In addition, payments of a mortgage note, currently outstanding for approximately \$320 million, incurred by a single-asset special purpose entity to finance construction of the first building of the new Charter headquarters in Stamford, Connecticut are guaranteed by the Obligor Group and rank equally with the liens on the Collateral securing the Guaranteed and Secured Debt. No assets of any of Charter Operating's non-guarantor subsidiaries (including any capital stock owned by any such subsidiary) will constitute Collateral. The subsidiary guarantees are effectively senior to all unsecured debt or debt secured by a junior liens of the subsidiary guarantors, in each case to the extent of the value of the collateral securing the guarantee obligations of the subsidiary guarantors. Upon the occurrence and during the continuance of an event of default under the Guaranteed and Secured Debt, subject to the terms of an intercreditor agreement, the security documents governing the Guaranteed and Secured Debt provide for (among other available remedies) the foreclosure upon and sale of the Collateral by the collateral agent(s) of the respective Guaranteed and Secured Debt and the distribution of the net proceeds of any such sale to the holders and/or the lenders of the Guaranteed and Secured Debt on a pro rata basis, subject to any prior liens on the Collateral. We believe there is no separate trading market for the Pledged Equity Interests.

Certain Charter Operating subsidiaries that are regulated entities are only designated as guarantor subsidiaries, and certain related assets (including the capital stock of such regulated entities) are only required to be pledged as Collateral, upon approval by regulators. The guaranteed obligations and collateral of an Obligor Subsidiary (including Pledged Equity Interests) may be released under certain circumstances permitted under the documentation governing the Guaranteed and Secured Debt, including if an Obligor Subsidiary no longer qualifies as a "Subsidiary" of Charter Operating under transactions not prohibited by the Charter Operating credit agreement.

See Note 9 to the accompanying financial statements contained in “Part II. Item 8. Financial Statements and Supplementary Data” for further details about the terms, conditions and other factors that may affect payments to holders and the collateral arrangements of the Guaranteed and Secured Debt.

Because the assets, liabilities and results of operations of the combined Obligor Group are not materially different than corresponding amounts presented in the consolidated financial statements of CCO Holdings, summarized financial information of the Obligor Group have been omitted pursuant to SEC Regulation S-X Rule 13-01, *Financial Statements of Guarantors and Issuers of Guaranteed Securities Registered or Being Registered* and S-X Rule 13-02, *Affiliates Whose Securities Collateralize Securities Registered Or Being Registered*. The information below is being presented to comply with the terms of the Charter Operating credit agreement. This information is not intended to present the financial position, results of operations and cash flows of the individual companies or groups of companies in accordance with generally accepted accounting principles.

	CCO Holdings		Charter Operating and Consolidated Subsidiaries		CCO Holdings		Charter Operating and Consolidated Subsidiaries	
	December 31, 2021		December 31, 2021		December 31, 2020		December 31, 2020	
Balance Sheet Data:								
Current assets	\$	—	\$	3,201	\$	100	\$	3,438
Receivables from related party	\$	37	\$	—	\$	43	\$	—
Noncurrent assets	\$	—	\$	137,510	\$	—	\$	139,083
Loans receivable from related party	\$	579	\$	—	\$	567	\$	—
Current liabilities	\$	307	\$	11,461	\$	347	\$	8,904
Payable to related party	\$	—	\$	38	\$	—	\$	139
Noncurrent liabilities	\$	23,882	\$	67,806	\$	24,180	\$	60,885
Loans payable to related party	\$	—	\$	1,606	\$	—	\$	1,568
Noncontrolling interests	\$	—	\$	24	\$	—	\$	23

	CCO Holdings		Charter Operating and Consolidated Subsidiaries		CCO Holdings		Charter Operating and Consolidated Subsidiaries	
	Year Ended December 31, 2021		Year Ended December 31, 2021		Year Ended December 31, 2020		Year Ended December 31, 2020	
Statement of Operations Data:								
Revenue	\$	—	\$	51,674	\$	—	\$	48,088
Income from operations	\$	—	\$	10,481	\$	—	\$	8,298
Net income	\$	6,311	\$	7,624	\$	4,165	\$	5,495

	CCO Holdings		Charter Operating and Consolidated Subsidiaries		CCO Holdings		Charter Operating and Consolidated Subsidiaries	
	Year Ended December 31, 2021		Year Ended December 31, 2021		Year Ended December 31, 2020		Year Ended December 31, 2020	
Statement of Cash Flows Data:								
Net cash flows from operating activities	\$	(1,200)	\$	17,360	\$	(1,124)	\$	15,587
Net cash flows from investing activities	\$	19,279	\$	(7,515)	\$	11,253	\$	(7,960)
Net cash flows from financing activities	\$	(18,179)	\$	(10,134)	\$	(10,529)	\$	(9,766)

Historical Operating, Investing, and Financing Activities

Cash and Cash Equivalents. We held \$321 million and \$710 million in cash and cash equivalents as of December 31, 2021 and 2020, respectively.

Operating Activities. Net cash provided by operating activities increased \$1.7 billion during the year ended December 31, 2021 compared to the year ended December 31, 2020, primarily due to an increase in Adjusted EBITDA of \$2.1 billion offset by changes in working capital, excluding the change in accrued interest and accrued expenses related to capital expenditures, that used \$322 million more cash and \$179 million higher cash paid for interest.

Investing Activities. Net cash used in investing activities for the years ended December 31, 2021 and 2020 was \$7.5 billion and \$8.0 billion, respectively. The decrease in cash used was primarily due the purchase of spectrum wireless licenses in 2020 offset by an increase in capital expenditures in 2021.

Financing Activities. Net cash used in financing activities decreased \$8 million during the year ended December 31, 2021 compared to the year ended December 31, 2020 primarily due to an increase in the amount by which borrowings of long-term debt exceeded repayments offset by an increase in distributions to parent companies.

Capital Expenditures

We have significant ongoing capital expenditure requirements. Capital expenditures were \$7.6 billion and \$7.4 billion for the years ended December 31, 2021 and 2020, respectively. The increase was primarily due to an increase in scalable infrastructure driven by augmentation of network capacity for customer growth and usage, with incremental spending to reclaim network headroom maintained prior to COVID-19. See the table below for more details.

We currently expect full year 2022 cable capital expenditures, excluding capital expenditures associated with our rural construction initiative, to be between \$7.1 billion and \$7.3 billion. The actual amount of our capital expenditures in 2022 will depend on a number of factors including further spend related to product development and growth rates of both our residential and commercial businesses as well as the pace of rural construction.

Our capital expenditures are funded primarily from cash flows from operating activities and borrowings on our credit facility. In addition, our accrued liabilities related to capital expenditures increased \$80 million and decreased \$77 million for the years ended December 31, 2021 and 2020, respectively.

The following tables present our major capital expenditures categories in accordance with National Cable and Telecommunications Association (“NCTA”) disclosure guidelines for the years ended December 31, 2021 and 2020. These disclosure guidelines are not required disclosures under GAAP, nor do they impact our accounting for capital expenditures under GAAP (dollars in millions):

	Year ended December 31,	
	2021	2020
Customer premise equipment ^(a)	\$ 1,967	\$ 2,002
Scalable infrastructure ^(b)	1,677	1,478
Line extensions ^(c)	1,642	1,641
Upgrade/rebuild ^(d)	706	615
Support capital ^(e)	1,616	1,679
Total capital expenditures	\$ 7,608	\$ 7,415
Capital expenditures included in total related to:		
Commercial services	\$ 1,445	\$ 1,325
Mobile	\$ 482	\$ 508

^(a) Customer premise equipment includes costs incurred at the customer residence to secure new customers and revenue generating units, including customer installation costs and customer premise equipment (e.g., digital receivers and cable modems).

^(b) Scalable infrastructure includes costs not related to customer premise equipment, to secure growth of new customers and revenue generating units, or provide service enhancements (e.g., headend equipment).

^(c) Line extensions include network costs associated with entering new service areas (e.g., fiber/coaxial cable, amplifiers, electronic equipment, make-ready and design engineering).

^(d) Upgrade/rebuild includes costs to modify or replace existing fiber/coaxial cable networks, including betterments.

^(e) Support capital includes costs associated with the replacement or enhancement of non-network assets due to technological and physical obsolescence (e.g., non-network equipment, land, buildings and vehicles).

Debt

As of December 31, 2021, the accreted value of our total debt was approximately \$91.6 billion, as summarized below (dollars in millions):

	December 31, 2021		Interest Payment Dates	Maturity Date ^(b)
	Principal Amount	Accreted Value ^(a)		
CCO Holdings, LLC:				
4.000% senior notes due 2023	\$ 500	\$ 499	3/1 & 9/1	3/1/2023
5.500% senior notes due 2026	750	747	5/1 & 11/1	5/1/2026
5.125% senior notes due 2027	3,250	3,228	5/1 & 11/1	5/1/2027
5.000% senior notes due 2028	2,500	2,475	2/1 & 8/1	2/1/2028
5.375% senior notes due 2029	1,500	1,500	6/1 & 12/1	6/1/2029
4.750% senior notes due 2030	3,050	3,043	3/1 & 9/1	3/1/2030
4.500% senior notes due 2030	2,750	2,750	2/15 & 8/15	8/15/2030
4.250% senior notes due 2031	3,000	3,002	2/1 & 8/1	2/1/2031
4.500% senior notes due 2032	2,900	2,927	5/1 & 11/1	5/1/2032
4.500% senior notes due 2033	1,750	1,729	6/1 & 12/1	6/1/2033
4.250% senior notes due 2034	2,000	1,982	1/15 & 7/15	1/15/2034
Charter Communications Operating, LLC:				
4.464% senior notes due 2022	3,000	2,997	1/23 & 7/23	7/23/2022
Senior floating rate notes due 2024	900	901	2/1, 5/1, 8/1 & 11/1	2/1/2024
4.500% senior notes due 2024	1,100	1,096	2/1 & 8/1	2/1/2024
4.908% senior notes due 2025	4,500	4,480	1/23 & 7/23	7/23/2025
3.750% senior notes due 2028	1,000	990	2/15 & 8/15	2/15/2028
4.200% senior notes due 2028	1,250	1,242	3/15 & 9/15	3/15/2028
2.250% senior notes due 2029	1,250	1,240	1/15 & 7/15	1/15/2029
5.050% senior notes due 2029	1,250	1,242	3/30 & 9/30	3/30/2029
2.800% senior notes due 2031	1,600	1,585	4/1 & 10/1	4/1/2031
2.300% senior notes due 2032	1,000	992	2/1 & 8/1	2/1/2032
6.384% senior notes due 2035	2,000	1,984	4/23 & 10/23	10/23/2035
5.375% senior notes due 2038	800	787	4/1 & 10/1	4/1/2038
3.500% senior notes due 2041	1,500	1,483	6/1 & 12/1	6/1/2041
3.500% senior notes due 2042	1,350	1,331	3/1 & 9/1	3/1/2042
6.484% senior notes due 2045	3,500	3,468	4/23 & 10/23	10/23/2045
5.375% senior notes due 2047	2,500	2,506	5/1 & 11/1	5/1/2047
5.750% senior notes due 2048	2,450	2,393	4/1 & 10/1	4/1/2048
5.125% senior notes due 2049	1,250	1,240	1/1 & 7/1	7/1/2049
4.800% senior notes due 2050	2,800	2,797	3/1 & 9/1	3/1/2050
3.700% senior notes due 2051	2,050	2,031	4/1 & 10/1	4/1/2051
3.900% senior notes due 2052	2,400	2,322	6/1 & 12/1	6/1/2052
6.834% senior notes due 2055	500	495	4/23 & 10/23	10/23/2055
3.850% senior notes due 2061	1,850	1,809	4/1 & 10/1	4/1/2061
4.400% senior notes due 2061	1,400	1,389	6/1 & 12/1	12/1/2061
3.950% senior notes due 2062	1,400	1,379	6/30 & 12/30	6/30/2062
Credit facilities	10,723	10,668		Varies
Time Warner Cable, LLC:				
5.750% sterling senior notes due 2031 ^(c)	846	897	6/2	6/2/2031
6.550% senior debentures due 2037	1,500	1,662	5/1 & 11/1	5/1/2037
7.300% senior debentures due 2038	1,500	1,754	1/1 & 7/1	7/1/2038
6.750% senior debentures due 2039	1,500	1,700	6/15 & 12/15	6/15/2039
5.875% senior debentures due 2040	1,200	1,252	5/15 & 11/15	11/15/2040
5.500% senior debentures due 2041	1,250	1,257	3/1 & 9/1	9/1/2041
5.250% sterling senior notes due 2042 ^(d)	879	850	7/15	7/15/2042

4.500% senior debentures due 2042	1,250	1,148	3/15 & 9/15	9/15/2042
Time Warner Cable Enterprises LLC:				
8.375% senior debentures due 2023	1,000	1,058	3/15 & 9/15	3/15/2023
8.375% senior debentures due 2033	1,000	1,254	7/15 & 1/15	7/15/2033
	<u>\$ 91,198</u>	<u>\$ 91,561</u>		

- (a) The accreted values presented in the table above represent the principal amount of the debt adjusted for original issue discount or premium at the time of sale, deferred financing costs, and, in regards to debt assumed in acquisitions, fair value premium adjustments as a result of applying acquisition accounting plus the accretion of those amounts to the balance sheet date. However, the amount that is currently payable if the debt becomes immediately due is equal to the principal amount of the debt. In regards to the Sterling Notes, the principal amount of the debt and any premium or discount is remeasured into US dollars as of each balance sheet date. We have availability under our credit facilities of approximately \$3.9 billion as of December 31, 2021.
- (b) In general, the obligors have the right to redeem all of the notes set forth in the above table in whole or in part at their option, beginning at various times prior to their stated maturity dates, subject to certain conditions, upon the payment of the outstanding principal amount (plus a specified redemption premium) and all accrued and unpaid interest.
- (c) Principal amount includes £625 million valued at \$846 million as of December 31, 2021 using the exchange rate as of December 31, 2021.
- (d) Principal amount includes £650 million valued at \$879 million as of December 31, 2021 using the exchange rate as of December 31, 2021.

See Note 9 to the accompanying consolidated financial statements contained in “Part II. Item 8. Financial Statements and Supplementary Data” for further details regarding our outstanding debt and other financing arrangements, including certain information about maturities, covenants and restrictions related to such debt and financing arrangements. The agreements and instruments governing our debt and financing arrangements are complicated and you should consult such agreements and instruments which are filed with the SEC for more detailed information.

At December 31, 2021, Charter Operating had a consolidated leverage ratio of approximately 3.0 to 1.0 and a consolidated first lien leverage ratio of 2.9 to 1.0. Both ratios are in compliance with the ratios required by the Charter Operating credit facilities of 5.0 to 1.0 consolidated leverage ratio and 4.0 to 1.0 consolidated first lien leverage ratio. A failure by Charter Operating to maintain the financial covenants would result in an event of default under the Charter Operating credit facilities and the debt of CCO Holdings. See “Part I. Item 1A. Risk Factors — The agreements and instruments governing our debt contain restrictions and limitations that could significantly affect our ability to operate our business, as well as significantly affect our liquidity.”

Recently Issued Accounting Standards

See Note 22 to the accompanying consolidated financial statements contained in “Part II. Item 8. Financial Statements and Supplementary Data” for a discussion of recently issued accounting standards.

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

We use derivative instruments to manage foreign exchange risk on the Sterling Notes, and do not hold or issue derivative instruments for speculative trading purposes.

Cross-currency derivative instruments are used to effectively convert £1.275 billion aggregate principal amount of fixed-rate British pound sterling denominated debt, including annual interest payments and the payment of principal at maturity, to fixed-rate U.S. dollar denominated debt. The cross-currency derivative instruments have maturities of June 2031 and July 2042. We are required to post collateral on the cross-currency derivative instruments when such instruments are in a liability position. In April 2019, we entered into a collateral holiday agreement for 60% of both the 2031 and 2042 cross-currency swaps, which eliminates the requirement to post collateral for three years, as well as a ten year collateral cap on the remaining 40% of the cross-currency swaps which limits the required collateral posting on that 40% of the cross-currency swaps to \$150 million. In March 2021, the collateral holiday for 20% of the swaps was extended to November 2022 in consideration for our agreement to post collateral over a threshold amount on that 20% portion of the swaps from March 2021 through October 2021. The fair value of our cross-currency derivatives included in other long-term liabilities on our consolidated balance sheets was \$290 million and \$184 million as of December 31, 2021 and 2020, respectively. For more information, see Note 11 to the accompanying consolidated financial statements contained in “Part II. Item 8. Financial Statements and Supplementary Data.”

As of December 31, 2021 and 2020, the weighted average interest rate on the credit facility debt was approximately 1.6% and 1.7%, respectively, and the weighted average interest rate on the senior notes was approximately 4.9% and 5.1%, respectively, resulting in a blended weighted average interest rate of 4.5% and 4.7%, respectively. The interest rate on approximately 87% of the total principal amount of our debt was fixed as of December 31, 2021 and 2020.

The table set forth below summarizes the fair values and contract terms of financial instruments subject to interest rate risk maintained by us as of December 31, 2021 (dollars in millions):

	2022	2023	2024	2025	2026	Thereafter	Total	Fair Value
Debt:								
Fixed Rate	\$ 3,000	\$ 1,500	\$ 1,100	\$ 4,500	\$ 750	\$ 68,725	\$ 79,575	\$ 88,058
Average Interest Rate	4.46 %	6.92 %	4.50 %	4.91 %	5.50 %	4.89 %	4.91 %	
Variable Rate	\$ 277	\$ 436	\$ 1,165	\$ 6,170	\$ 38	\$ 3,537	\$ 11,623	\$ 11,583
Average Interest Rate	1.86 %	2.68 %	3.16 %	3.04 %	3.40 %	3.56 %	3.17 %	

Interest rates on variable-rate debt are estimated using the average implied forward LIBOR for the year of maturity based on the yield curve in effect at December 31, 2021 including applicable bank spread.

Item 8. Financial Statements and Supplementary Data.

Our consolidated financial statements, the related notes thereto, and the reports of independent accountants are included in this annual report beginning on page F-1.

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

None.

Item 9A. Controls and Procedures.

Conclusion Regarding the Effectiveness of Disclosure Controls and Procedures

As of the end of the period covered by this report, under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we have evaluated the effectiveness of the design and operation of disclosure controls and procedures with respect to the information generated for use in this annual report. The evaluation was based upon reports and certifications provided by a number of executives. Based on, and as of the date of that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that the disclosure controls and procedures were effective to provide reasonable assurances that information required to be disclosed in the reports we file or submit under the Securities Exchange Act of 1934 is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms.

In designing and evaluating the disclosure controls and procedures, our management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable, not absolute, assurance of achieving the desired control objectives, and management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based upon the above evaluation, we believe that our controls provide such reasonable assurances.

During the quarter ended December 31, 2021, there was no change in our internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) for the Company. Our internal control system was designed to provide reasonable assurance to our management and board of directors regarding the preparation and fair presentation of published financial statements.

Management has assessed the effectiveness of our internal control over financial reporting as of December 31, 2021. In making this assessment, we used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”) in *Internal Control — Integrated Framework* (2013). Based on management’s assessment utilizing these criteria we believe that, as of December 31, 2021, our internal control over financial reporting was effective.

Item 9B. Other Information.

None.

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

Not applicable.

PART III

Item 14. Principal Accounting Fees and Services.

Principal Accounting Firm

KPMG acted as Charter and its subsidiaries' independent registered public accounting firm since 2002, and, subject to ratification by stockholders at Charter's annual meeting, KPMG is expected to serve as our independent registered public accounting firm for 2022.

Services of Independent Registered Public Accounting Firm

Charter's Audit Committee has adopted policies and procedures requiring the pre-approval of non-audit services that may be provided by our independent registered public accounting firm. We have also complied and will continue to comply with the provisions of the Sarbanes-Oxley Act of 2002 and the related SEC rules pertaining to auditor independence and audit committee pre-approval of audit and non-audit services.

Audit Fees

During the years ended December 31, 2021 and 2020, we incurred fees and related expenses for professional services rendered by KPMG for the audits of Charter and its subsidiaries' financial statements (including CCO Holdings), for the review of Charter and its subsidiaries' interim financial statements (including CCO Holdings), registration statement filings and offering memoranda filings totaling approximately \$8 million and \$9 million, respectively.

Audit-Related Fees

No audit-related fees to KPMG were incurred during the years ended December 31, 2021 and 2020.

Tax Fees

Charter incurred tax fees to KPMG of approximately \$1 million during each of the years ended December 31, 2021 and 2020.

All Other Fees

None.

Charter's Audit Committee appoints, retains, compensates and oversees the independent registered public accounting firm (subject, if applicable, to board of director and/or stockholder ratification), and approves in advance all fees and terms for the audit engagement and non-audit engagements where non-audit services are not prohibited by Section 10A of the Securities Exchange Act of 1934, as amended with respect to independent registered public accounting firms. Pre-approvals of non-audit services are sometimes delegated to a single member of Charter's Audit Committee. However, any pre-approvals made by Charter's Audit Committee's designee are presented at Charter's Audit Committee's next regularly scheduled meeting. Charter's Audit Committee has an obligation to consult with management on these matters. Charter's Audit Committee approved 100% of the KPMG fees for the years ended December 31, 2021 and 2020. Each year, including 2021, with respect to the audit engagement, Charter's Audit Committee reviews the risk assessment process in establishing the scope of examination and the reports to be rendered.

In its capacity as a committee of the board, Charter's Audit Committee oversees the work of the independent registered public accounting firm (including resolution of disagreements between management and the public accounting firm regarding financial reporting) for the purpose of preparing or issuing an audit report or performing other audit, review or attest services. The independent registered public accounting firm reports directly to Charter's Audit Committee. In performing its functions, Charter's Audit Committee undertakes those tasks and responsibilities that, in its judgment, most effectively contribute to and implement the purposes of Charter's Audit Committee charter. For more detail of Charter's Audit Committee's authority and responsibilities, see Charter's Audit Committee charter on Charter's website, ir.charter.com.

PART IV

Item 15. Exhibits and Financial Statement Schedules.

(a) The following documents are filed as part of this annual report:

(1) Financial Statements.

A listing of the financial statements, notes and reports of independent public accountants required by "Part II. Item 8. Financial Statements and Supplementary Data" begins on page F-1 of this annual report.

(2) Financial Statement Schedules.

No financial statement schedules are required to be filed by Items 8 and 15(c) because they are not required or are not applicable, or the required information is set forth in the applicable financial statements or notes thereto.

(3) The index to the exhibits begins on page E-1 of this annual report.

Item 16. Form 10-K Summary.

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, CCO Holdings, LLC and CCO Holdings Capital Corp. have duly caused this annual report to be signed on their behalf by the undersigned, thereunto duly authorized.

CCO HOLDINGS, LLC
Registrant

By: /s/ Kevin D. Howard
Kevin D. Howard
Executive Vice President, Chief Accounting Officer and Controller

Date: January 28, 2022

CCO HOLDINGS CAPITAL CORP.
Registrant

By: /s/ Kevin D. Howard
Kevin D. Howard
Executive Vice President, Chief Accounting Officer and Controller

Date: January 28, 2022

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of CCO Holdings, LLC and CCO Holdings Capital Corp. and in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Thomas M. Rutledge</u> Thomas M. Rutledge	Chairman, Chief Executive Officer, Director (Principal Executive Officer)	January 28, 2022
<u>/s/ Jessica M. Fischer</u> Jessica M. Fischer	Chief Financial Officer (Principal Financial Officer)	January 28, 2022
<u>/s/ Kevin D. Howard</u> Kevin D. Howard	Executive Vice President, Chief Accounting Officer and Controller (Principal Accounting Officer)	January 28, 2022

CHARTER COMMUNICATIONS, INC., in its sole capacity as
manager of CCO Holdings, LLC

By: /s/ Kevin D. Howard
Kevin D. Howard
Executive Vice President, Chief Accounting Officer and Controller

Date: January 28, 2022

Exhibit Index

Exhibits are listed by numbers corresponding to the Exhibit Table of Item 601 in Regulation S-K.

Exhibit	Description
2.1	<u>Agreement and Plan of Mergers, dated as of May 23, 2015, among Time Warner Cable Inc., Charter Communications, Inc., CCH I, LLC, Nina Corporation I, Inc., Nina Company II, LLC and Nina Company III, LLC (incorporated by reference to Exhibit 2.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on May 29, 2015 (File No. 001-33664)).</u>
2.2	<u>Contribution Agreement, dated March 31, 2015, by and among Advance/Newhouse Partnership, A/NPC Holdings LLC, Charter Communications, Inc., CCH I, LLC, and Charter Communications Holding Company, LLC (incorporated by reference to Exhibit 2.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on April 1, 2015 (File No. 001-33664)).</u>
3.1	<u>Certificate of Formation of CCO Holdings, LLC, as amended (incorporated herein by reference to Exhibit 3.5 to CCO Holdings, LLC's Registration Statement on Form S-4 filed with the SEC on October 7, 2016 (File No. 333-214024)).</u>
3.2	<u>Second Amended and Restated Limited Liability Company Agreement of CCO Holdings, LLC (incorporated herein by reference to Exhibit 3.6 to CCO Holdings, LLC's Registration Statement on Form S-4 filed with the SEC on October 7, 2016 (File No. 333-214024)).</u>
3.3	<u>Amended and Restated Certificate of Incorporation of CCO Holdings Capital Corp. (incorporated by reference to Exhibit 3.3 to the annual report on Form 10-K of CCO Holdings, LLC and CCO Holdings Capital Corp. filed on March 30, 2010 (File No. 333-112593)).</u>
3.4	<u>By-laws of CCO Holdings Capital Corp. (incorporated by reference to Exhibit 3.6 to the registration statement on Form S-4 of CCO Holdings, LLC and CCO Holdings Capital Corporation filed on February 6, 2004 (File No. 333-112593)).</u>
4.1(a)	<u>Amended and Restated Stockholders Agreement, dated March 31, 2015, by and among Charter Communications, Inc., Liberty Broadband Corporation and Advance/Newhouse Partnership (incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on April 1, 2015 (File No. 001-33664)).</u>
4.1(b)	<u>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 the registration statement on Form S-4 filed by CCH I, LLC on June 26, 2015 (File No. 333-205240)).</u>
10.1	<u>Indenture dated as of November 5, 2014, by and among CCO Holdings, LLC, CCO Holdings Capital Corp. and CCOH Safari, LLC, as Issuers, Charter Communications, Inc., as Parent Guarantor, and The Bank of New York Mellon Trust Company, N.A., as Trustee (incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K of Charter Communications, Inc. filed on November 10, 2014 (File No. 001-33664)).</u>
10.2	<u>Indenture, dated as of July 23, 2015, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp. and CCO Safari II, LLC, as issuers, and The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent (incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on July 27, 2015 (File No. 001-33664)).</u>
10.3	<u>Exchange and Registration Rights Agreement, dated July 23, 2015 relating to the 3.579% Senior Secured Notes due 2020, 4.464% Senior Secured Notes due 2022, 4.908% Senior Secured Notes due 2025, 6.384% Senior Secured Notes due 2035, 6.484% Senior Secured Notes due 2045 and 6.834% Senior Secured Notes due 2055, between CCO Safari II, LLC and Goldman, Sachs & Co., Credit Suisse Securities (USA) LLC, Merrill Lynch, Pierce, Fenner & Smith Incorporated, Deutsche Bank Securities Inc. and UBS Securities LLC, as representatives of the several Purchasers (as defined therein) (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on July 27, 2015 (File No. 001-33664)).</u>
10.4	<u>Indenture, dated as of November 20, 2015, among CCO Holdings, LLC, CCO Holdings Capital Corp. and CCOH Safari, LLC, as issuers, and The Bank of New York Mellon Trust Company, N.A., as trustee (incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on November 25, 2015 (File No. 001-33664)).</u>
10.5	<u>Seventh Supplemental Indenture, dated as of April 21, 2016, among CCO Holdings, LLC, CCO Holdings Capital Corp., Charter Communications, Inc., as guarantor, and The Bank of New York Mellon Trust Company, N.A., as trustee (incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on April 27, 2016 (File No. 001-33664)).</u>
10.6	<u>Form of 5.500% Senior Notes due 2026 (incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K of Charter Communications, Inc. filed April 27, 2016).</u>

- 10.7 [Exchange and Registration Rights Agreement, dated April 21, 2016, relating to the 5.500% Senior Notes due 2026, among CCO Holdings, LLC, CCO Holdings Capital Corp., Charter Communications, Inc., as guarantor, and Merrill Lynch, Pierce, Fenner & Smith Incorporated, Citigroup Global Markets Inc., Credit Suisse Securities \(USA\) LLC, Deutsche Bank Securities Inc., Goldman, Sachs & Co., UBS Securities LLC and Wells Fargo Securities, LLC, as representatives of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on April 27, 2016 \(File No. 001-33664\)\).](#)
- 10.8 [Second Supplemental Indenture, dated as of May 18, 2016, by and among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., CCO Safari II, LLC and The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent \(incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on May 24, 2016 \(File No. 001-33664\)\).](#)
- 10.9 [Third Supplemental Indenture, dated as of May 18, 2016, by and among CCO Holdings, LLC, the subsidiary guarantors party thereto and The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent \(incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on May 24, 2016 \(File No. 001-33664\)\).](#)
- 10.10 [Second Supplemental Indenture, dated as of May 18, 2016, by and among CCO Holdings, LLC, CCO Holdings Capital Corp., CCOH Safari, LLC and The Bank of New York Mellon Trust Company, N.A., as trustee \(incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on May 24, 2016 \(File No. 001-33664\)\).](#)
- 10.11 [Third Supplemental Indenture, dated as of February 6, 2017, among CCO Holdings, LLC, CCO Holdings Capital Corp., and The Bank of New York Mellon Trust Company, N.A., as trustee \(incorporated herein by reference to Exhibit 4.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on February 6, 2017 \(File No. 001-33664\)\).](#)
- 10.12 [Exchange and Registration Rights Agreement, dated February 6, 2017, relating to the 5.125% Senior Notes due 2027, among CCO Holdings, LLC, CCO Holdings Capital Corp., and Merrill Lynch, Pierce, Fenner & Smith Incorporated, Citigroup Global Markets Inc., Credit Suisse Securities \(USA\) LLC, Deutsche Bank Securities Inc., Goldman, Sachs & Co., UBS Securities LLC, and Wells Fargo Securities, LLC, as representatives of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on February 6, 2017 \(File No. 001-33664\)\).](#)
- 10.13 [Exchange and Registration Rights Agreement, dated March 29, 2017, relating to the 5.125% Senior Notes due 2027, among CCO Holdings, LLC, CCO Holdings Capital Corp., and Deutsche Bank Securities Inc., Merrill Lynch, Pierce, Fenner & Smith Incorporated, Citigroup Global Markets Inc., Credit Suisse Securities \(USA\) LLC, Goldman, Sachs & Co., UBS Securities LLC, and Wells Fargo Securities, LLC, as representatives of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on March 31, 2017 \(File No. 001-33664\)\).](#)
- 10.14 [Fifth Supplemental Indenture, dated as of April 20, 2017, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., the guarantors party thereto and The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent \(incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on April 26, 2017 \(File No. 001-33664\)\).](#)
- 10.15 [Exchange and Registration Rights Agreement, dated April 20, 2017, relating to the 5.125% Senior Notes due 2027, among CCO Holdings, LLC, CCO Holdings Capital Corp. and Citigroup Global Markets Inc., as a representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on April 26, 2017 \(File No. 001-33664\)\).](#)
- 10.16 [Exchange and Registration Rights Agreement, dated April 20, 2017, relating to the 5.375% Senior Notes due 2047, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., the guarantors party thereto and Citigroup Global Markets Inc., as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on April 26, 2017 \(File No. 001-33664\)\).](#)
- 10.17 [Sixth Supplemental Indenture, dated as of July 6, 2017, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., the guarantors party thereto and The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent \(incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on July 12, 2017 \(File No. 001-33664\)\).](#)
- 10.18 [Exchange and Registration Rights Agreement, dated July 6, 2017, relating to the 3.750% Senior Notes due 2028, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., the guarantors party thereto and Merrill Lynch, Pierce, Fenner & Smith Incorporated, as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on July 12, 2017 \(File No. 001-33664\)\).](#)
- 10.19 [Exchange and Registration Rights Agreement, dated July 6, 2017, relating to the 5.375% Senior Notes due 2047, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., the guarantors party thereto and Merrill Lynch, Pierce, Fenner & Smith Incorporated, as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on July 12, 2017 \(File No. 001-33664\)\).](#)

- 10.20 [Fourth Supplemental Indenture, dated as of August 8, 2017, among CCO Holdings, LLC, CCO Holdings Capital Corp. and The Bank of New York Mellon Trust Company, N.A., as trustee \(incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on August 14, 2017 \(File No. 001-33664\)\).](#)
- 10.21 [Exchange and Registration Rights Agreement, dated August 8, 2017, relating to the 5.000% Senior Notes due 2028, among CCO Holdings, LLC, CCO Holdings Capital Corp. and Merrill Lynch, Pierce, Fenner & Smith Incorporated, as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on August 14, 2017 \(File No. 001-33664\)\).](#)
- 10.22 [Seventh Supplemental Indenture, dated as of September 18, 2017, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., the guarantors party thereto and The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent \(incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on September 21, 2017 \(File No. 001-33664\)\).](#)
- 10.23 [Exchange and Registration Rights Agreement, dated September 18, 2017, relating to the 4.200% Senior Secured Notes due 2028, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., the guarantors party thereto and Merrill Lynch, Pierce, Fenner & Smith Incorporated and Citigroup Global Markets Inc., as representatives of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on September 21, 2017 \(File No. 001-33664\)\).](#)
- 10.24 [Exchange and Registration Rights Agreement, dated September 18, 2017, relating to the 5.375% Senior Secured Notes due 2047, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., the guarantors party thereto and Merrill Lynch, Pierce, Fenner & Smith Incorporated and Citigroup Global Markets Inc., as representatives of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on September 21, 2017 \(File No. 001-33664\)\).](#)
- 10.25 [Fifth Supplemental Indenture, dated as of October 17, 2017, among CCO Holdings, LLC, CCO Holdings Capital Corp. and The Bank of New York Mellon Trust Company, N.A., as trustee \(incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on October 20, 2017 \(File No. 001-33664\)\).](#)
- 10.26 [Exchange and Registration Rights Agreement, dated October 17, 2017, relating to the 5.000% Senior Notes due 2028, among CCO Holdings, LLC, CCO Holdings Capital Corp. and Merrill Lynch, Pierce, Fenner & Smith Incorporated, as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on October 20, 2017 \(File No. 001-33664\)\).](#)
- 10.27 [Exchange and Registration Rights Agreement, dated October 17, 2017, relating to the 4.000% Senior Notes due 2023, among CCO Holdings, LLC, CCO Holdings Capital Corp. and Merrill Lynch, Pierce, Fenner & Smith Incorporated, as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on October 20, 2017 \(File No. 001-33664\)\).](#)
- 10.28 [Eighth Supplemental Indenture, dated as of December 21, 2017, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., CCO Holdings, LLC, the subsidiary guarantor parties thereto and The Bank of New York Mellon Trust Company, N.A., as trustee \(incorporated by reference to Exhibit 4.5 to Form S-3 filed by Charter Communications, Inc. on December 22, 2017 \(File No. 333-222241\)\).](#)
- 10.29 [Underwriting Agreement, dated as of April 3, 2018, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., CCO Holdings, LLC, as parent guarantor, the subsidiary guarantors party thereto and Citigroup Global Markets Inc. and Deutsche Bank Securities Inc., as representatives of the several underwriters named therein \(incorporated by reference to Exhibit 99.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on April 6, 2018 \(File No. 001-33664\)\).](#)
- 10.30 [Ninth Supplemental Indenture, dated as of April 17, 2018, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., as issuers, CCO Holdings, LLC, the subsidiary guarantors party thereto and The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent \(incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on April 20, 2018 \(File No. 001-33664\)\).](#)
- 10.31 [Form of 5.375% Senior Secured Notes due 2038 \(incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on April 20, 2018 \(File No. 001-33664\)\).](#)
- 10.32 [Form of 5.750% Senior Secured Notes due 2048 \(incorporated by reference to Exhibit 4.4 to the Current Report on Form 8-K filed by Charter Communications, Inc. on April 20, 2018 \(File No. 001-33664\)\).](#)

- 10.33 [Underwriting Agreement, dated as of June 28, 2018, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., CCO Holdings, LLC, as parent guarantor, the subsidiary guarantors party thereto and Citigroup Global Markets Inc. and Morgan Stanley & Co. LLC, as representatives of the several underwriters named therein \(incorporated by reference to Exhibit 99.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on July 3, 2018 \(File No. 001-33664\)\).](#)
- 10.34 [Tenth Supplemental Indenture, dated as of July 3, 2018, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., as issuers, CCO Holdings, LLC, the subsidiary guarantors party thereto and The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent \(incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on July 9, 2018 \(File No. 001-33664\)\).](#)
- 10.35 [Form of Senior Secured Floating Notes due 2024 \(incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on July 9, 2018 \(File No. 001-33664\)\).](#)
- 10.36 [Form of 4.500% Senior Secured Notes due 2024 \(incorporated by reference to Exhibit 4.4 to the Current Report on Form 8-K filed by Charter Communications, Inc. on July 9, 2018 \(File No. 001-33664\)\).](#)
- 10.37 [Underwriting Agreement, dated as of August 9, 2018, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., CCO Holdings, LLC, as parent guarantor, the subsidiary guarantors party thereto and Morgan Stanley & Co. LLC, as underwriter \(incorporated by reference to Exhibit 99.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on August 15, 2018 \(File No. 001-33664\)\).](#)
- 10.38 [Underwriting Agreement, dated as of January 14, 2019, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., CCO Holdings, LLC, as parent guarantor, the subsidiary guarantors party thereto and Citigroup Global Markets Inc. and Deutsche Bank Securities Inc., as representatives of the several underwriters named therein \(incorporated by reference to Exhibit 99.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on January 17, 2019 \(File No. 001-33664\)\).](#)
- 10.39 [Twelfth Supplemental Indenture, dated as of January 17, 2019, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., as issuers, CCO Holdings, LLC, the subsidiary guarantors party thereto and The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent \(incorporated by reference to Exhibit 4.4 to the Current Report on Form 8-K filed by Charter Communications, Inc. on January 24, 2019 \(File No. 001-33664\)\).](#)
- 10.40 [Form of 5.050% Senior Secured Notes due 2029 \(incorporated by reference to Exhibit 4.5 to the Current Report on Form 8-K filed by Charter Communications, Inc. on January 24, 2019 \(File No. 001-33664\)\).](#)
- 10.41 [Indenture, dated as of May 23, 2019, among CCO Holdings, LLC, CCO Holdings Capital Corp. and The Bank of New York Mellon Trust Company, N.A., as trustee \(incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on May 30, 2019 \(File No. 001-33664\)\).](#)
- 10.42 [First Supplemental Indenture, dated as of May 23, 2019, among CCO Holdings, LLC, CCO Holdings Capital Corp. and The Bank of New York Mellon Trust Company, N.A., as trustee \(incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on May 30, 2019 \(File No. 001-33664\)\).](#)
- 10.43 [Form of 5.375% Senior Notes due 2029 \(incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on May 30, 2019 \(File No. 001-33664\)\).](#)
- 10.44 [Exchange and Registration Rights Agreement, dated May 23, 2019, relating to the 5.375% Senior Notes due 2029, among CCO Holdings, LLC, CCO Holdings Capital Corp. and Deutsche Bank Securities Inc., as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on May 30, 2019 \(File No. 001-33664\)\).](#)
- 10.45 [Underwriting Agreement, dated as of June 25, 2019, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., CCO Holdings, LLC, as parent guarantor, the subsidiary guarantors party thereto and Citigroup Global Markets Inc., J.P. Morgan Securities LLC and Morgan Stanley & Co. LLC, as representatives of the several underwriters named in Schedule I thereto \(incorporated by reference to Exhibit 99.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on July 1, 2019 \(File No. 001-33664\)\).](#)
- 10.46 [Fourteenth Supplemental Indenture, dated as of July 10, 2019, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., as issuers, CCO Holdings, LLC, the subsidiary guarantors party thereto and The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent \(incorporated by reference to Exhibit 4.5 to the Current Report on Form 8-K filed by Charter Communications, Inc. on July 10, 2019 \(File No. 001-33664\)\).](#)
- 10.47 [Form of 5.125% Senior Secured Notes due 2049 \(incorporated by reference to Exhibit 4.6 to the Current Report on Form 8-K filed by Charter Communications, Inc. on July 10, 2019 \(File No. 001-33664\)\).](#)
- 10.48 [Exchange and Registration Rights Agreement, dated July 10, 2019, relating to the 5.375% Senior Notes due 2029, among CCO Holdings, LLC, CCO Holdings Capital Corp. and Deutsche Bank Securities Inc., as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on July 10, 2019 \(File No. 001-33664\)\).](#)

- 10.49 [Second Supplemental Indenture, dated as of October 1, 2019, among CCO Holdings, LLC, CCO Holdings Capital Corp. and The Bank of New York Mellon Trust Company, N.A., as trustee \(incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on October 7, 2019\).](#)
- 10.50 [Form of 4.750% Senior Notes due 2030 \(incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on October 7, 2019 \(File No. 001-33664\)\).](#)
- 10.51 [Exchange and Registration Rights Agreement, dated October 1, 2019, relating to the 4.750% Senior Notes due 2030, among CCO Holdings, LLC, CCO Holdings Capital Corp. and BofA Securities, Inc., as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on October 7, 2019 \(File No. 001-33664\)\).](#)
- 10.52 [Fifteenth Supplemental Indenture, dated as of October 24, 2019, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., as issuers, CCO Holdings, LLC, the subsidiary guarantors party thereto and The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent \(incorporated by reference to Exhibit 4.5 to the Current Report on Form 8-K filed by Charter Communications, Inc. on October 30, 2019 \(File No. 001-33664\)\).](#)
- 10.53 [Form of 4.800% Senior Secured Notes due 2050 \(incorporated by reference to Exhibit 4.6 to the Current Report on Form 8-K filed by Charter Communications, Inc. on October 30, 2019 \(File No. 001-33664\)\).](#)
- 10.54 [Exchange and Registration Rights Agreement, dated October 24, 2019, relating to the 4.750% Senior Notes due 2030, among CCO Holdings, LLC, CCO Holdings Capital Corp. and BofA Securities, Inc., as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on October 30, 2019 \(File No. 001-33664\)\).](#)
- 10.55 [Underwriting Agreement, dated as of December 2, 2019, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., CCO Holdings, LLC, as parent guarantor, the subsidiary guarantors party thereto and Deutsche Bank Securities Inc., Mizuho Securities USA LLC and Morgan Stanley & Co. LLC, as representatives of the several underwriters named in Schedule I thereto \(incorporated by reference to Exhibit 99.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on December 5, 2019 \(File No. 001-33664\)\).](#)
- 10.56 [Form of 4.800% Senior Secured Notes due 2050 \(incorporated by reference to Exhibit 4.6 to the Current Report on Form 8-K filed by Charter Communications, Inc. on December 16, 2019 \(File No. 001-33664\)\).](#)
- 10.57 [Exchange and Registration Rights Agreement, dated December 16, 2019, relating to the 4.750% Senior Notes due 2030, among CCO Holdings, LLC, CCO Holdings Capital Corp. and Citigroup Global Markets, Inc., as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on December 16, 2019 \(File No. 001-33664\)\).](#)
- 10.58 [Third Supplemental Indenture, dated as of February 18, 2020, among CCO Holdings, LLC, CCO Holdings Capital Corp. and The Bank of New York Mellon Trust Company, N.A., as trustee \(incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on February 21, 2020 \(File No. 001-33664\)\).](#)
- 10.59 [Form of 4.500% Senior Notes due 2030 \(incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on February 21, 2020 \(File No. 001-33664\)\).](#)
- 10.60 [Exchange and Registration Rights Agreement, dated February 18, 2020, relating to the 4.500% Senior Notes due 2030, among CCO Holdings, LLC, CCO Holdings Capital Corp. and Deutsche Bank Securities, Inc., as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on February 21, 2020 \(File No. 001-33664\)\).](#)
- 10.61 [Fourth Supplemental Indenture, dated as of March 18, 2020, among CCO Holdings, LLC, CCO Holdings Capital Corp. and The Bank of New York Mellon Trust Company, N.A., as trustee \(incorporated by reference to Exhibit 4.4 to the Current Report on Form 8-K filed by Charter Communications, Inc. on March 23, 2020 \(File No. 001-33664\)\).](#)
- 10.62 [Form of 4.500% Senior Notes due 2032 \(incorporated by reference to Exhibit 4.5 to the Current Report on Form 8-K filed by Charter Communications, Inc. on March 23, 2020 \(File No. 001-33664\)\).](#)
- 10.63 [2030 Exchange and Registration Rights Agreement, dated March 18, 2020, relating to the 4.500% Senior Notes due 2030, among CCO Holdings, LLC, CCO Holdings Capital Corp. and Deutsche Bank Securities, Inc., as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on March 23, 2020 \(File No. 001-33664\)\).](#)
- 10.64 [2032 Exchange and Registration Rights Agreement, dated March 18, 2020, relating to the 4.500% Senior Notes due 2032, among CCO Holdings, LLC, CCO Holdings Capital Corp. and Deutsche Bank Securities, Inc., as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on March 23, 2020 \(File No. 001-33664\)\).](#)

- 10.65 [Underwriting Agreement, dated as of April 14, 2020, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., CCO Holdings, LLC, as parent guarantor, the subsidiary guarantors party thereto and BofA Securities, Inc., J.P. Morgan Securities LLC and Morgan Stanley & Co. LLC, as representatives of the several underwriters named in Schedule I thereto \(incorporated by reference to Exhibit 99.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on April 17, 2020 \(File No. 001-33664\)\).](#)
- 10.66 [Sixteenth Supplemental Indenture, dated as of April 17, 2020, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., as issuers, CCO Holdings, LLC, the subsidiary guarantors party thereto and The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent \(incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on April 17, 2020 \(File No. 001-33664\)\).](#)
- 10.67 [Form of 2.800% Senior Secured Notes due 2021 \(incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on April 17, 2020 \(File No. 001-33664\)\).](#)
- 10.68 [Form of 3.700% Senior Secured Notes due 2051 \(incorporated by reference to Exhibit 4.4 to the Current Report on Form 8-K filed by Charter Communications, Inc. on April 17, 2020 \(File No. 001-33664\)\).](#)
- 10.69 [Fifth Supplemental Indenture, dated as of July 9, 2020, among CCO Holdings, LLC, CCO Holdings Capital Corp. and The Bank of New York Mellon Trust Company, N.A., as trustee \(incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on July 13, 2020 \(File No. 001-33664\)\).](#)
- 10.70 [Form of 4.250% Senior Notes due 2031 \(incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on July 13, 2020 \(File No. 001-33664\)\).](#)
- 10.71 [Exchange and Registration Rights Agreement, dated July 9, 2020, relating to the 4.250% Senior Notes due 2031, among CCO Holdings, LLC, CCO Holdings Capital Corp. and Morgan Stanley & Co. LLC, as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on July 13, 2020 \(File No. 001-33664\)\).](#)
- 10.72 [Exchange and Registration Rights Agreement, dated July 24, 2020, relating to the 4.250% Senior Notes due 2031, among CCO Holdings, LLC, CCO Holdings Capital Corp. and Morgan Stanley & Co. LLC, as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on July 28, 2020 \(File No. 001-33664\)\).](#)
- 10.73 [Exchange and Registration Rights Agreement, dated October 12, 2020, relating to the 4.500% Senior Notes due 2032, among CCO Holdings, LLC, CCO Holdings Capital Corp. and Deutsche Bank Securities Inc., as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on October 16, 2020 \(File No. 001-33664\)\).](#)
- 10.74 [Underwriting Agreement, dated as of November 19, 2020, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., CCO Holdings, LLC, as parent guarantor, the subsidiary guarantors party thereto and Deutsche Bank Securities Inc., J.P. Morgan Securities LLC and Morgan Stanley & Co. LLC, as representatives of the several underwriters named in Schedule I thereto \(incorporated by reference to Exhibit 99.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on December 4, 2020 \(File No. 001-33664\)\).](#)
- 10.75 [Eighteenth Supplemental Indenture, dated as of December 4, 2020, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., as issuers, CCO Holdings, LLC, the subsidiary guarantors party thereto and The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent \(incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on December 4, 2020 \(File No. 001-33664\)\).](#)
- 10.76 [Form of 2.300% Senior Secured Notes due 2032 \(incorporated by reference to Exhibit 4.5 to the Current Report on Form 8-K filed by Charter Communications, Inc. on December 4, 2020 \(File No. 001-33664\)\).](#)
- 10.77 [Form of 3.850% Senior Secured Notes due 2061 \(incorporated by reference to Exhibit 4.6 to the Current Report on Form 8-K filed by Charter Communications, Inc. on December 4, 2020 \(File No. 001-33664\)\).](#)
- 10.78 [Nineteenth Supplemental Indenture, dated as of March 4, 2021, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., as issuers, CCO Holdings, LLC, the subsidiary guarantors party thereto and The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent \(incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on March 4, 2021 \(File No. 001-33664\)\).](#)
- 10.79 [Form of 3.500% Senior Secured Notes due 2041 \(incorporated by reference to Exhibit 4.4 to the Current Report on Form 8-K filed by Charter Communications, Inc. on March 4, 2021 \(File No. 001-33664\)\).](#)
- 10.80 [Form of 3.900% Senior Secured Notes due 2052 \(incorporated by reference to Exhibit 4.5 to the Current Report on Form 8-K filed by Charter Communications, Inc. on March 4, 2021 \(File No. 001-33664\)\).](#)

- 10.81 [Underwriting Agreement, dated as of February 18, 2021, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., CCO Holdings, LLC, as parent guarantor, the subsidiary guarantors party thereto and Credit Suisse Securities \(USA\) LLC, J.P. Morgan Securities LLC and Morgan Stanley & Co. LLC, as representatives of the several underwriters named in Schedule I thereto \(incorporated by reference to Exhibit 99.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on March 4, 2021 \(File No. 001-33664\)\).](#)
- 10.82 [Sixth Supplemental Indenture, dated as of April 22, 2021, among CCO Holdings, LLC, CCO Holdings Capital Corp. and The Bank of New York Mellon Trust Company, N.A., as trustee \(incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on April 27, 2021 \(File No. 001-33664\)\).](#)
- 10.83 [Form of 4.500% Senior Notes due 2033 \(incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on April 27, 2021 \(File No. 001-33664\)\).](#)
- 10.84 [Exchange and Registration Rights Agreement, dated April 22, 2021, relating to the 4.500% Senior Notes due 2033, among CCO Holdings, LLC, CCO Holdings Capital Corp. and Deutsche Bank Securities Inc., as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on April 27, 2021 \(File No. 001-33664\)\).](#)
- 10.85 [Twentieth Supplemental Indenture, dated as of June 2, 2021, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., as issuers, CCO Holdings, LLC, the subsidiary guarantors party thereto and The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent \(incorporated by reference to Exhibit 4.6 to the Current Report on Form 8-K filed by Charter Communications, Inc. on June 2, 2021, 2021 \(File No. 001-33664\)\).](#)
- 10.86 [Form of 4.400% Senior Notes due 2061 \(incorporated by reference to Exhibit 4.8 to the Current Report on Form 8-K filed by Charter Communications, Inc. on June 2, 2021, 2021 \(File No. 001-33664\)\).](#)
- 10.87 [Exchange and Registration Rights Agreement, dated June 2, 2021, relating to the 4.500% Senior Notes due 2033, among CCO Holdings, LLC, CCO Holdings Capital Corp. and Deutsche Bank Securities Inc., as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on June 2, 2021, 2021 \(File No. 001-33664\)\).](#)
- 10.88 [Underwriting Agreement, dated as of May 18, 2021, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., CCO Holdings, LLC, as parent guarantor, the subsidiary guarantors party thereto and Deutsche Bank Securities Inc., Miuho Securities USA LLC and Morgan Stanley & Co. LLC, as representatives of the several underwriters named in Schedule I thereto \(incorporated by reference to Exhibit 99.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on June 2, 2021 \(File No. 001-33664\)\).](#)
- 10.89 [Seventh Supplemental Indenture, dated as of August 16, 2021, among CCO Holdings, LLC, CCO Holdings Capital Corp. and The Bank of New York Mellon Trust Company, N.A., as trustee \(incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on August 18, 2021 \(File No. 001-33664\)\).](#)
- 10.90 [Form of 4.250% Senior Notes due 2034 \(incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on August 18, 2021 \(File No. 001-33664\)\).](#)
- 10.91 [Exchange and Registration Rights Agreement, dated August 16, 2021, relating to the 4.250% Senior Notes due 2034, among CCO Holdings, LLC, CCO Holdings Capital Corp. and Morgan Stanley & Co. LLC, as representative of the several Purchasers \(as defined therein\) \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on August 18, 2021 \(File No. 001-33664\)\).](#)
- 10.92 [Underwriting Agreement, dated as of September 27, 2021, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., CCO Holdings, LLC, as parent guarantor, the subsidiary guarantors party thereto and Citigroup Global Markets Inc., Deutsche Bank Securities Inc. and Morgan Stanley & Co. LLC, as representatives of the several underwriters named in Schedule I thereto \(incorporated by reference to Exhibit 99.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on October 12, 2021 \(File No. 001-33664\)\).](#)
- 10.93 [Twenty-First Supplemental Indenture, dated as of October 12, 2021, among Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., as issuers, CCO Holdings, LLC, the subsidiary guarantors party thereto and The Bank of New York Mellon Trust Company, N.A., as trustee and collateral agent \(incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on October 12, 2021 \(File No. 001-33664\)\).](#)
- 10.94 [Form of 2.250% Senior Secured Notes due 2029 \(incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on October 12, 2021 \(File No. 001-33664\)\).](#)
- 10.95 [Form of 3.500% Senior Secured Notes due 2042 \(incorporated by reference to Exhibit 4.4 to the Current Report on Form 8-K filed by Charter Communications, Inc. on October 12, 2021 \(File No. 001-33664\)\).](#)
- 10.96 [Form of 3.950% Senior Secured Notes due 2062 \(incorporated by reference to Exhibit 4.5 to the Current Report on Form 8-K filed by Charter Communications, Inc. on October 12, 2021 \(File No. 001-33664\)\).](#)

- 10.97 [Eighth Supplemental Indenture, dated as of January 19, 2022, among CCO Holdings, LLC, CCO Holdings Capital Corp. and The Bank of New York Mellon Trust Company, N.A., as trustee. \(incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on January 25, 2022 \(File No. 001-33664\)\).](#)
- 10.98 [Form of 4.750% Senior Notes due 2032 \(incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on January 25, 2022 \(File No. 001-33664\)\).](#)
- 10.99 [Exchange and Registration Rights Agreement, dated January 19, 2022, relating to the 4.750% Senior Notes due 2032, among CCO Holdings, LLC, CCO Holdings Capital Corp. and Deutsche Bank Securities Inc., as representative of the several Purchasers \(as defined therein\). \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on January 25, 2022 \(File No. 001-33664\)\).](#)
- 10.100 Indenture, dated as of April 30, 1992 (the “TWCE Indenture”), as amended by the First Supplemental Indenture, dated as of June 30, 1992, among Time Warner Entertainment Company, L.P. (“TWE”), Time Warner Companies, Inc. (“TWCI”), certain of TWCI’s subsidiaries that are parties thereto and The Bank of New York, as Trustee (incorporated herein by reference to Exhibits 10(g) and 10(h) to TWCI’s Current Report on Form 8-K dated June 26, 1992 and filed with the SEC on July 15, 1992 (File No. 1-8637)). (P)
- 10.101 Second Supplemental Indenture to the TWCE Indenture, dated as of December 9, 1992, among TWE, TWCI, certain of TWCI’s subsidiaries that are parties thereto and The Bank of New York, as Trustee (incorporated herein by reference to Exhibit 4.2 to Amendment No. 1 to TWE’s Registration Statement on Form S-4 dated and filed with the SEC on October 25, 1993 (Registration No. 33-67688) (the “TWE October 25, 1993 Registration Statement”)). (P)
- 10.102 Third Supplemental Indenture to the TWCE Indenture, dated as of October 12, 1993, among TWE, TWCI, certain of TWCI’s subsidiaries that are parties thereto and The Bank of New York, as Trustee (incorporated herein by reference to Exhibit 4.3 to the TWE October 25, 1993 Registration Statement). (P)
- 10.103 Fourth Supplemental Indenture to the TWCE Indenture, dated as of March 29, 1994, among TWE, TWCI, certain of TWCI’s subsidiaries that are parties thereto and The Bank of New York, as Trustee (incorporated herein by reference to Exhibit 4.4 to TWE’s Annual Report on Form 10-K for the year ended December 31, 1993 and filed with the SEC on March 30, 1994 (File No. 1-12878)). (P)
- 10.104 Fifth Supplemental Indenture to the TWCE Indenture, dated as of December 28, 1994, among TWE, TWCI, certain of TWCI’s subsidiaries that are parties thereto and The Bank of New York, as Trustee (incorporated herein by reference to Exhibit 4.5 to TWE’s Annual Report on Form 10-K for the year ended December 31, 1994 and filed with the SEC on March 30, 1995 (File No. 1-12878)). (P)
- 10.105 [Sixth Supplemental Indenture to the TWCE Indenture, dated as of September 29, 1997, among TWE, TWCI, certain of TWCI’s subsidiaries that are parties thereto and The Bank of New York, as Trustee \(incorporated herein by reference to Exhibit 4.7 to Historic TW Inc.’s \(“Historic TW”\) Annual Report on Form 10-K for the year ended December 31, 1997 and filed with the SEC on March 25, 1998 \(File No. 1-12259\) \(the “Time Warner 1997 Form 10-K”\)\).](#)
- 10.106 [Seventh Supplemental Indenture to the TWCE Indenture, dated as of December 29, 1997, among TWE, TWCI, certain of TWCI’s subsidiaries that are parties thereto and The Bank of New York, as Trustee \(incorporated herein by reference to Exhibit 4.8 to the Time Warner 1997 Form 10-K\).](#)
- 10.107 [Eighth Supplemental Indenture to the TWCE Indenture, dated as of December 9, 2003, among Historic TW, TWE, Warner Communications Inc. \(“WCI”\), American Television and Communications Corporation \(“ATC”\), TWC and The Bank of New York, as Trustee \(incorporated herein by reference to Exhibit 4.10 to Time Warner Inc.’s \(“Time Warner”\) Annual Report on Form 10-K for the year ended December 31, 2003 \(File No. 1-15062\)\).](#)
- 10.108 [Ninth Supplemental Indenture to the TWCE Indenture, dated as of November 1, 2004, among Historic TW, TWE, Time Warner NY Cable Inc., WCI, ATC, TWC and The Bank of New York, as Trustee \(incorporated herein by reference to Exhibit 4.1 to Time Warner’s Quarterly Report on Form 10-Q for the quarter ended September 30, 2004 \(File No. 1-15062\)\).](#)
- 10.109 [Tenth Supplemental Indenture to the TWCE Indenture, dated as of October 18, 2006, among Historic TW, TWE, TW NY Cable Holding Inc. \(“TW NY”\), Time Warner NY Cable LLC \(“TW NY Cable”\), TWC, WCI, ATC and The Bank of New York, as Trustee \(incorporated herein by reference to Exhibit 4.1 to Time Warner’s Current Report on Form 8-K dated and filed October 18, 2006 \(File No. 1-15062\)\).](#)
- 10.110 [Eleventh Supplemental Indenture to the TWCE Indenture, dated as of November 2, 2006, among TWE, TW NY, TWC and The Bank of New York, as Trustee \(incorporated herein by reference to Exhibit 99.1 to Time Warner’s Current Report on Form 8-K dated and filed November 2, 2006 \(File No. 1-15062\)\).](#)
- 10.111 [Twelfth Supplemental Indenture to the TWCE Indenture, dated as of September 30, 2012, among Time Warner Cable Enterprises LLC \(“TWCE”\), TWC, TW NY, Time Warner Cable Internet Holdings II LLC \(“TWC Internet Holdings II”\) and The Bank of New York Mellon, as trustee, supplementing the Indenture dated April 30, 1992, as amended \(incorporated herein by reference to Exhibit 4.2 to TWC’s Current Report on Form 8-K dated September 30, 2012 and filed with the SEC on October 1, 2012 \(File No. 1-33335\) \(the “TWC September 30, 2012 Form 8-K”\)\).](#)

- 10.112 [Thirteenth Supplemental Indenture, dated as of May 18, 2016, by and among Time Warner Cable Enterprises LLC, the guarantors party thereto and The Bank of New York Mellon \(formerly known as The Bank of New York\), as trustee \(incorporated by reference to Exhibit 4.4 to the Current Report on Form 8-K filed by Charter Communications, Inc. on May 24, 2016 \(File No. 001-33664\)\).](#)
- 10.113 [Indenture, dated as of April 9, 2007 \(the "TWC Indenture"\), among TWC, TW NY, TWE and The Bank of New York, as trustee \(incorporated herein by reference to Exhibit 4.1 to TWC's Current Report on Form 8-K dated April 4, 2007 and filed with the SEC on April 9, 2007 \(File No. 1-33335\),\(the "TWC April 4, 2007 Form 8-K"\).](#)
- 10.114 [First Supplemental Indenture to the TWC Indenture, dated as of April 9, 2007, among TWC, TW NY, TWE and The Bank of New York, as trustee \(incorporated herein by reference to Exhibit 4.2 to the TWC April 4, 2007 Form 8-K\).](#)
- 10.115 [Second Supplemental Indenture to the TWC Indenture, dated as of September 30, 2012, among TWC, TW NY, TWCE, TWC Internet Holdings II and The Bank of New York Mellon, as trustee, supplementing the Indenture dated April 9, 2007, as amended \(incorporated herein by reference to Exhibit 4.1 to the TWC September 30, 2012 Form 8-K\).](#)
- 10.116 [Third Supplemental Indenture, dated as of May 18, 2016, by and among Time Warner Cable Inc., TWC NewCo LLC and The Bank of New York Mellon \(formerly known as The Bank of New York\), as trustee \(incorporated by reference to Exhibit 4.5 to the Current Report on Form 8-K filed by Charter Communications, Inc. on May 24, 2016 \(File No. 001-33664\)\).](#)
- 10.117 [Fourth Supplemental Indenture, dated as of May 18, 2016, by and among TWC NewCo LLC, the guarantors party thereto and The Bank of New York Mellon \(formerly known as The Bank of New York\), as trustee \(incorporated by reference to Exhibit 4.6 to the Current Report on Form 8-K filed by Charter Communications, Inc. on May 24, 2016 \(File No. 001-33664\)\).](#)
- 10.118 [Form of TWC 6.55% Exchange Debentures due 2037 \(included as Exhibit C to the First Supplemental Indenture incorporated herein by reference to Exhibit 4.2 to the TWC April 4, 2007 Form 8-K\).](#)
- 10.119 [Form of TWC 7.30% Debentures due 2038 \(incorporated herein by reference to Exhibit 4.3 to the TWC June 16, 2008 Form 8-K\).](#)
- 10.120 [Form of TWC 6.75% Debentures due 2039 \(incorporated herein by reference to Exhibit 4.1 to TWC's Current Report on Form 8-K dated June 24, 2009 and filed with the SEC on June 29, 2009 \(File No. 1-33335\)\).](#)
- 10.121 [Form of TWC 5.875% Debentures due 2040 \(incorporated herein by reference to Exhibit 4.2 to the TWC November 9, 2010 Form 8-K\).](#)
- 10.122 [Form of TWC 5.75% Note due 2031 \(incorporated herein by reference to Exhibit 4.1 to TWC's Current Report on Form 8-K dated and filed with the SEC on May 26, 2011 \(File No. 1-33335\)\).](#)
- 10.123 [Form of TWC 5.5% Debenture due 2041 \(incorporated herein by reference to Exhibit 4.2 to the TWC Current Report on Form 8-K dated September 7, 2011 and filed with the SEC on September 12, 2011 \(File No. 1-33335\)\).](#)
- 10.124 [Form of TWC 4.5% Debenture due 2042 \(incorporated herein by reference to Exhibit 4.1 to TWC's Current Report on Form 8-K dated August 7, 2012 and filed with the SEC on August 10, 2012 \(File No. 1-33335\)\).](#)
- 10.125 [Form of TWC 5.25% Note due 2042 \(incorporated herein by reference to Exhibit 4.1 to TWC's Current Report on Form 8-K dated and filed with the SEC on June 27, 2012 \(File No. 1-33335\)\).](#)
- 10.126 [Amendment No. 5, dated as of August 24, 2015, to the Amended and Restated Credit Agreement dated as of April 11, 2012 between Charter Communications Operating, LLC, as borrower, CCO Holdings, LLC, as guarantor, and Bank of America, N.A., as administrative agent \(incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K of Charter Communications, Inc. filed on August 28, 2015 \(File No. 001-33664\)\).](#)
- 10.127 [Incremental Activation Notice, dated as of August 24, 2015 delivered by Charter Communications Operating, LLC, CCO Holdings, LLC, the subsidiary guarantors party thereto, each Term H Lender party thereto to, each Term I Lender party thereto and Bank of America, N.A., as Administrative Agent under the Amended and Restated Credit Agreement, dated as of April 11, 2012 \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K of Charter Communications, Inc. filed on August 28, 2015 \(File No. 001-33664\)\).](#)
- 10.128 [Escrow Credit Agreement, dated as of August 24, 2015, between CCO Safari III, LLC, as borrower, and Bank of America, N.A., as administrative agent, and the lenders party thereto \(incorporated by reference to Exhibit 10.3 to the Current Report on Form 8-K of Charter Communications, Inc. filed on August 28, 2015 \(File No. 001-33664\)\).](#)
- 10.129(a) [Restatement Agreement dated as of May 18, 2016, by and among Charter Communications Operating, LLC, CCO Holdings, LLC, the subsidiary guarantors party thereto, Bank of America, N.A., as administrative agent and the lenders party thereto \(incorporated by reference to Exhibit 10.5 to the Current Report on Form 8-K of Charter Communications, Inc. filed on May 24, 2016 \(File No. 001-33664\)\).](#)

- 10.129(b) [Amendment No. 1 dated as of December 23, 2016, to the Amended and Restated Credit Agreement dated as of March 18, 1999, as amended and restated on May 18, 2016, by and among Charter Communications Operating, LLC, CCO Holdings, LLC, the Lenders Party thereto and Bank of America, N.A., as Administrative Agent \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K of Charter Communications, Inc. filed on December 30, 2016 \(File No. 001-33664\)\).](#)
- 10.129(c) [Restatement Agreement dated as of December 21, 2017 to the Amended and Restated Credit Agreement dated as of March 18, 1999, as amended and restated on May 18, 2016, as amended by Amendment No. 1, dated as of December 23, 2016 and as further amended by that certain Incremental Activation Notice No. 1, dated as of January 19, 2017, by and among Charter Communications Operating, LLC, CCO Holdings, LLC, the Lenders Party thereto and Bank of America, N.A., as Administrative Agent \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K of Charter Communications, Inc. filed on December 28, 2017 \(File No. 001-33664\)\).](#)
- 10.129(d) [Incremental Activation Notice, dated as of May 18, 2016, by and among Charter Communications Operating, LLC, CCO Holdings, LLC, the subsidiary guarantors party thereto, Bank of America, N.A., as administrative agent and the lenders party thereto \(incorporated by reference to Exhibit 10.4 to the Current Report on Form 8-K of Charter Communications, Inc. filed on May 24, 2016 \(File No. 001-33664\)\).](#)
- 10.130 [Amendment No. 1, dated as of January 24, 2019, to \(i\) the Amended and Restated Credit Agreement, dated as of March 18, 1999, as amended and restated on December 21, 2017, by and among Charter Communications Operating, LLC, CCO Holdings, LLC, certain subsidiaries of Charter Communications Operating, LLC, the lenders party thereto and Bank of America, N.A., as Administrative Agent and \(ii\) the Guarantee and Collateral Agreement, dated as of March 18, 1999, as amended and restated as of March 31, 2010, as further amended and restated on May 18, 2016, by and among Charter Communications Operating, LLC, CCO Holdings, LLC, certain subsidiaries of Charter Communications Operating, LLC and Bank of America, N.A., as Administrative Agent \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on January 30, 2019 \(File No. 001-33664\)\).](#)
- 10.131 [Restatement Agreement, dated as of April 26 2019, to the Amended and Restated Credit Agreement, dated as of March 18, 1999, as amended and restated on December 21, 2017 and as amended by Amendment No. 1 as of January 24, 2019, by and among Charter Communications Operating, LLC, CCO Holdings, LLC, certain subsidiaries of Charter Communications Operating, LLC, the lenders party thereto and Bank of America, N.A., as Administrative Agent \(incorporated by reference to Exhibit 10.4 to the Quarterly Report on Form 10-Q of Charter Communications, Inc. filed April 30, 2019 \(File No. 001-33664\)\).](#)
- 10.132 [Amendment No. 1, dated as of October 24, 2019, to the Amended and Restated Credit Agreement, dated as of March 18, 1999, as amended and restated on April 26, 2019, by and among Charter Communications Operating, LLC, CCO Holdings, LLC, certain subsidiaries of Charter Communications Operating, LLC, the lenders party thereto and Bank of America, N.A., as administrative agent \(incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on October 30, 2019 \(File No. 001-33664\)\).](#)
- 10.133 [Collateral Agreement, dated as of May 18, 2016, by Charter Communications Operating, LLC, Charter Communications Operating Capital Corp. and the other grantors party thereto in favor of The Bank of New York Mellon Trust Company, N.A., as collateral agent \(incorporated by reference to Exhibit 10.6 to the Current Report on Form 8-K of Charter Communications, Inc. filed on May 24, 2016 \(File No. 001-33664\)\).](#)
- 10.134 [First Lien Intercreditor Agreement, dated as of May 18, 2016, by and among Charter Communications Operating, LLC, the other grantors party thereto, Bank of America, N.A., as credit agreement collateral agent for the credit agreement secured parties, The Bank of New York Mellon Trust Company, N.A., as notes collateral agent for the indenture secured parties, and each additional agent from time to time party thereto \(incorporated by reference to Exhibit 10.7 to the Current Report on Form 8-K of Charter Communications, Inc. filed on May 24, 2016 \(File No. 001-33664\)\).](#)
- 10.135 [Joinder Agreement to Registration Rights Agreement, dated as of May 18, 2016, by and among CCO Safari II, LLC, CCH II, LLC, Charter Communications Operating, LLC, Charter Communications Operating Capital Corp., CCO Holdings, LLC and the other guarantors party thereto \(incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K of Charter Communications, Inc. filed May 24, 2016\).](#)
- 10.136 [Joinder Agreement to Registration Rights Agreement, dated as of May 18, 2016, by CCO Holdings, LLC and CCO Holdings Capital Corp \(incorporated herein by reference to Exhibit 10.2 to the Current Report on Form 8-K of Charter Communications, Inc. filed May 24, 2016\).](#)
- 10.137 [Escrow Assumption Agreement, dated as of May 18, 2016, by and among CCO Safari III, LLC, Charter Communications Operating, LLC, Bank of America, N.A., as escrow administrative agent and Bank of America, N.A., as administrative agent \(incorporated herein by reference to Exhibit 10.3 to the Current Report on Form 8-K of Charter Communications, Inc. filed May 24, 2016\).](#)
- 10.138 [Amended and Restated Limited Liability Company Agreement of Charter Communications Holdings, LLC, dated as of May 18, 2016, by and among Charter Holdings, Charter, CCH II, LLC, Advance/Newhouse Partnership and the other party or parties thereto \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K of Charter Communications, Inc. filed on May 19, 2016 \(File No. 001-33664\)\).](#)

- 10.139 [Exchange Agreement, dated as of May 18, 2016, by and among Charter Holdings, Charter, Advance/Newhouse Partnership and the other party or parties thereto \(incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K of Charter Communications, Inc. filed on May 19, 2016 \(File No. 001-33664\)\).](#)
- 10.140 [Registration Rights Agreement, dated as of May 18, 2016, by and among Charter, Advance/Newhouse Partnership and Liberty Broadband \(incorporated by reference to Exhibit 10.3 to the Current Report on Form 8-K of Charter Communications, Inc. filed on May 19, 2016 \(File No. 001-33664\)\).](#)
- 10.141 [Tax Receivables Agreement, dated as of May 18, 2016, by and among Charter, Advance/Newhouse Partnership and the other party or parties thereto \(incorporated by reference to Exhibit 10.4 to the Current Report on Form 8-K of Charter Communications, Inc. filed on May 19, 2016 \(File No. 001-33664\)\).](#)
- 10.142 [Wireless Operational Cooperation Agreement dated as of May 5, 2017 between Charter Communications, Inc. and Comcast Corporation \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on May 8, 2017 \(File No. 001-33664\)\).](#)
- 10.143+ [Charter Communications, Inc. Executive Bonus Plan \(incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q of Charter Communications, Inc. filed on May 8, 2012 \(File No. 001-33664\)\).](#)
- 10.144+ [Form of First Amended and Restated Indemnification Agreement \(incorporated by reference to Exhibit 10.3 to the Quarterly Report on Form 10-Q of Charter Communications, Inc. filed on August 6, 2013 \(File No. 001-33664\)\).](#)
- 10.145+ [Charter Communications, Inc. 2016 Executive Incentive Performance Plan \(incorporated by reference to Appendix A to the proxy statement for the Charter Communications, Inc. 2016 Annual Meeting of Stockholders filed March 17, 2016 \(File No. 001-33664\)\).](#)
- 10.146+ [Charter Communications, Inc. Amended and Restated 2009 Stock Incentive Plan \(incorporated by reference to Exhibit 10.6 to the Current Report on Form 8-K of Charter Communications, Inc. filed on May 19, 2016 \(File No. 001-33664\)\).](#)
- 10.147+ [Amendment to the Charter Communications, Inc. Amended and Restated 2009 Stock Incentive Plan, dated as of October 25, 2016 \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K of Charter Communications, Inc. filed on October 28, 2016 \(File No. 001-33664\)\).](#)
- 10.148+ [Charter Communications, Inc.'s Amended and Restated Supplemental Deferred Compensation Plan, dated as of September 1, 2011 \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on September 2, 2011 \(File No. 001-33664\)\).](#)
- 10.149+ [Form of Non-Qualified Time Vesting Stock Option Agreement dated April 26, 2011 \(incorporated by reference to Exhibit 10.3 to the Quarterly Report on Form 10-Q filed by Charter Communications, Inc. on August 2, 2011 \(File No. 001-33664\)\).](#)
- 10.150+ [Form of Non-Qualified Price Vesting Stock Option Agreement dated April 26, 2011 \(incorporated by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q filed by Charter Communications, Inc. on August 2, 2011 \(File No. 001-33664\)\).](#)
- 10.151+ [Form of Notice of LTIP Award Agreement Changes \(RSU Awards\) \(incorporated by reference to Exhibit 10.3 to the Current Report on Form 8-K filed by Charter Communications, Inc. on January 22, 2014 \(File No. 001-33664\)\).](#)
- 10.152+ [Form of Notice of LTIP Award Agreement Changes \(Time-Vesting Option Awards\) \(incorporated by reference to Exhibit 10.4 to the Current Report on Form 8-K filed by Charter Communications, Inc. on January 22, 2014 \(File No. 001-33664\)\).](#)
- 10.153+ [Form of Notice of LTIP Award Agreement Changes \(Restricted Stock Awards\) \(incorporated by reference to Exhibit 10.5 to the Current Report on Form 8-K filed by Charter Communications, Inc. on January 22, 2014 \(File No. 001-33664\)\).](#)
- 10.154+ [Form of Notice of LTIP Award Agreement Changes \(Performance-Vesting Option Awards\) \(incorporated by reference to Exhibit 10.6 to the Current Report on Form 8-K filed by Charter Communications, Inc. on January 22, 2014 \(File No. 001-33664\)\).](#)
- 10.155+ [Form of Stock Option Agreement dated January 15, 2014 \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on January 22, 2014 \(File No. 001-33664\)\).](#)
- 10.156+ [Form of Restricted Stock Unit Agreement dated January 15, 2014 \(incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on January 22, 2014 \(File No. 001-33664\)\).](#)
- 10.157+ [Form of Amendment to Nonqualified Stock Option Agreements Granted Under the Charter Communications, Inc. Amended and Restated 2009 Stock Incentive Plan, dated as of October 25, 2016 \(incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K of Charter Communications, Inc. filed on October 28, 2016 \(File No. 001-33664\)\).](#)

- 10.158+ [Form of Performance-Vesting Stock Option Agreement granted to certain executive officers in 2016 under the Charter Communications, Inc. Amended and Restated 2009 Stock Incentive Plan \(incorporated by reference to Exhibit 10.102 to the Annual Report on Form 10-K of Charter Communications, Inc. filed on February 16, 2017 \(File No. 001-33664\)\).](#)
- 10.159+ [Form of Performance-Vesting Restricted Stock Unit Agreement granted to certain executive officers in 2016 under the Charter Communications, Inc. Amended and Restated 2009 Stock Incentive Plan \(incorporated by reference to Exhibit 10.103 to the Annual Report on Form 10-K of Charter Communications, Inc. filed on February 16, 2017 \(File No. 001-33664\)\).](#)
- 10.160+ [Charter Communications, Inc. 2019 Stock Incentive Plan \(incorporated by reference to Annex A to the proxy statement for the Charter Communications, Inc. 2019 Annual Meeting of Stockholders filed March 14, 2019 \(File No. 001-33664\)\).](#)
- 10.161+ [Amendment to the Charter Communications, Inc. 2019 Stock Incentive Plan, dated as of January 28, 2020 \(incorporated by reference to Exhibit 10.152 to the Annual Report on Form 10-K of Charter Communications, Inc. filed on January 31, 2020 \(File No. 001-33664\)\).](#)
- 10.162+ [Form of Nonqualified Stock Option Agreement under the Charter Communications, Inc. 2019 Stock Incentive Plan \(incorporated by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q of Charter Communications, Inc. filed July 26, 2019 \(File No. 001-33664\)\).](#)
- 10.163+ [Form of Restricted Stock Unit Agreement under the Charter Communications, Inc. 2019 Stock Incentive Plan \(incorporated by reference to Exhibit 10.3 to the Quarterly Report on Form 10-Q of Charter Communications, Inc. filed July 26, 2019 \(File No. 001-33664\)\).](#)
- 10.164+ [Form of Restricted Stock Agreement under the Charter Communications, Inc. 2019 Stock Incentive Plan \(incorporated by reference to Exhibit 10.4 to the Quarterly Report on Form 10-Q of Charter Communications, Inc. filed July 26, 2019 \(File No. 001-33664\)\).](#)
- 10.165+ [Time Warner Cable Inc. 2006 Stock Incentive Plan \(incorporated herein by reference to Exhibit 10.45 to TWC's Current Report on Form 8-K dated February 13, 2007 and filed with the SEC on February 13, 2007\).](#)
- 10.166+ [Time Warner Cable Inc. 2006 Stock Incentive Plan, as amended, effective March 12, 2009 \(incorporated herein by reference to Exhibit 10.1 to TWC's Quarterly Report on Form 10-Q for the quarter ended March 31, 2009\).](#)
- 10.167+ [Time Warner Cable Inc. 2011 Stock Incentive Plan \(incorporated herein by reference to Annex A to TWC's definitive Proxy Statement dated April 6, 2011 and filed with the SEC on April 6, 2011\).](#)
- 10.168(a)+ [Amended and Restated Employment Agreement between Thomas Rutledge and Charter Communications, Inc., dated October 27, 2020 \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K of Charter Communications, Inc. filed on October 30, 2020 \(File No. 001-33664\)\).](#)
- 10.165(b)+ [Time-Vesting Stock Option Agreement dated as of December 19, 2011 by and between Charter Communications, Inc. and Thomas M. Rutledge \(incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on December 19, 2011 \(File No. 001-33664\)\).](#)
- 10.168(c)+ [Performance-Vesting Stock Option Agreement dated as of December 19, 2011 by and between Charter Communications, Inc. and Thomas M. Rutledge \(incorporated by reference to Exhibit 10.4 to the Current Report on Form 8-K filed by Charter Communications, Inc. on December 19, 2011 \(File No. 001-33664\)\).](#)
- 10.169(a)+ [Amended and Restated Employment Agreement between Charter Communications, Inc. and John Bickham, dated December 23, 2020 \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K of Charter Communications, Inc. filed on December 28, 2020 \(File No. 001-33664\)\).](#)
- 10.169(b)+ [Time-Vesting Stock Option Agreement dated as of April 30, 2012 by and between Charter Communications, Inc. and John Bickham \(incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K filed by Charter Communications, Inc. on May 1, 2012 \(File No. 001-33664\)\).](#)
- 10.169(c)+ [Performance-Vesting Stock Option Agreement dated as of April 30, 2012 by and between Charter Communications, Inc. and John Bickham \(incorporated by reference to Exhibit 10.4 to the Current Report on Form 8-K filed by Charter Communications, Inc. on May 1, 2012 \(File No. 001-33664\)\).](#)
- 10.170+ [Employment Agreement between Charter Communications, Inc. and Kevin D. Howard, dated August 2, 2019 \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Charter Communications, Inc. on August 7, 2019 \(File No. 001-33664\)\).](#)
- 10.171+ [Employment Agreement dated as of July 27, 2021 by and between Charter Communications, Inc. and David G. Ellen \(incorporated by reference to Exhibit 10.4 to the Quarterly Report on Form 10-Q of Charter Communications, Inc. filed on July 30, 2021 \(File No. 001-33664\)\).](#)
- 10.172+ [Amended and Restated Employment Agreement dated as of October 19, 2021 by and between Charter Communications, Inc. and Christopher L. Winfrey \(incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K of Charter Communications, Inc. filed on October 19, 2021 \(File No. 001-33664\)\).](#)
- 10.173+ [Employment Agreement dated as of February 5, 2021 by and between Charter Communications, Inc. and Jessica Fischer \(incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K of Charter Communications, Inc. filed on October 19, 2021 \(File No. 001-33664\)\).](#)

- 10.174 [Letter Agreement, dated as of December 23, 2016, between Charter Communications, Inc. and Advance/Newhouse Partnership \(incorporated by reference to Exhibit 99.1 to the Current Report on Form 8-K of Charter Communications, Inc. filed on December 28, 2016 \(File No. 001-33664\)\).](#)
- 10.175 [Amendment to Letter Agreement, dated as of December 21, 2017, between Charter Communications, Inc. and Advance/Newhouse Partnership \(incorporated by reference to Exhibit 99.1 to the Current Report on Form 8-K of Charter Communications, Inc. filed on December 22, 2017 \(File No. 001-33664\)\).](#)
- 10.176 [Letter Agreement, dated as of February 23, 2021, between Charter Communications, Inc. and Liberty Broadband Corporation \(incorporated by reference to Exhibit 99.1 to the Current Report on Form 8-K of Charter Communications, Inc. filed on February 24, 2021 \(File No. 001-33664\)\).](#)
- 22.1* [Issuers and Guarantors of Guaranteed Securities and Affiliate Securities Pledged as Collateral.](#)
- 23.1* [Consent of KPMG LLP.](#)
- 31.1* [Certificate of Chief Executive Officer pursuant to Rule 13a-14\(a\)/Rule 15d-14\(a\) under the Securities Exchange Act of 1934.](#)
- 31.2* [Certificate of Chief Financial Officer pursuant to Rule 13a-14\(a\)/Rule 15d-14\(a\) under the Securities Exchange Act of 1934.](#)
- 32.1* [Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 \(Chief Executive Officer\).](#)
- 32.2* [Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 \(Chief Financial Officer\).](#)
- 101 The following financial information from CCO Holdings, LLC and CCO Holdings Capital Corp.'s Annual Report on Form 10-K for the year ended December 31, 2021, filed with the Securities and Exchange Commission on January 28, 2022, formatted in iXBRL (inline eXtensible Business Reporting Language) includes: (i) the Consolidated Balance Sheets; (ii) the Consolidated Statements of Operations; (iii) the Consolidated Statements of Changes in Member's Equity; (iv) the Consolidated Statements of Cash Flows; and (vi) the Notes to the Consolidated Financial Statements.
- 104 Cover page, formatted in iXBRL and contained in Exhibit 101.

* Filed herewith

+ Management compensatory plan or arrangement

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Report of Independent Registered Public Accounting Firm

To the Manager and Member
CCO Holdings, LLC:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of CCO Holdings LLC and subsidiaries (the Company) as of December 31, 2021 and 2020, the related consolidated statements of operations, changes in member's equity, and cash flows 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.

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 Public Company Accounting Oversight Board (United States) (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. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

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

Testing of residential and commercial revenue

As discussed in Note 2 to the consolidated financial statements, the Company recorded residential and commercial revenue of \$47.1 billion for the year ended December 31, 2021. This revenue is derived primarily from monthly subscription charges from its Internet, video, and voice services. Revenue is recognized as the services are provided to a customer on a monthly basis. The processing and recording of revenue are reliant upon multiple information technology (IT) systems.

We identified the evaluation of the sufficiency of audit evidence over residential and commercial revenue as a critical audit matter. Subjective auditor judgment was required in evaluating the sufficiency of audit evidence over residential and commercial revenue due to the volume of data and the number of accounting systems. Specifically, obtaining an understanding of the systems and processes used in the Company's recognition of residential and commercial revenue and

evaluating the related internal controls required significant audit effort, including specialized skills and knowledge related to IT.

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 over the Company's residential and commercial revenue processes. This included manual and automated controls over the IT systems used for the processing and recording of residential and commercial revenue. We involved IT professionals with specialized skills and knowledge, who assisted in testing certain IT applications that are used by the Company in its recognition of residential and commercial revenue. We assessed recorded residential and commercial revenue by comparing the cash received related to residential and commercial revenue transactions during the year to the revenue recorded in the consolidated financial statements. We evaluated the sufficiency of audit evidence obtained by assessing the results of procedures performed.

(signed) KPMG LLP

We have served as the Company's auditor since 2003.

St. Louis, Missouri
January 27, 2022

CCO HOLDINGS, LLC AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(dollars in millions)

ASSETS	December 31,	
	2021	2020
CURRENT ASSETS:		
Cash and cash equivalents	\$ 321	\$ 710
Accounts receivable, less allowance for doubtful accounts of \$157 and \$217, respectively	2,539	2,503
Prepaid expenses and other current assets	341	325
Total current assets	3,201	3,538
INVESTMENT IN CABLE PROPERTIES:		
Property, plant and equipment, net of accumulated depreciation of \$34,108 and \$31,558, respectively	33,327	33,490
Customer relationships, net	4,060	5,615
Franchises	67,346	67,322
Goodwill	29,562	29,554
Total investment in cable properties, net	134,295	135,981
OTHER NONCURRENT ASSETS	3,215	3,102
Total assets	\$ 140,711	\$ 142,621
LIABILITIES AND MEMBER'S EQUITY		
CURRENT LIABILITIES:		
Accounts payable and accrued liabilities	\$ 8,771	\$ 8,243
Payables to related party	1	96
Current portion of long-term debt	2,997	1,008
Total current liabilities	11,769	9,347
LONG-TERM DEBT	88,564	81,744
LOANS PAYABLE - RELATED PARTY	1,027	1,001
DEFERRED INCOME TAXES	57	53
OTHER LONG-TERM LIABILITIES	3,067	3,268
MEMBER'S EQUITY:		
CCO Holdings member's equity	36,203	47,185
Noncontrolling interests	24	23
Total member's equity	36,227	47,208
Total liabilities and member's equity	\$ 140,711	\$ 142,621

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

CCO HOLDINGS, LLC AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS
(dollars in millions)

	Year Ended December 31,		
	2021	2020	2019
REVENUES	\$ 51,674	\$ 48,088	\$ 45,756
COSTS AND EXPENSES:			
Operating costs and expenses (exclusive of items shown separately below)	31,566	30,038	29,275
Depreciation and amortization	9,321	9,685	9,911
Other operating expenses, net	306	67	111
	<u>41,193</u>	<u>39,790</u>	<u>39,297</u>
Income from operations	<u>10,481</u>	<u>8,298</u>	<u>6,459</u>
OTHER INCOME (EXPENSES):			
Interest expense, net	(4,023)	(3,866)	(3,839)
Other expenses, net	(104)	(237)	(279)
	<u>(4,127)</u>	<u>(4,103)</u>	<u>(4,118)</u>
Income before income taxes	6,354	4,195	2,341
Income tax expense	(41)	(29)	(89)
Consolidated net income	<u>6,313</u>	<u>4,166</u>	<u>2,252</u>
Less: Net income attributable to noncontrolling interests	(2)	(1)	(1)
Net income attributable to CCO Holdings	<u>\$ 6,311</u>	<u>\$ 4,165</u>	<u>\$ 2,251</u>

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

CCO HOLDINGS, LLC AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN MEMBER'S EQUITY
(dollars in millions)

	Member's Equity	Accumulated Other Comprehensive Loss	Total CCO Holdings Member's Equity	Noncontrolling Interests	Total Member's Equity
BALANCE, December 31, 2018	\$ 60,532	\$ (2)	\$ 60,530	\$ 24	\$ 60,554
Consolidated net income	2,251	—	2,251	1	2,252
Stock compensation expense	315	—	315	—	315
Contributions from parent	59	—	59	—	59
Distributions to parent	(7,891)	—	(7,891)	—	(7,891)
Changes in accumulated other comprehensive loss, net	—	2	2	—	2
Distributions to noncontrolling interest	—	—	—	(2)	(2)
BALANCE, December 31, 2019	55,266	—	55,266	23	55,289
Consolidated net income	4,165	—	4,165	1	4,166
Stock compensation expense	351	—	351	—	351
Contributions from parent	51	—	51	—	51
Distributions to parent	(12,648)	—	(12,648)	—	(12,648)
Distributions to noncontrolling interest	—	—	—	(1)	(1)
BALANCE, December 31, 2020	47,185	—	47,185	23	47,208
Consolidated net income	6,311	—	6,311	2	6,313
Stock compensation expense	430	—	430	—	430
Contributions from parent	2	—	2	—	2
Distributions to parent	(17,725)	—	(17,725)	—	(17,725)
Distributions to noncontrolling interest	—	—	—	(1)	(1)
BALANCE, December 31, 2021	\$ 36,203	\$ —	\$ 36,203	\$ 24	\$ 36,227

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

CCO HOLDINGS, LLC AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(dollars in millions)

	Year Ended December 31,		
	2021	2020	2019
CASH FLOWS FROM OPERATING ACTIVITIES:			
Consolidated net income	\$ 6,313	\$ 4,166	\$ 2,252
Adjustments to reconcile consolidated net income to net cash flows from operating activities:			
Depreciation and amortization	9,321	9,685	9,911
Stock compensation expense	430	351	315
Noncash interest income, net	(34)	(45)	(107)
Deferred income taxes	5	(3)	57
Other, net	149	196	312
Changes in operating assets and liabilities, net of effects from acquisitions and dispositions:			
Accounts receivable	(31)	(63)	(709)
Prepaid expenses and other assets	(163)	(37)	(173)
Accounts payable, accrued liabilities and other	246	333	(133)
Receivables from and payables to related party	(76)	(120)	(17)
Net cash flows from operating activities	<u>16,160</u>	<u>14,463</u>	<u>11,708</u>
CASH FLOWS FROM INVESTING ACTIVITIES:			
Purchases of property, plant and equipment	(7,608)	(7,415)	(7,195)
Change in accrued expenses related to capital expenditures	80	(77)	55
Purchases of wireless spectrum licenses	—	(464)	—
Other, net	13	(4)	54
Net cash flows from investing activities	<u>(7,515)</u>	<u>(7,960)</u>	<u>(7,086)</u>
CASH FLOWS FROM FINANCING ACTIVITIES:			
Borrowings of long-term debt	20,976	15,754	19,685
Repayments of long-term debt	(12,146)	(12,094)	(13,309)
Borrowings of loans payable - related parties	1	1	—
Payments for debt issuance costs	(102)	(125)	(103)
Contributions from parent	2	51	59
Distributions to parent	(17,725)	(12,648)	(7,891)
Distributions to noncontrolling interest	(1)	(1)	(2)
Other, net	(39)	20	(112)
Net cash flows from financing activities	<u>(9,034)</u>	<u>(9,042)</u>	<u>(1,673)</u>
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	(389)	(2,539)	2,949
CASH AND CASH EQUIVALENTS, beginning of period	710	3,249	300
CASH AND CASH EQUIVALENTS, end of period	<u>\$ 321</u>	<u>\$ 710</u>	<u>\$ 3,249</u>
CASH PAID FOR INTEREST	<u>\$ 4,022</u>	<u>\$ 3,858</u>	<u>\$ 3,962</u>
CASH PAID FOR TAXES	<u>\$ 34</u>	<u>\$ 36</u>	<u>\$ 29</u>

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

CCO HOLDINGS, LLC AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
DECEMBER 31, 2021, 2020 AND 2019
(dollars in millions, except where indicated)

1. Organization and Basis of Presentation

Organization

CCO Holdings, LLC (together with its subsidiaries, “CCO Holdings,” or the “Company”) is a leading broadband connectivity company and cable operator. Over an advanced high-capacity, two-way telecommunications network, the Company 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. The Company also distributes award-winning news coverage, sports and high-quality original programming to its customers through Spectrum Networks and Spectrum Originals.

CCO Holdings is a holding company whose principal assets are the equity interests in its operating subsidiaries. CCO Holdings is a direct subsidiary of CCH I Holdings, LLC, which is an indirect subsidiary of Charter Communications, Inc. (“Charter”), Charter Communications Holdings, LLC (“Charter Holdings”) and Spectrum Management Holding Company, LLC (“Spectrum Management”). All of the outstanding capital stock of CCO Holdings Capital Corp. is owned by CCO Holdings. The consolidated financial statements include the accounts of CCO Holdings and all of its subsidiaries where the underlying operations reside. All significant intercompany accounts and transactions among consolidated entities have been eliminated. Charter, Charter Holdings and Spectrum Management have performed financing, cash management, treasury and other services for CCO Holdings on a centralized basis. Changes in member’s equity in the consolidated balance sheets related to these activities have been considered cash receipts (contributions) and payments (distributions) for purposes of the consolidated statements of cash flows and are reflected in financing activities.

Basis of Presentation

The accompanying consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles (“GAAP”) and the rules and regulations of the Securities and Exchange Commission (the “SEC”).

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 and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Areas involving significant judgments and estimates include capitalization of labor and overhead costs, impairments of franchises and goodwill, pension benefits and income taxes. Actual results could differ from those estimates.

Certain prior period amounts have been reclassified to conform with the 2021 presentation.

2. Summary of Significant Accounting Policies

Consolidation

The accompanying consolidated financial statements include the accounts of CCO Holdings and all entities in which CCO Holdings has a controlling interest. The noncontrolling interest on the Company’s balance sheet represents the third-party interest in CV of Viera, LLP, the Company’s consolidated joint venture in a small cable system in Florida. All significant intercompany accounts and transactions among consolidated entities have been eliminated in consolidation

Cash and Cash Equivalents

The Company considers all highly liquid investments with original maturities of three months or less to be cash equivalents. These investments are carried at cost, which approximates market value.

Property, Plant and Equipment

Additions to property, plant and equipment are recorded at cost, including all material, labor and certain indirect costs associated with the construction of cable transmission and distribution facilities. While the Company’s capitalization is based

CCO HOLDINGS, LLC AND SUBSIDIARIES
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on specific activities, once capitalized, costs are tracked on a composite basis by fixed asset category at the cable system level and not on a specific asset basis. For assets that are sold or retired, the estimated historical cost and related accumulated depreciation is removed. Costs associated with the placement of the customer drop to the dwelling and the placement of outlets within a dwelling along with the costs associated with the deployment of new customer premise equipment necessary to provide video, Internet or voice services are capitalized. Costs capitalized include materials, direct labor and overhead costs. The Company capitalizes direct labor and overhead using standards developed from actual costs and applicable operational data. The Company calculates standards annually (or more frequently if circumstances dictate) for items such as the labor rates, overhead rates, and the actual amount of time required to perform a capitalizable activity. Overhead costs are associated with the activities of the Company's personnel and consist of compensation and other indirect costs associated with support functions. Indirect costs primarily include employee benefits and payroll taxes, and vehicle and occupancy costs. The costs of disconnecting service and removing customer premise equipment from a dwelling and the costs to reconnect a customer drop or to redeploy previously installed customer premise equipment are charged to operating expense as incurred. Costs for repairs and maintenance are charged to operating expense as incurred, while plant and equipment replacement, including replacement of certain components, betterments, including replacement of cable drops and outlets, are capitalized.

Depreciation is recorded using the straight-line composite method over management's estimate of the useful lives of the related assets as follows:

Cable distribution systems	6-22 years
Customer premise equipment and installations	3-8 years
Vehicles and equipment	6-21 years
Buildings and improvements	8-40 years
Furniture, fixtures and equipment	2-10 years

Asset Retirement Obligations

Certain of the Company's franchise agreements and leases contain provisions requiring the Company to restore facilities or remove equipment in the event that the franchise or lease agreement is not renewed. The Company expects to continually renew its franchise agreements and therefore cannot reasonably estimate any liabilities associated with such agreements. A remote possibility exists that franchise agreements could be terminated unexpectedly, which could result in the Company incurring significant expense in complying with restoration or removal provisions. The Company does not have any significant liabilities related to asset retirements recorded in its consolidated financial statements.

Valuation of Long-Lived Assets

The Company evaluates the recoverability of long-lived assets (e.g., property, plant and equipment and finite-lived intangible assets) to be held and used when events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Such events or changes in circumstances could include such factors as impairment of the Company's indefinite life assets, changes in technological advances, fluctuations in the fair value of such assets, adverse changes in relationships with local franchise authorities, adverse changes in market conditions or a deterioration of current or expected future operating results. If a review indicates that the carrying value of such asset is not recoverable from estimated undiscounted cash flows, the carrying value of such asset is reduced to its estimated fair value. While the Company believes that its estimates of future cash flows are reasonable, different assumptions regarding such cash flows could materially affect its evaluations of asset recoverability. No impairments of long-lived assets held for use were recorded in 2021, 2020 and 2019. For non-strategic long-lived assets held for sale, the Company recorded impairments of approximately \$36 million and \$42 million during the years ended December 31, 2021 and 2019, respectively, to other operating expenses, net (see Note 14).

Leases

The primary leased asset classes of the Company include real estate, dark fiber, colocation facilities and other equipment. The lease agreements include both lease and non-lease components, which the Company accounts for separately depending on the election made for each leased asset class. For real estate and dark fiber leased asset classes, the Company accounts for lease and non-lease components as a single lease component and includes all fixed payments in the measurement of lease liabilities and

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lease assets. For colocation facilities leased asset class, the Company accounts for lease and non-lease components separately including only the fixed lease payment component in the measurement of lease liabilities and lease assets.

In addition to fixed lease payments, certain of the Company's lease agreements include variable lease payments which are tied to an index or rate such as the change in the Consumer Price Index. These variable payments are not included in the measurement of the lease liabilities and lease assets.

Lease assets and lease liabilities are initially recognized based on the present value of the future lease payments over the expected lease term. As for most leases the implicit rate is not readily determinable, the Company uses a discount rate in determining the present value of future payments based on the yield-to-maturity of the Company's secured publicly traded United States dollars denominated debt instruments interpolating the duration of the debt to the term of the executed lease.

The Company's leases have base rent periods and some with optional renewal periods. Leases with base rent periods of less than 12 months are not recorded on the balance sheet. For purposes of measurement of lease liabilities, the expected lease terms may include renewal options when it is reasonably certain that the Company will exercise such options. Based on conditions of the Company's existing leases and its overall business strategies, the majority of the Company's renewal options are not reasonably certain in determining the expected lease term. The Company will periodically reassess expected lease terms (and purchase options, if applicable) based on significant triggering events or compelling economic reasons to exercise such options.

The Company's primary lease income represents sublease income on certain real estate leases. Sublease income is included in other revenue and presented gross from rent expense. For customer premise equipment ("CPE") where such CPE would qualify as a lease, the Company applies the practical expedient to combine the operating lease with the subscription service revenue as a single performance obligation in accordance with revenue recognition accounting guidance as the subscription service is the predominant component.

Other Noncurrent Assets

Other noncurrent assets primarily include investments, wireless spectrum licenses, customer contract costs and other intangible assets. The Company accounts for its investments in less than majority owned investees under either the equity method or as equity securities. The Company applies the equity method to investments when it has the ability to exercise significant influence over the operating and financial policies of the investee. The Company's share of the investee's earnings (losses) is included in other expense, net in the consolidated statements of operations. The Company monitors its investments for indicators that a decrease in investment value has occurred that is other than temporary. If it has been determined that an investment has sustained an other than temporary decline in value, the investment is written down to fair value with a charge to earnings. Investments acquired are measured at fair value utilizing the acquisition method of accounting. The difference between the fair value and the amount of underlying equity in net assets for most equity method investments is due to previously unrecognized intangible assets at the investee. These amounts are amortized as a component of equity earnings (losses), recorded within other expense, net over the estimated useful life of the asset. Wireless spectrum licenses have been determined to have an indefinite life and are tested annually for impairment. Customer contract costs are deferred in other noncurrent assets for upfront costs incurred to obtain a customer contract and upfront costs to fulfill a customer contract, as further discussed below under the *Customer Contract Costs* accounting policy.

Revenue Recognition

Nature of Services

Residential Services

Residential customers are offered Internet, video, and voice services primarily on a subscription basis. Residential customers may generally cancel their subscriptions at the end of their monthly service period without penalty. Each subscription service provided is accounted for as a distinct performance obligation and revenue is recognized ratably over the monthly service period as the subscription services are delivered. Each optional service purchased is generally accounted for as a distinct performance obligation when purchased and revenue is recognized when the service is provided.

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Residential Internet customers receive data download and upload services with speeds dependent on the selected tier of service. Customers are also offered a security suite, an in-home WiFi product, and an out-of-home WiFi service. Internet revenues consist primarily of data services, WiFi service fees and Internet installation fees.

Residential video customers have the option to purchase additional tiers of services, as well as video-on-demand (“VOD”) programming and pay-per-view programming on a per-event basis. Video revenues consist primarily of revenues from the selected programming service tier, as well as VOD fees, pay-per-view fees, retransmission fees, regulatory fees, equipment service fees and video installation fees.

Residential voice customers receive unlimited local and long distance calling to United States, Canada, Mexico, and Puerto Rico, voicemail, call waiting, caller ID, call forward and other features. Customers may also purchase international calling either by the minute, or through packages of minutes per month. Voice revenues consist primarily of voice services and regulatory fees.

Small and Medium Business

Small and medium business (“SMB”) customers are offered Internet, video and voice services similar to those provided to residential customers. SMB customers may generally cancel their subscriptions at the end of their monthly service period without penalty. Each subscription service provided is accounted for as a distinct performance obligation and revenue is recognized ratably over the monthly service period as the subscription services are delivered.

Enterprise

Services to enterprise clients include more tailored communications products and managed service solutions to larger businesses, as well as high-capacity last-mile data connectivity services to mobile and wireline carriers on a wholesale basis. Services are primarily offered on a subscription basis with a contractually specified and non-cancelable service period. Each subscription service provided is accounted for as a distinct performance obligation and revenue is recognized ratably over the contract period as the subscription services are delivered. Enterprise subscription services are billed as monthly recurring charges to customers and related installation services, if applicable, are billed upon completion of the customer installation. Installation services are not accounted for as distinct performance obligations, but rather a component of the connectivity services, and therefore upfront installation fees are deferred and recognized as revenue over the related contract period.

Advertising Services

The Company offers local, regional and national businesses the opportunity to advertise in individual and multiple service areas on cable television networks and digital outlets. Placement of advertising is accounted for as a distinct performance obligation and revenue is recognized at the point in time when the advertising is distributed. In some service areas, the Company has formed advertising interconnects or entered into representation agreements with other video distributors, under which the Company sells advertising on behalf of those distributors. In other service areas, the Company has entered into representation agreements under which another operator in the area will sell advertising on the Company’s behalf. For representation arrangements in which the Company controls the sale of advertising and acts as the principal to the transaction, the Company recognizes revenue earned from the advertising customer on a gross basis and the amount remitted to the distributor as an operating expense. For other representation arrangements in which the Company does not control the sale of advertising and acts as an agent to the transaction, the Company recognizes revenue net of any fee remitted to the distributor.

Mobile

The Company also offers mobile service to residential and SMB customers. Mobile services are sold under unlimited data plans or by-the-gig data usage plans and revenue is recognized ratably over the monthly service period as the services are delivered. Customers can purchase mobile equipment, including devices and accessory products, and have the option to pay for devices under interest-free monthly installment plans. The Company does not impute interest on equipment installment plans sold through its direct channel as the inherent financing component is not considered significant based on the commercial objective of the plans, interest rates prevailing in the marketplace and credit risks of the Company’s customers. The sale of equipment is a separate performance obligation. Revenue is recognized from the sale of equipment upon delivery and acceptance by the customer, as this is when control passes to the customer.

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The Company's revenues by product line are as follows:

	Year Ended December 31,		
	2021	2020	2019
Internet	\$ 21,094	\$ 18,521	\$ 16,667
Video	17,630	17,432	17,607
Voice	1,598	1,806	1,920
Residential revenue	40,322	37,759	36,194
Small and medium business	4,170	3,964	3,868
Enterprise	2,573	2,468	2,556
Commercial revenue	6,743	6,432	6,424
Advertising sales	1,594	1,699	1,568
Mobile	2,178	1,364	726
Other	837	834	844
	<u>\$ 51,674</u>	<u>\$ 48,088</u>	<u>\$ 45,756</u>

Fees imposed on the Company by various governmental authorities are passed through on a monthly basis to the Company's customers and are periodically remitted to authorities. Fees of \$1.1 billion for each of the years ended December 31, 2021, 2020 and 2019 are reported in video, voice, mobile and commercial revenues, on a gross basis with a corresponding operating expense because the Company is acting as a principal. Certain taxes, such as sales taxes imposed on the Company's customers, collected and remitted to state and local authorities, are recorded on a net basis because the Company is acting as an agent in such situations.

A significant portion of our revenue is derived from customers who may generally cancel their monthly subscriptions at the end of their monthly service period without penalty. As such, the amount of revenue related to unsatisfied performance obligations is not necessarily indicative of the future revenue to be recognized from our existing customer base. Revenue from customers with a contractually specified term and non-cancelable service period will be recognized over the term of such contracts, which is generally two to seven years for our enterprise contracts with a weighted average term of approximately three years.

Significant Judgments in Evaluating Revenue Recognition

The Company often provides multiple services to a customer. Provision of customer premise equipment, installation services, and additional service tiers may have a significant level of integration and interdependency with the subscription Internet, video, voice, or connectivity services provided. Judgment is required to determine whether provision of customer premise equipment, installation services, and additional service tiers are considered distinct and accounted for separately, or not distinct and accounted for together with the subscription services.

Allocation of the transaction price to the distinct performance obligations in bundled service subscriptions requires judgment. The transaction price for a bundle of services is frequently less than the sum of the standalone selling prices of each individual service. The Company allocates the bundle discount among the services to which the discount relates based on the relative standalone selling prices of those services. When available, directly observable standalone selling prices are used for the revenue allocation. When certain services are not sold standalone, judgment is applied to determine appropriate standalone selling price assumptions for a given class of customers receiving such service.

The Company believes residential and SMB non-refundable upfront installation fees charged to customers, over a certain dollar threshold considered material to the customer, result in a material right to renew the contract as such fees are not required to be paid upon subsequent renewals. These residential and SMB upfront fees are deferred over the period the fee remains material to the customer, which the Company has estimated to be approximately six months. Estimation of the period the fee remains material to the customer requires consideration of both quantitative and qualitative factors including average installation fee, average revenue per customer, and customer behavior, among others.

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Deferred Revenue Contract Liabilities

Timing of revenue recognition may differ from the timing of invoicing to customers. Residential, SMB, and enterprise customers are invoiced for subscription services in advance of the service period. Deferred revenue liabilities, or contract liabilities, are recorded when the Company collects payments in advance of performing the services. Deferred revenue liabilities, or contract liabilities, are also recorded when the Company invoices customers upfront for installation services that are recognized as revenue over time. Residential and SMB installation revenues are deferred over the period the fee remains material to the customer. Enterprise installation revenues are deferred using a portfolio approach over the average contract life of each enterprise service category. As of December 31, 2021 and 2020, current deferred revenue liabilities consisting of customer prepayments of \$405 million and \$363 million, respectively, and upfront installation fees of \$56 million and \$73 million, respectively, were included in accounts payable and accrued liabilities. As of December 31, 2021 and 2020, long-term deferred revenue liabilities consisting of enterprise upfront installation fees of \$29 million and \$35 million, respectively, were included in other long-term liabilities.

Customer Contract Costs

The Company recognizes an asset for incremental costs of obtaining a contract with a customer if the amortization period of those costs is expected to be longer than one year and the costs are expected to be recovered. Enterprise sales commission costs meet the requirements to be deferred and, as a result, are recognized using a portfolio approach over a weighted-average contract period. Deferred enterprise commission costs are included in other noncurrent assets in the consolidated balance sheet and totaled \$142 million and \$138 million as of December 31, 2021 and 2020, respectively. As the amortization period of residential and SMB commissions costs is less than one year, the Company applies the practical expedient that allows such costs to be expensed as incurred. The Company has determined that the amortization period associated with residential and SMB commission costs is less than one year based on qualitative and quantitative factors.

The Company recognizes an asset for costs incurred to fulfill a contract when those costs are directly related to services provided under the contract, generate or enhance resources of the entity that will be used in performing service obligations under the contract, and are expected to be recovered. Right-of-entry costs represent upfront costs incurred related to agreements entered into with multiple dwelling units (“MDUs”) including landlords, real estate companies or owners to gain access to a building in order to market and service customers who reside in the building. Right-of-entry costs meet the requirements to be deferred and, as a result, are recognized over the term of the contracts. Deferred right-of-entry costs are included in other noncurrent assets in the consolidated balance sheet and totaled \$354 million and \$320 million as of December 31, 2021 and 2020, respectively. Amortization expense of \$76 million, \$71 million and \$67 million was included in regulatory, connectivity and produced content within operating costs and expenses in the consolidated statements of operations for the years ended December 31, 2021, 2020 and 2019, respectively. Residential and SMB installation costs not capitalized into property, plant and equipment are expensed as incurred under cable industry-specific guidance.

Programming Costs

The Company has various contracts to obtain video programming from vendors whose compensation is typically based on a flat fee per customer. The cost of the right to exhibit network programming under such arrangements is recorded in operating expenses in the month the programming is available for exhibition. Programming costs are paid each month based on calculations performed by the Company and are subject to periodic audits performed by the programmers. Certain programming contracts contain cash and non-cash consideration from the programmers. If consideration received does not relate to a separate product or service, the Company recognizes the consideration on a straight-line basis over the life of the programming agreement as a reduction of programming expense. Programming costs included in the statements of operations were \$11.8 billion, \$11.4 billion and \$11.3 billion for the years ended December 31, 2021, 2020 and 2019, respectively.

Advertising Costs

Advertising costs associated with marketing the Company’s products and services are generally expensed as costs are incurred.

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Multiple-Element Transactions

In the normal course of business, the Company enters into multiple-element transactions where it is simultaneously both a customer and a vendor with the same counterparty or in which it purchases multiple products and/or services, or settles outstanding items contemporaneous with the purchase of a product or service from a single counterparty. Transactions, although negotiated contemporaneously, may be documented in one or more contracts. The Company's policy for accounting for each transaction negotiated contemporaneously is to record each element of the transaction based on the respective estimated fair values of the products or services purchased and the products or services sold. In determining the fair value of the respective elements, the Company refers to quoted market prices (where available), historical transactions or comparable cash transactions. Cash consideration received from a vendor is recorded as a reduction in the price of the vendor's product unless (i) the consideration is for the reimbursement of a specific, incremental, identifiable cost incurred, in which case the cash consideration received would be recorded as a reduction in such cost (e.g., marketing costs), or (ii) an identifiable benefit in exchange for the consideration is provided, in which case revenue would be recognized for this element.

Stock-Based Compensation

Restricted stock, restricted stock units and stock options are measured at the grant date fair value and amortized to stock compensation expense over the requisite service period. The fair value of stock options is estimated on the date of grant using the Black-Scholes option-pricing model. The grant date weighted average assumptions used during the years ended December 31, 2021, 2020 and 2019 were: risk-free interest rate of 0.7%, 1.4% and 2.5%, respectively; expected lives of 5.9 years, 5.5 years and 4.9 years, respectively; and expected volatility of 27% for each year. The Company's volatility assumptions represent management's best estimate and were based on a review of historical and implied volatility of Charter. Expected lives were estimated using historical exercise data. The valuations assume no dividends are paid. The Company has elected an accounting policy to assume zero forfeitures for stock awards grants and account for forfeitures when they occur.

Defined Benefit Pension Plans

The Company sponsors qualified and unqualified defined benefit pension plans that provide pension benefits to a majority of employees who were employed by Time Warner Cable Inc. ("TWC") before the merger with TWC. Pension benefits are based on formulas that reflect the employees' years of service and compensation during their employment period. Actuarial gains or losses are changes in the amount of either the benefit obligation or the fair value of plan assets resulting from experience different from that assumed or from changes in assumptions. The Company has elected to follow a mark-to-market pension accounting policy for recording the actuarial gains or losses annually during the fourth quarter, or earlier if a remeasurement event occurs during an interim period.

Income Taxes

CCO Holdings is a single member limited liability company not subject to income tax. CCO Holdings holds all operations through indirect subsidiaries. The majority of these indirect subsidiaries are limited liability companies that are not subject to income tax. Charter has elected the accounting policy not to allocate income taxes to its subsidiaries that are not subject to income tax. Certain indirect subsidiaries that are required to file separate returns are subject to federal and state tax. CCO Holdings' tax provision reflects the tax provision of the entities required to file separate returns. The Company recognizes deferred tax assets and liabilities for temporary differences between the financial reporting basis and the tax basis of these indirect subsidiaries' assets and liabilities and expected benefits of utilizing loss carryforwards. The impact on deferred taxes of changes in tax rates and tax law, if any, applied to the years during which temporary differences are expected to be settled, are reflected in the consolidated financial statements in the period of enactment. See Note 17.

Segments

The Company's operations are managed and reported to its Chief Executive Officer ("CEO"), the Company's chief operating decision maker, on a consolidated basis. The CEO assesses performance and allocates resources based on the consolidated results of operations. Under this organizational and reporting structure, the Company has one reportable segment.

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3. Allowance for Doubtful Accounts

Activity in the allowance for doubtful accounts is summarized as follows for the years presented:

	Year Ended December 31,		
	2021	2020	2019
Balance, beginning of period	\$ 217	\$ 180	\$ 129
Charged to expense	484	560	659
Uncollected balances written off, net of recoveries	(544)	(523)	(608)
Balance, end of period	<u>\$ 157</u>	<u>\$ 217</u>	<u>\$ 180</u>

4. Property, Plant and Equipment

Property, plant and equipment consists of the following as of December 31, 2021 and 2020:

	December 31,	
	2021	2020
Cable distribution systems	\$ 35,907	\$ 33,693
Customer premise equipment and installations	17,893	17,756
Vehicles and equipment	1,957	1,896
Buildings and improvements	4,663	4,484
Furniture, fixtures and equipment	7,015	7,219
	<u>67,435</u>	<u>65,048</u>
Less: accumulated depreciation	(34,108)	(31,558)
	<u>\$ 33,327</u>	<u>\$ 33,490</u>

The Company periodically evaluates the estimated useful lives used to depreciate its assets and the estimated amount of assets that will be abandoned or have minimal use in the future. A significant change in assumptions about the extent or timing of future asset retirements, or in the Company's use of new technology and upgrade programs, could materially affect future depreciation expense.

Depreciation expense for the years ended December 31, 2021, 2020 and 2019 was \$7.7 billion, \$7.8 billion, and \$7.8 billion, respectively.

5. Franchises, Goodwill and Other Intangible Assets

Franchise rights represent the value attributed to agreements or authorizations with local and state authorities that allow access to homes in cable service areas. For valuation purposes, they are defined as the future economic benefits of the right to solicit and service potential customers (customer marketing rights), and the right to deploy and market new services to potential customers (service marketing rights).

Management estimates the fair value of franchise rights at the date of acquisition and determines if the franchise has a finite life or an indefinite life. The Company has concluded that all of its franchises qualify for indefinite life treatment given that there are no legal, regulatory, contractual, competitive, economic or other factors which limit the period over which these rights will contribute to the Company's cash flows. The Company reassesses this determination periodically or whenever events or substantive changes in circumstances occur.

All franchises are tested for impairment annually or more frequently as warranted by events or changes in circumstances. Franchise assets are aggregated into essentially inseparable units of accounting to conduct valuations. The units of accounting generally represent geographical clustering of the Company's cable systems into groups. The Company assesses qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not that an indefinite lived intangible asset has been impaired. If, after this optional qualitative assessment, the Company determines

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that it is not more likely than not that an indefinite lived intangible asset has been impaired, then no further quantitative testing is necessary. In completing the qualitative impairment testing, the Company evaluates a multitude of factors that affect the fair value of our franchise assets. Examples of such factors include environmental and competitive changes within our operating footprint, actual and projected operating performance, the consistency of our operating margins, equity and debt market trends, including changes in our market capitalization, and changes in our regulatory and political landscape, among other factors. The Company performed a qualitative assessment in 2021. After consideration of the qualitative factors in 2021, the Company concluded that it is more likely than not that the fair value of the franchise assets in each unit of accounting exceeds the carrying value of such assets and therefore did not perform a quantitative analysis at the assessment date. Periodically, the Company may elect to perform a quantitative analysis for impairment testing. If the Company elects or is required to perform a quantitative analysis to test its franchise assets for impairment, the methodology described below is utilized.

If a quantitative analysis is performed, the estimated fair value of franchises is determined utilizing an income approach model based on the present value of the estimated discrete future cash flows attributable to each of the intangible assets identified assuming a discount rate. The fair value of franchises is determined based on estimated discrete discounted future cash flows using assumptions consistent with internal forecasts. The franchise after-tax cash flow is calculated as the after-tax cash flow generated by the potential customers obtained. The sum of the present value of the franchises' after-tax cash flow in years 1 through 10 and the continuing value of the after-tax cash flow beyond year 10 yields the fair value of the franchises.

This approach makes use of unobservable factors such as projected revenues, expenses, capital expenditures, customer trends, and a discount rate applied to the estimated cash flows. The determination of the franchise discount rate is derived from the Company's weighted average cost of capital, which uses a market participant's cost of equity and after-tax cost of debt and reflects the risks inherent in the cash flows. The Company estimates discounted future cash flows using reasonable and appropriate assumptions including among others, penetration rates; revenue growth rates; operating margins; and capital expenditures. The assumptions are based on the Company's and its peers' historical operating performance adjusted for current and expected competitive and economic factors surrounding the cable industry. The estimates and assumptions made in the Company's valuations are inherently subject to significant uncertainties, many of which are beyond its control, and there is no assurance that these results can be achieved. The primary assumptions for which there is a reasonable possibility of the occurrence of a variation that would significantly affect the measurement value include the assumptions regarding revenue growth, programming expense growth rates, the amount and timing of capital expenditures, actual customer trends and the discount rate utilized.

The Company has determined that it has one reporting unit for purposes of the assessment of goodwill impairment. The fair value of the reporting unit is determined using both an income approach and market approach. The Company's income approach model used for its reporting unit valuation is consistent with that used for its franchise valuation noted above except that cash flows from the entire business enterprise are used for the reporting unit valuation. The Company's market approach model estimates the fair value of the reporting unit based on market prices in actual precedent transactions of similar businesses and market valuations of guideline public companies. Goodwill is tested for impairment as of November 30 of each year, or more frequently as warranted by events or changes in circumstances. Accounting guidance also permits an optional qualitative assessment for goodwill to determine whether it is more likely than not that the carrying value of a reporting unit exceeds its fair value. If, after this qualitative assessment, the Company determines that it is not more likely than not that the fair value of a reporting unit is less than its carrying amount then no further quantitative testing would be necessary. A quantitative assessment is performed if the qualitative assessment results in a more likely than not determination or if a qualitative assessment is not performed. The quantitative assessment considers whether the carrying amount of a reporting unit exceeds its fair value, in which case an impairment charge is recorded to the extent the reporting unit's carrying value exceeds its fair value. As with the Company's franchise impairment testing, in 2021 the Company elected to perform a qualitative goodwill impairment assessment, which incorporated consideration of the same qualitative factors relevant to the Company's franchise impairment testing. As a result of that assessment, the Company concluded that goodwill is not impaired.

Customer relationships are recorded at fair value as of the date acquired less accumulated amortization. Customer relationships, for valuation purposes, represent the value of the business relationship with existing customers, and are calculated by projecting the discrete future after-tax cash flows from these customers, including the right to deploy and market additional services to these customers. The present value of these after-tax cash flows yields the fair value of the customer relationships. The use of different valuation assumptions or definitions of franchises or customer relationships, such as our inclusion of the value of selling additional services to our current customers within customer relationships versus franchises, could significantly impact our valuations and any resulting impairment. Customer relationships are amortized on an accelerated sum of years' digits method over useful lives of 8-15 years based on the period over which current customers are expected to generate cash flows.

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The Company periodically evaluates the remaining useful lives of its customer relationships to determine whether events or circumstances warrant revision to the remaining periods of amortization. Customer relationships are evaluated for impairment upon the occurrence of events or changes in circumstances indicating that the carrying amount of an asset may not be recoverable. Customer relationships are deemed impaired when the carrying value exceeds the projected undiscounted future cash flows associated with the customer relationships. No impairment of customer relationships was recorded in the years ended December 31, 2021, 2020 or 2019.

In 2020, the Company purchased approximately \$464 million of Citizens Broadband Radio Service ("CBRS") priority access licenses from the Federal Communications Commission in its effort to support its mobile network. The wireless spectrum licenses are considered indefinite life intangible assets recorded in other noncurrent assets on the Company's consolidated balance sheets and payments (including deposits) are presented as an investing cash outflow on the Company's statements of cash flows. The Company elected to perform a qualitative impairment assessment in 2021 and concluded that its CBRS priority access licenses are not impaired.

As of December 31, 2021 and 2020, indefinite-lived and finite-lived intangible assets are presented in the following table:

	December 31,					
	2021			2020		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Indefinite-lived intangible assets:						
Franchises	\$ 67,346	\$ —	\$ 67,346	\$ 67,322	\$ —	\$ 67,322
Goodwill	29,562	—	29,562	29,554	—	29,554
Wireless spectrum licenses	464	—	464	464	—	464
	<u>\$ 97,372</u>	<u>\$ —</u>	<u>\$ 97,372</u>	<u>\$ 97,340</u>	<u>\$ —</u>	<u>\$ 97,340</u>
Finite-lived intangible assets:						
Customer relationships	\$ 18,240	\$ (14,180)	\$ 4,060	\$ 18,230	\$ (12,615)	\$ 5,615
Other intangible assets	430	(196)	234	420	(159)	261
	<u>\$ 18,670</u>	<u>\$ (14,376)</u>	<u>\$ 4,294</u>	<u>\$ 18,650</u>	<u>\$ (12,774)</u>	<u>\$ 5,876</u>

Amortization expense related to customer relationships and other intangible assets for the years ended December 31, 2021, 2020 and 2019 was \$1.6 billion, \$1.9 billion and \$2.2 billion, respectively.

The Company expects amortization expense on its finite-lived intangible assets will be as follows.

2022	\$ 1,336
2023	1,079
2024	828
2025	579
2026	321
Thereafter	151
	<u>\$ 4,294</u>

Actual amortization expense in future periods could differ from these estimates as a result of new intangible asset acquisitions or divestitures, changes in useful lives, impairments, adoption of new accounting standards and other relevant factors.

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6. Investments

Investments consisted of the following as of December 31, 2021 and 2020:

	December 31,	
	2021	2020
Equity-method investments	\$ 95	\$ 273
Other investments	13	13
Total investments	\$ 108	\$ 286

The Company's investments include entities that develop applications to improve the security, control and privacy of connected devices in homes and businesses for broadband network operators; sell national advertisements on behalf of multi-video program distributors; and develop sports programming services.

Investments are accounted for under the equity method of accounting or as equity securities, all of which are recorded in other noncurrent assets in the consolidated balance sheets as of December 31, 2021 and 2020. For the years ended December 31, 2021, 2020 and 2019, net losses from investments were \$179 million, \$13 million and \$131 million, respectively, which were recorded in other expenses, net in the consolidated statements of operations. Net losses from investments for the years ended December 31, 2021 and 2019 included impairments on equity investments of approximately \$165 million and \$121 million, respectively.

The Company's equity-method investments balances reflected in the table above includes differences between the acquisition date fair value of certain investments acquired and the underlying equity in the net assets of the investee, referred to as a basis difference. This basis difference is amortized as a component of equity earnings. The remaining unamortized basis difference was \$24 million and \$170 million as of December 31, 2021 and 2020, respectively.

7. Accounts Payable and Accrued Liabilities

Accounts payable and accrued liabilities consist of the following as of December 31, 2021 and 2020:

	December 31,	
	2021	2020
Accounts payable – trade	\$ 706	\$ 737
Deferred revenue	458	436
Accrued liabilities:		
Programming costs	2,036	1,940
Labor	1,299	1,370
Capital expenditures	1,281	1,227
Interest	1,099	1,083
Taxes and regulatory fees	533	523
Operating lease liabilities	237	202
Other	1,122	725
	\$ 8,771	\$ 8,243

8. Leases

Operating lease expenses were \$416 million, \$389 million and \$374 million for the years ended December 31, 2021, 2020 and 2019, respectively, inclusive of \$132 million, \$126 million and \$120 million for the years ended December 31, 2021, 2020 and 2019, respectively, of both short-term lease costs and variable lease costs that were not included in the measurement of operating lease liabilities.

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Cash paid for amounts included in the measurement of operating lease liabilities, recorded as operating cash flows in the statements of cash flows, were \$282 million and \$255 million for the years ended December 31, 2021 and 2020, respectively. Operating lease right-of-use assets obtained in exchange for operating lease obligations were \$323 million and \$363 million for the years ended December 31, 2021 and 2020, respectively.

Supplemental balance sheet information related to leases is as follows.

	December 31,	
	2021	2020
Operating lease right-of-use assets:		
Included within other noncurrent assets	\$ 1,143	\$ 1,065
Operating lease liabilities:		
Current portion included within accounts payable and accrued liabilities	\$ 237	\$ 202
Long-term portion included within other long-term liabilities	1,001	941
	\$ 1,238	\$ 1,143
Weighted average remaining lease term for operating leases	5.9 years	6.4 years
Weighted average discount rate for operating leases	3.4 %	3.9 %

Maturities of operating lease liabilities as of December 31, 2021 are as follows.

2022	\$ 293
2023	286
2024	238
2025	189
2026	127
Thereafter	284
Undiscounted lease cash flow commitments	1,417
Reconciling impact from discounting	(179)
Lease liabilities on consolidated balance sheet as of December 31, 2021	\$ 1,238

The Company has \$64 million and \$63 million of finance lease liabilities recognized in the consolidated balance sheets as of December 31, 2021 and 2020, respectively, included within accounts payable and accrued liabilities and other long-term liabilities. The related finance lease right-of-use assets are recorded in property, plant and equipment, net. The Company's finance leases were not considered material for further supplemental lease disclosures.

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9. Long-Term Debt

Long-term debt consists of the following as of December 31, 2021 and 2020:

	December 31,			
	2021		2020	
	Principal Amount	Accreted Value	Principal Amount	Accreted Value
CCO Holdings, LLC:				
4.000% senior notes due March 1, 2023	\$ 500	\$ 499	\$ 500	\$ 498
5.750% senior notes due February 15, 2026	—	—	2,500	2,475
5.500% senior notes due May 1, 2026	750	747	1,500	1,492
5.875% senior notes due May 1, 2027	—	—	800	796
5.125% senior notes due May 1, 2027	3,250	3,228	3,250	3,225
5.000% senior notes due February 1, 2028	2,500	2,475	2,500	2,472
5.375% senior notes due June 1, 2029	1,500	1,500	1,500	1,501
4.750% senior notes due March 1, 2030	3,050	3,043	3,050	3,042
4.500% senior notes due August 15, 2030	2,750	2,750	2,750	2,750
4.250% senior notes due February 1, 2031	3,000	3,002	3,000	3,001
4.500% senior notes due May 1, 2032	2,900	2,927	2,900	2,928
4.500% senior notes due June 1, 2033	1,750	1,729	—	—
4.250% senior notes due January 15, 2034	2,000	1,982	—	—
Charter Communications Operating, LLC:				
4.464% senior notes due July 23, 2022	3,000	2,997	3,000	2,992
Senior floating rate notes due February 1, 2024	900	901	900	902
4.500% senior notes due February 1, 2024	1,100	1,096	1,100	1,094
4.908% senior notes due July 23, 2025	4,500	4,480	4,500	4,475
3.750% senior notes due February 15, 2028	1,000	990	1,000	989
4.200% senior notes due March 15, 2028	1,250	1,242	1,250	1,241
2.250% senior notes due January 15, 2029	1,250	1,240	—	—
5.050% senior notes due March 30, 2029	1,250	1,242	1,250	1,242
2.800% senior notes due April 1, 2031	1,600	1,585	1,600	1,583
2.300% senior notes due February 1, 2032	1,000	992	1,000	991
6.384% senior notes due October 23, 2035	2,000	1,984	2,000	1,983
5.375% senior notes due April 1, 2038	800	787	800	786
3.500% senior notes due June 1, 2041	1,500	1,483	—	—
3.500% senior notes due March 1, 2042	1,350	1,331	—	—
6.484% senior notes due October 23, 2045	3,500	3,468	3,500	3,468
5.375% senior notes due May 1, 2047	2,500	2,506	2,500	2,506
5.750% senior notes due April 1, 2048	2,450	2,393	2,450	2,392
5.125% senior notes due July 1, 2049	1,250	1,240	1,250	1,240
4.800% senior notes due March 1, 2050	2,800	2,797	2,800	2,797
3.700% senior notes due April 1, 2051	2,050	2,031	2,050	2,030
3.900% senior notes due June 1, 2052	2,400	2,322	—	—
6.834% senior notes due October 23, 2055	500	495	500	495
3.850% senior notes due April 1, 2061	1,850	1,809	1,350	1,339
4.400% senior notes due December 1, 2061	1,400	1,389	—	—

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3.950% senior notes due June 30, 2062	1,400	1,379	—	—
Credit facilities	10,723	10,668	10,150	10,081
Time Warner Cable, LLC:				
4.000% senior notes due September 1, 2021	—	—	1,000	1,008
5.750% sterling senior notes due June 2, 2031 ^(a)	846	897	854	911
6.550% senior debentures due May 1, 2037	1,500	1,662	1,500	1,668
7.300% senior debentures due July 1, 2038	1,500	1,754	1,500	1,763
6.750% senior debentures due June 15, 2039	1,500	1,700	1,500	1,706
5.875% senior debentures due November 15, 2040	1,200	1,252	1,200	1,254
5.500% senior debentures due September 1, 2041	1,250	1,257	1,250	1,258
5.250% sterling senior notes due July 15, 2042 ^(b)	879	850	889	859
4.500% senior debentures due September 15, 2042	1,250	1,148	1,250	1,145
Time Warner Cable Enterprises LLC:				
8.375% senior debentures due March 15, 2023	1,000	1,058	1,000	1,104
8.375% senior debentures due July 15, 2033	1,000	1,254	1,000	1,270
Total debt	91,198	91,561	82,143	82,752
Less current portion:				
4.000% senior notes due September 1, 2021	—	—	(1,000)	(1,008)
4.464% senior notes due July 23, 2022	(3,000)	(2,997)	—	—
Long-term debt	\$ 88,198	\$ 88,564	\$ 81,143	\$ 81,744

^(a) Principal amount includes £625 million valued at \$846 million and \$854 million as of December 31, 2021 and 2020, respectively, using the exchange rate at that date.

^(b) Principal amount includes £650 million valued at \$879 million and \$889 million as of December 31, 2021 and 2020, respectively, using the exchange rate at that date.

The accreted values presented in the table above represent the principal amount of the debt adjusted for original issue discount or premium at the time of sale, deferred financing costs, and, in regards to debt assumed in acquisitions, fair value premium adjustments as a result of applying acquisition accounting plus the accretion of those amounts to the balance sheet date. However, the amount that is currently payable if the debt becomes immediately due is equal to the principal amount of the debt. In regards to the fixed-rate British pound sterling denominated notes (the “Sterling Notes”), the principal amount of the debt and any premium or discount is remeasured into US dollars as of each balance sheet date. See Note 11. The Company has availability under the Charter Communications Operating, LLC (“Charter Operating”) credit facilities of approximately \$3.9 billion as of December 31, 2021.

In 2021, CCO Holdings and CCO Holdings Capital Corp. jointly issued \$3.75 billion aggregate principal amount of senior unsecured notes at varying rates, prices and maturity dates, and Charter Operating and Charter Communications Operating Capital Corp. jointly issued \$9.8 billion aggregate principal amount of senior secured notes at varying rates, prices and maturity dates. The net proceeds were used to pay related fees and expenses and for general corporate purposes, including distributions to the Company's parent companies to fund buybacks of Charter Class A common stock and Charter Holdings common units as well as repaying certain indebtedness.

In January 2022, CCO Holdings and CCO Holdings Capital Corp. jointly issued \$1.2 billion of 4.750% senior unsecured notes due February 2032 at par. The net proceeds were used for general corporate purposes, including distributions to the Company's parent companies to fund buybacks of Charter Class A common stock and Charter Holdings common units, to repay certain indebtedness and to pay related fees and expenses.

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During the years ended December 31, 2021, 2020 and 2019, the Company repurchased \$5.1 billion, \$10.7 billion and \$1.35 billion, respectively, of various series of senior notes. Losses on extinguishment of debt are recorded in other expenses, net in the consolidated statements of operations and consisted of the following.

	Year Ended December 31,		
	2021	2020	2019
CCO Holdings notes redemption	\$ (146)	\$ (145)	\$ (22)
Time Warner Cable, LLC notes redemption	2	2	—
Charter Operating credit facility refinancing	—	—	(3)
Loss on extinguishment of debt	<u>\$ (144)</u>	<u>\$ (143)</u>	<u>\$ (25)</u>

CCO Holdings Notes

The CCO Holdings notes are senior debt obligations of CCO Holdings and CCO Holdings Capital Corp. and rank equally with all other current and future unsecured, unsubordinated obligations of CCO Holdings and CCO Holdings Capital Corp. They are structurally subordinated to all obligations of subsidiaries of CCO Holdings.

CCO Holdings may redeem some or all of the CCO Holdings notes at any time at a premium. The optional redemption price declines to 100% of the respective series' principal amount, plus accrued and unpaid interest, if any, on or after varying dates in 2022 through 2031.

In addition, at any time prior to varying dates in 2022 through 2025, CCO Holdings may redeem up to 40% of the aggregate principal amount of certain notes at a premium plus accrued and unpaid interest to the redemption date, with the net cash proceeds of one or more equity offerings (as defined in the indenture); provided that certain conditions are met. In the event of specified change of control events, CCO Holdings must offer to purchase the outstanding CCO Holdings notes from the holders at a purchase price equal to 101% of the total principal amount of the notes, plus any accrued and unpaid interest.

High-Yield Restrictive Covenants; Limitation on Indebtedness.

The indentures governing the CCO Holdings notes contain certain covenants that restrict the ability of CCO Holdings, CCO Holdings Capital Corp. and all of their restricted subsidiaries to:

- incur additional debt;
- pay dividends on equity or repurchase equity;
- make investments;
- sell all or substantially all of their assets or merge with or into other companies;
- sell assets;
- in the case of restricted subsidiaries, create or permit to exist dividend or payment restrictions with respect to CCO Holdings, guarantee their parent companies debt, or issue specified equity interests;
- engage in certain transactions with affiliates; and
- grant liens.

The above limitations in certain circumstances regarding incurrence of debt, payment of dividends and making investments contained in the indentures of CCO Holdings permit CCO Holdings and its restricted subsidiaries to perform the above, so long as, after giving pro forma effect to the above, the leverage ratio would be below a specified level for the issuer. The maximum total leverage ratio under the indentures is 6.0 to 1.0. The leverage ratio was 4.1 as of December 31, 2021.

Charter Operating Notes

The Charter Operating notes are guaranteed by CCO Holdings and substantially all of the subsidiaries of Charter Operating. In addition, the Charter Operating notes are secured by a perfected first priority security interest in substantially all of the assets of Charter Operating and substantially all of its subsidiaries to the extent such liens can be perfected under the Uniform Commercial Code by the filing of a financing statement and the liens rank equally with the liens on the collateral securing

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obligations under the Charter Operating credit facilities. Charter Operating may redeem some or all of the Charter Operating notes at any time at a premium.

The Charter Operating notes are subject to the terms and conditions of the indenture governing the Charter Operating notes. The Charter Operating notes contain customary representations and warranties and affirmative covenants with limited negative covenants. The Charter Operating indenture also contains customary events of default.

Charter Operating Credit Facilities

The Charter Operating credit facilities have an outstanding principal amount of \$10.7 billion at December 31, 2021 as follows:

- term loan A-2 with a remaining principal amount of approximately \$182 million, which is repayable in quarterly installments and aggregating \$11 million in each loan year, with the remaining balance due at final maturity on March 31, 2023. Pricing on term loan A-2 is LIBOR plus 1.50%;
- term loan A-4 with a remaining principal amount of approximately \$3.6 billion, which is repayable in quarterly installments and aggregating \$202 million in each loan year, with the remaining balance due at final maturity on February 1, 2025. Pricing on term loan A-4 is LIBOR plus 1.25%;
- term loan B-1 with a remaining principal amount of approximately \$2.4 billion, which is repayable in equal quarterly installments and aggregating \$25 million in each loan year, with the remaining balance due at final maturity on April 30, 2025. Pricing on term loan B-1 is LIBOR plus 1.75%;
- term loan B-2 with a remaining principal amount of approximately \$3.7 billion, which is repayable in equal quarterly installments and aggregating \$38 million in each loan year, with the remaining balance due at final maturity on February 1, 2027. Pricing on term loan B-2 is LIBOR plus 1.75%; and
- a revolving loan with an outstanding balance of \$850 million and allowing for borrowings of up to \$4.75 billion, \$249 million maturing on March 31, 2023 and \$4.5 billion maturing on February 1, 2025. Pricing on the revolving loan is LIBOR plus 1.50% with a commitment fee of 0.30% on the portion maturing in 2023 and LIBOR plus 1.25% with a commitment fee of 0.20% on the portion maturing in 2025. As of December 31, 2021, \$37 million of the revolving loan was utilized to collateralize a like principal amount of letters of credit out of \$351 million of letters of credit issued on the Company's behalf.

Amounts outstanding under the Charter Operating credit facilities bear interest, at Charter Operating's election, at a base rate or LIBOR (0.10% and 0.14% as of December 31, 2021 and 2020, respectively), as defined, plus an applicable margin.

The Charter Operating credit facilities also allow us to enter into incremental term loans in the future, with amortization as set forth in the notices establishing such term loans. Although the Charter Operating credit facilities allow for the incurrence of a certain amount of incremental term loans subject to pro forma compliance with its financial maintenance covenants, no assurance can be given that the Company could obtain additional incremental term loans in the future if Charter Operating sought to do so or what amount of incremental term loans would be allowable at any given time under the terms of the Charter Operating credit facilities.

The obligations of Charter Operating under the Charter Operating credit facilities are guaranteed by CCO Holdings and substantially all of the subsidiaries of Charter Operating. The obligations are also secured by (i) a lien on substantially all of the assets of Charter Operating and substantially all of its subsidiaries, to the extent such lien can be perfected under the Uniform Commercial Code by the filing of a financing statement, and (ii) a pledge of the equity interests directly or indirectly owned by Charter Operating in substantially all of its subsidiaries, as well as intercompany obligations owing to it and the guarantor subsidiaries by any of their affiliates.

Restrictive Covenants

The Charter Operating credit facilities contain representations and warranties, and affirmative and negative covenants customary for financings of this type. The financial covenants measure performance against standards set for leverage to be tested as of the end of each quarter. The Charter Operating credit facilities contain provisions requiring mandatory loan prepayments under specific circumstances, including in connection with certain sales of assets, so long as the proceeds have not been reinvested in the business. Additionally, the Charter Operating credit facilities provisions contain an allowance for restricted payments with certain limitations. The Charter Operating credit facilities permit Charter Operating and its subsidiaries

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to make distributions to pay interest on the currently outstanding subordinated and parent company indebtedness, provided that, among other things, no default has occurred and is continuing under the Charter Operating credit facilities. The Charter Operating credit facilities also contain customary events of default.

Time Warner Cable, LLC Notes and Debentures

The Time Warner Cable, LLC ("TWC, LLC") senior notes and debentures are guaranteed by CCO Holdings, Charter Operating and substantially all of the subsidiaries of Charter Operating (other than TWC, LLC) and rank equally with the liens on the collateral securing obligations under the Charter Operating notes and credit facilities. Interest on each series of TWC, LLC senior notes and debentures is payable semi-annually (with the exception of the Sterling Notes, which is payable annually) in arrears.

The TWC, LLC indenture contains customary covenants relating to restrictions on the ability of TWC, LLC or any material subsidiary to create liens and on the ability of TWC, LLC and Time Warner Cable Enterprises LLC ("TWCE") to consolidate, merge or convey or transfer substantially all of their assets. The TWC, LLC indenture also contains customary events of default.

The TWC, LLC senior notes and debentures may be redeemed in whole or in part at any time at TWC, LLC's option at a redemption price equal to the greater of (i) all of the applicable principal amount being redeemed and (ii) the sum of the present values of the remaining scheduled payments on the applicable TWC, LLC senior notes and debentures discounted to the redemption date on a semi-annual basis (with the exception of the Sterling Notes, which are on an annual basis), at a comparable government bond rate plus a designated number of basis points as further described in the indenture and the applicable note or debenture, plus, in each case, accrued but unpaid interest to, but not including, the redemption date.

The Company may offer to redeem all, but not less than all, of the Sterling Notes in the event of certain changes in the tax laws of the U.S. (or any taxing authority in the U.S.). This redemption would be at a redemption price equal to 100% of the principal amount, together with accrued and unpaid interest on the Sterling Notes to, but not including, the redemption date.

TWCE Debentures

The TWCE senior debentures are guaranteed by CCO Holdings, Charter Operating, and substantially all of the subsidiaries of Charter Operating (other than TWCE) and rank equally with the liens on the collateral securing obligations under the Charter Operating notes and credit facilities. Interest on each series of TWCE senior debentures is payable semi-annually in arrears. The TWCE senior debentures are not redeemable before maturity.

The TWCE indenture contains customary covenants relating to restrictions on the ability of TWCE or any material subsidiary to create liens and on the ability of TWC, LLC and TWCE to consolidate, merge or convey or transfer substantially all of their assets. The TWCE indenture also contains customary events of default.

Limitations on Distributions

Distributions by the Company's subsidiaries to a parent company for payment of principal on parent company notes are restricted under the CCO Holdings indentures and Charter Operating credit facilities discussed above, unless there is no default under the applicable indenture and credit facilities, and unless each applicable entity's leverage ratio test is met at the time of such distribution. As of December 31, 2021, there was no default under any of these indentures or credit facilities and each applicable entity met its applicable leverage ratio tests based on December 31, 2021 financial results. There can be no assurance that they will satisfy these tests at the time of the contemplated distribution. Distributions by Charter Operating for payment of principal on parent company (CCO Holdings) notes are further restricted by the covenants in its credit facilities.

However, without regard to leverage, during any calendar year or any portion thereof during which the borrower is a flow-through entity for tax purposes, and so long as no event of default exists, the borrower may make distributions to the equity interests of the borrower in an amount sufficient to make permitted tax payments.

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In addition to the limitation on distributions under the various indentures, distributions by the Company's subsidiaries may be limited by applicable law, including the Delaware Limited Liability Company Act, under which the Company's subsidiaries may make distributions if they have "surplus" as defined in the act.

Liquidity and Future Principal and Interest Payments

The Company continues to have significant amounts of debt, and its business requires significant cash to fund principal and interest payments on its debt, capital expenditures and ongoing operations. As set forth below, the Company has significant future principal and interest payments. The Company continues to monitor the capital markets, and it expects to undertake refinancing transactions and utilize free cash flow and cash on hand to further extend or reduce the maturities of its principal obligations. The timing and terms of any refinancing transactions will be subject to market conditions.

Interest payments on variable debt are estimated using amounts outstanding at December 31, 2021 and the average implied forward LIBOR rates applicable for the quarter during the interest rate reset based on the yield curve in effect at December 31, 2021. Actual interest payments will differ based on actual LIBOR rates and actual amounts outstanding for applicable periods. Based upon outstanding indebtedness as of December 31, 2021, the amortization of term loans, and the maturity dates for all senior and subordinated notes, total future principal and interest payments on the total borrowings under all debt agreements are as follows.

	Principal	Interest
2022	\$ 3,277	\$ 4,166
2023	1,936	4,066
2024	2,265	3,996
2025	10,670	3,802
2026	788	3,654
Thereafter	72,262	42,667
	<u>\$ 91,198</u>	<u>\$ 62,351</u>

10. Loans Payable - Related Party

Loans payable - related party as of December 31, 2021 and 2020 consists of loans from Charter Communications Holding Company, LLC ("Charter Holdco") to Charter Operating of \$743 million and \$727 million, respectively, and loans from Charter to Charter Operating of \$284 million and \$274 million, respectively. Interest accrued at LIBOR plus 1.25% on the loans payable from Charter Holdco and LIBOR plus 2.00% on the loans payable from Charter during the periods ending December 31, 2021 and 2020.

11. Accounting for Derivative Instruments and Hedging Activities

The Company uses derivative instruments to manage foreign exchange risk on the Sterling Notes, and does not hold or issue derivative instruments for speculative trading purposes.

Cross-currency derivative instruments are used to effectively convert £1.275 billion aggregate principal amount of fixed-rate British pound sterling denominated debt, including annual interest payments and the payment of principal at maturity, to fixed-rate U.S. dollar denominated debt. The cross-currency swaps have maturities of June 2031 and July 2042. The Company is required to post collateral on the cross-currency derivative instruments when the derivative contracts are in a liability position. In April 2019, the Company entered into a collateral holiday agreement for 60% of both the 2031 and 2042 cross-currency swaps, which eliminates the requirement to post collateral for three years, as well as a ten year collateral cap on the remaining 40% of the cross-currency swaps which limits the required collateral posting on that 40% of the cross-currency swaps to \$150 million. In March 2021, the collateral holiday for 20% of the swaps was extended to November 2022 in consideration for the Company's agreement to post collateral over a threshold amount on that 20% portion of the swaps from March 2021 through October 2021. The fair value of the Company's cross-currency derivatives was \$290 million and \$184 million and is included in other long-term liabilities on its consolidated balance sheets as of December 31, 2021 and 2020, respectively.

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The Company's derivative instruments are not designated as hedges and are marked to fair value each period, with the impact recorded as a gain or loss on financial instruments in the consolidated statements of operations in other expenses, net. While these derivative instruments are not designated as hedges for accounting purposes, management continues to believe such instruments are closely correlated with the respective debt, thus managing associated risk.

The effect of financial instruments are recorded in other expenses, net in the consolidated statements of operations and consisted of the following.

	Year Ended December 31,		
	2021	2020	2019
Change in fair value of cross-currency derivative instruments	\$ (106)	\$ 40	\$ 13
Foreign currency remeasurement of Sterling Notes to U.S. dollars	20	(55)	(67)
Loss on financial instruments, net	<u>\$ (86)</u>	<u>\$ (15)</u>	<u>\$ (54)</u>

12. Fair Value Measurements

Accounting guidance establishes a three-level hierarchy for disclosure of fair value measurements, based on the transparency of inputs to the valuation of an asset or liability as of the measurement date, as follows:

- Level 1 – inputs to the valuation methodology are quoted prices (unadjusted) for identical assets or liabilities in active markets.
- Level 2 – inputs to the valuation methodology include quoted prices for similar assets and liabilities in active markets, and inputs that are observable for the asset or liability, either directly or indirectly, for substantially the full term of the financial instrument.
- Level 3 – inputs to the valuation methodology are unobservable and significant to the fair value measurement.

Financial Assets and Liabilities

The Company has estimated the fair value of its financial instruments as of December 31, 2021 and 2020 using available market information or other appropriate valuation methodologies. Considerable judgment, however, is required in interpreting market data to develop the estimates of fair value. Accordingly, the estimates presented in the accompanying consolidated financial statements are not necessarily indicative of the amounts the Company would realize in a current market exchange.

The carrying amounts of cash and cash equivalents, receivables, payables and other current assets and liabilities approximate fair value because of the short maturity of those instruments.

As of December 31, 2021 and 2020, accounts receivable, net on the consolidated balance sheets includes approximately \$391 million and \$338 million of current equipment installment plan receivables, respectively, and other noncurrent assets includes approximately \$189 million and \$134 million of noncurrent equipment installment plan receivables, respectively.

Financial instruments accounted for at fair value on a recurring basis and classified within Level 2 of the valuation hierarchy include the Company's cross-currency derivative instruments which are recorded in other-long term liabilities on the consolidated balance sheets and were valued at \$290 million and \$184 million as of December 31, 2021 and 2020, respectively.

The estimated fair value of the Company's senior notes and debentures as of December 31, 2021 and 2020 is based on quoted market prices in active markets and is classified within Level 1 of the valuation hierarchy, while the estimated fair value of the Company's credit facilities is based on quoted market prices in inactive markets and is classified within Level 2.

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A summary of the carrying value and fair value of the Company's debt at December 31, 2021 and 2020 is as follows:

	December 31,			
	2021		2020	
	Carrying Value	Fair Value	Carrying Value	Fair Value
Senior notes and debentures	\$ 80,893	\$ 88,976	\$ 72,671	\$ 84,163
Credit facilities	\$ 10,668	\$ 10,665	\$ 10,081	\$ 10,063

Non-financial Assets and Liabilities

The Company's nonfinancial assets such as equity-method investments, franchises, property, plant, and equipment, and other intangible assets are not measured at fair value on a recurring basis; however, they are subject to fair value adjustments in certain circumstances, such as when there is evidence that an impairment may exist. When such impairments are recorded, fair values are generally classified within Level 3 of the valuation hierarchy.

13. Operating Costs and Expenses

Operating costs and expenses, exclusive of items shown separately in the consolidated statements of operations, consist of the following for the periods presented:

	Year Ended December 31,		
	2021	2020	2019
Programming	\$ 11,844	\$ 11,401	\$ 11,290
Regulatory, connectivity and produced content	2,494	2,183	2,366
Costs to service customers	7,393	7,472	7,277
Marketing	3,071	3,031	3,044
Mobile	2,489	1,765	1,246
Other	4,275	4,186	4,052
	<u>\$ 31,566</u>	<u>\$ 30,038</u>	<u>\$ 29,275</u>

Programming costs consist primarily of costs paid to programmers for basic, premium, digital, video on demand and pay-per-view programming. Regulatory, connectivity and produced content costs represent payments to franchise and regulatory authorities, costs directly related to providing video, Internet and voice services as well as payments for sports, local and news content produced by the Company. Included in regulatory, connectivity and produced content costs is content acquisition costs for the Los Angeles Lakers' basketball games and Los Angeles Dodgers' baseball games, which are recorded as games are exhibited over the contract period. Costs to service customers include costs related to field operations, network operations and customer care for the Company's residential and SMB customers, including internal and third-party labor for the non-capitalizable portion of installations, service and repairs, maintenance, bad debt expense, billing and collection, occupancy and vehicle costs. Marketing costs represent the costs of marketing to current and potential commercial and residential customers including labor costs. Mobile costs represent costs associated with the Company's mobile service such as device and service costs, marketing, sales and commissions, retail stores, personnel costs, taxes, among others. Other includes corporate overhead, advertising sales expenses, indirect costs associated with the Company's enterprise business customers and regional sports and news networks, property tax and insurance expense and stock compensation expense, among others.

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14. Other Operating Expenses, Net

Other operating expenses, net consist of the following for the years presented:

	Year Ended December 31,		
	2021	2020	2019
Special charges, net	\$ 261	\$ 99	\$ 69
(Gain) loss on sale of assets, net	45	(32)	42
	<u>\$ 306</u>	<u>\$ 67</u>	<u>\$ 111</u>

Special charges, net

Special charges, net primarily includes net amounts of litigation settlements, including the \$220 million tentative settlement with Sprint Communications Company L.P. ("Sprint") and T-Mobile USA, Inc. ("T-Mobile") for the year ended December 31, 2021 discussed in Note 20, and employee termination costs.

(Gain) loss on sale of assets, net

(Gain) loss on sale of assets, net represents the net (gain) loss recognized on the sales and disposals of fixed assets and cable systems including \$36 million and \$42 million impairments of non-strategic assets held for sale during the years ended December 31, 2021 and 2019, respectively.

15. Other Expenses, Net

Other expenses, net consist of the following for the periods presented:

	Year Ended December 31,		
	2021	2020	2019
Loss on extinguishment of debt (see Note 9)	\$ (144)	\$ (143)	\$ (25)
Loss on financial instruments, net (see Note 11)	(86)	(15)	(54)
Other pension benefits (costs), net (see Note 21)	305	(66)	(69)
Loss on equity investments, net (see Note 6)	(179)	(13)	(131)
	<u>\$ (104)</u>	<u>\$ (237)</u>	<u>\$ (279)</u>

16. Stock Compensation Plans

Charter's stock incentive plan provides for grants of nonqualified stock options, incentive stock options, stock appreciation rights, dividend equivalent rights, performance units and performance shares, share awards, phantom stock, restricted stock units and restricted stock. Directors, officers and other employees of the Company and its subsidiaries, as well as others performing consulting services for the Company, are eligible for grants under the stock incentive plan. The stock incentive plan allows for the issuance of up to 16 million shares of Charter Class A common stock (or units convertible into Charter Class A common stock).

Stock options and restricted stock units generally cliff vest three years from the date of grant. Stock options generally expire ten years from the grant date and restricted stock units have no voting rights. Restricted stock generally vests one year from the date of grant.

As of December 31, 2021, total unrecognized compensation remaining to be recognized in future periods totaled \$226 million for stock options, \$1.0 million for restricted stock and \$208 million for restricted stock units and the weighted average period over which they are expected to be recognized is 2 years for stock options, 4 months for restricted stock and 2 years for restricted stock units. The Company recorded \$430 million, \$351 million and \$315 million of stock compensation expense for the years ended December 31, 2021, 2020 and 2019, respectively, which is included in operating costs and expenses.

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A summary of the activity for Charter's stock options for the years ended December 31, 2021, 2020 and 2019, is as follows (shares in thousands, except per share data):

	Year Ended December 31,								
	2021			2020			2019		
	Shares	Weighted Average Exercise Price	Aggregate Intrinsic Value	Shares	Weighted Average Exercise Price	Aggregate Intrinsic Value	Shares	Weighted Average Exercise Price	Aggregate Intrinsic Value
Outstanding, beginning of period	8,842	\$ 312.95		10,549	\$ 241.14		10,410	\$ 225.53	
Granted	1,295	\$ 629.57		1,672	\$ 536.27		1,847	\$ 298.84	
Exercised	(1,568)	\$ 295.46	\$ 606	(3,160)	\$ 191.43	\$ 1,176	(1,271)	\$ 186.90	\$ 247
Canceled	(136)	\$ 476.90		(219)	\$ 312.94		(437)	\$ 270.94	
Outstanding, end of period	<u>8,433</u>	<u>\$ 362.26</u>	<u>\$ 2,447</u>	<u>8,842</u>	<u>\$ 312.95</u>		<u>10,549</u>	<u>\$ 241.14</u>	
Weighted average remaining contractual life	6 years			7 years			7 years		
Options exercisable, end of period	<u>4,102</u>	\$ 237.45	\$ 1,700	<u>2,940</u>	\$ 220.78		<u>3,119</u>	\$ 161.13	
Options expected to vest, end of period	<u>4,331</u>	\$ 480.47	\$ 746						
Weighted average fair value of options granted	<u>\$ 171.21</u>			<u>\$ 148.02</u>			<u>\$ 84.39</u>		

A summary of the activity for Charter's restricted stock for the years ended December 31, 2021, 2020 and 2019, is as follows (shares in thousands, except per share data):

	Year Ended December 31,					
	2021		2020		2019	
	Shares	Weighted Average Grant Price	Shares	Weighted Average Grant Price	Shares	Weighted Average Grant Price
Outstanding, beginning of period	6	\$ 504.53	8	\$ 359.33	10	\$ 297.86
Granted	5	\$ 654.33	6	\$ 504.53	8	\$ 359.33
Vested	(6)	\$ 504.53	(8)	\$ 359.33	(10)	\$ 297.86
Canceled	—	\$ —	—	\$ —	—	\$ —
Outstanding, end of period	<u>5</u>	<u>\$ 654.33</u>	<u>6</u>	<u>\$ 504.53</u>	<u>8</u>	<u>\$ 359.33</u>

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A summary of the activity for Charter’s restricted stock units for the years ended December 31, 2021, 2020 and 2019, is as follows (shares in thousands, except per share data):

	Year Ended December 31,					
	2021		2020		2019	
	Shares	Weighted Average Grant Price	Shares	Weighted Average Grant Price	Shares	Weighted Average Grant Price
Outstanding, beginning of period	1,651	\$ 337.82	2,059	\$ 249.45	2,211	\$ 219.61
Granted	367	\$ 629.47	423	\$ 509.64	704	\$ 298.22
Vested	(665)	\$ 269.88	(753)	\$ 194.40	(729)	\$ 206.88
Canceled	(59)	\$ 467.26	(78)	\$ 317.45	(127)	\$ 250.85
Outstanding, end of period	<u>1,294</u>	<u>\$ 449.03</u>	<u>1,651</u>	<u>\$ 337.82</u>	<u>2,059</u>	<u>\$ 249.45</u>

17. Income Taxes

CCO Holdings is a single member limited liability company not subject to income tax. CCO Holdings holds all operations through indirect subsidiaries. The majority of these indirect subsidiaries are limited liability companies that are not subject to income tax. Charter has elected the accounting policy not to allocate income taxes to its subsidiaries that are not subject to income tax. Certain indirect subsidiaries that are required to file separate returns are subject to federal and state tax. CCO Holdings’ tax provision reflects the tax provision of the entities required to file separate returns.

Generally, the taxable income, gains, losses, deductions and credits of CCO Holdings are passed through to its indirect members, Charter and Advance/Newhouse Partnership (“A/N”). Charter is responsible for its share of taxable income or loss of CCO Holdings allocated to it in accordance with the Charter Holdings Limited Liability Company Agreement and partnership tax rules and regulations. Charter also records financial statement deferred tax assets and liabilities related to its investment, and its underlying net assets, in CCO Holdings.

Income Tax Expense

For the years ended December 31, 2021, 2020, and 2019, the Company recorded deferred income tax expense as shown below. The tax provision in future periods will vary based on current and future temporary differences, as well as future operating results.

	Year Ended December 31,		
	2021	2020	2019
Current expense:			
Federal income taxes	\$ (1)	\$ (2)	\$ (4)
State income taxes	(35)	(30)	(28)
Current income tax expense	<u>(36)</u>	<u>(32)</u>	<u>(32)</u>
Deferred benefit (expense):			
State income taxes	(5)	3	(57)
Deferred income tax benefit (expense)	<u>(5)</u>	<u>3</u>	<u>(57)</u>
Income tax expense	<u>\$ (41)</u>	<u>\$ (29)</u>	<u>\$ (89)</u>

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The Company's effective tax rate differs from that derived by applying the applicable federal income tax rate of 21% for the years ended December 31, 2021, 2020 and 2019 as follows:

	Year Ended December 31,		
	2021	2020	2019
Statutory federal income taxes	\$ (1,334)	\$ (881)	\$ (491)
Statutory state income taxes, net	(40)	(27)	(85)
Income allocated to limited liability companies not subject to income taxes	1,333	879	487
Income tax expense	<u>\$ (41)</u>	<u>\$ (29)</u>	<u>\$ (89)</u>

Deferred Tax Assets (Liabilities)

The tax effects of these temporary differences that give rise to significant portions of the deferred tax assets and deferred tax liabilities at December 31, 2021 and 2020 are presented below.

	December 31,	
	2021	2020
Deferred tax assets:		
Accrued and other	\$ 7	\$ 5
Total gross deferred tax assets	<u>7</u>	<u>5</u>
Deferred tax liabilities:		
Indefinite-lived intangibles	(43)	(39)
Property, plant and equipment	(19)	(16)
Other intangibles	(2)	(3)
Deferred tax liabilities	<u>(64)</u>	<u>(58)</u>
Net deferred tax liabilities	<u>\$ (57)</u>	<u>\$ (53)</u>

Uncertain Tax Positions

The net amount of the unrecognized tax benefits recorded as of December 31, 2021 that could impact the effective tax rate is \$84 million. The Company has determined that it is reasonably possible that its existing reserve for uncertain tax positions as of December 31, 2021 could decrease by approximately \$27 million during the year ended December 31, 2022 related to various ongoing audits, settlement discussions and expiration of statute of limitations with various state and local agencies; however, various events could cause the Company's current expectations to change in the future. These uncertain tax positions, if ever recognized in the financial statements, would be recorded in the consolidated statements of operations as part of the income tax provision. A reconciliation of the beginning and ending amount of unrecognized tax benefits, exclusive of interest and penalties, included in other long-term liabilities on the accompanying consolidated balance sheets of the Company is as follows:

BALANCE, December 31, 2019	\$ 110
Reductions on settlements and expirations with taxing authorities	(8)
BALANCE, December 31, 2020	<u>102</u>
Reductions on settlements and expirations with taxing authorities	(6)
BALANCE, December 31, 2021	<u>\$ 96</u>

The Company recognizes interest and penalties accrued on uncertain income tax positions as part of the income tax provision. Interest and penalties included in other long-term liabilities on the accompanying consolidated balance sheets of the Company were \$60 million and \$53 million as of December 31, 2021 and 2020, respectively.

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Charter is currently under examination by the Internal Revenue Service ("IRS") for income tax purposes for 2019. Charter's 2016, 2018 and 2020 tax years remain open for examination and assessment. Charter's 2017 tax year remains open solely for purposes of loss and credit carryforwards. Charter's short period return dated May 17, 2016 (prior to the merger with TWC and acquisition of Bright House Networks, LLC ("Bright House")) and prior years remain open solely for purposes of examination of Charter's loss and credit carryforwards. The IRS is currently examining Charter Holdings' income tax return for 2016 and 2019. Charter Holdings' 2018 and 2020 tax years remain open for examination and assessment, while 2017 remains open solely for purposes of credit carryforwards. The IRS is currently examining TWC's income tax returns for 2011 through 2014. TWC's tax year 2015 remains subject to examination and assessment. Prior to TWC's separation from Time Warner Inc. ("Time Warner") in March 2009, TWC was included in the consolidated U.S. federal and certain state income tax returns of Time Warner. The IRS has examined Time Warner's 2008 through 2010 income tax returns and the results are under appeal. The Company does not anticipate that these examinations will have a material impact on the Company's consolidated financial position or results of operations. In addition, the Company is also subject to ongoing examinations of the Company's tax returns by state and local tax authorities for various periods. Activity related to these state and local examinations did not have a material impact on the Company's consolidated financial position or results of operations during the year ended December 31, 2021, nor does the Company anticipate a material impact in the future.

18. Comprehensive Income

Comprehensive income equaled net income attributable to CCO Holdings member for the years ended December 31, 2021 and 2020. The following table sets forth the consolidated statements of comprehensive income for the year ended December 31, 2019.

	Year Ended December 31, 2019
Consolidated net income	\$ 2,252
Foreign currency translation adjustment	2
Consolidated comprehensive income	2,254
Less: Comprehensive income attributable to noncontrolling interests	(1)
Comprehensive income attributable to CCO Holdings member	\$ 2,253

19. Related Party Transactions

The following sets forth certain transactions in which the Company and the directors, executive officers, and affiliates of the Company are involved or, in the case of the management arrangements, subsidiaries that are debt issuers that pay certain of their parent companies for services.

Charter is a party to management arrangements with its subsidiary, Spectrum Management and certain of their subsidiaries. Under these agreements, Charter, Spectrum Management and Charter Communications Holding Company, LLC ("Charter Holdco") provide management services for the cable systems owned or operated by their subsidiaries. Costs associated with providing these services are charged directly to the Company's operating subsidiaries. All other costs incurred on behalf of Charter's operating subsidiaries are considered a part of the management fee. These costs are recorded as a component of operating costs and expenses, in the accompanying consolidated financial statements. The management fee charged to the Company's operating subsidiaries approximated the expenses incurred by Spectrum Management, Charter Holdco and Charter on behalf of the Company's operating subsidiaries in 2021, 2020 and 2019.

Liberty Broadband and A/N

Under the terms of the Amended and Restated Stockholders Agreement with Liberty Broadband, A/N and Charter, dated May 23, 2015 (the "Stockholders Agreement"), the number of Charter's directors is fixed at 13, and includes its CEO. Two designees selected by A/N are members of the board of directors of Charter and three designees selected by Liberty Broadband Corporation ("Liberty Broadband") are members of the board of directors of Charter. The remaining eight directors are not affiliated with either A/N or Liberty Broadband. Each of A/N and Liberty Broadband is entitled to nominate at least one director to each of the committees of Charter's board of directors, subject to applicable stock exchange listing rules and certain specified voting or equity ownership thresholds for each of A/N and Liberty Broadband, and provided that the Nominating and

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Corporate Governance Committee and the Compensation and Benefit Committee each have at least a majority of directors independent from A/N, Liberty Broadband and Charter (referred to as the “unaffiliated directors”). Each of the Nominating and Corporate Governance Committee and the Compensation and Benefits Committee is currently comprised of three unaffiliated directors and one designee of each of A/N and Liberty Broadband. A/N and Liberty Broadband also have certain other committee designation and other governance rights. Mr. Thomas Rutledge, the Company’s CEO, is the chairman of the board of Charter.

In December 2016, Charter and A/N entered into a letter agreement, as amended in December 2017 (the “A/N Letter Agreement”) that requires A/N to sell to Charter or to Charter Holdings, on a monthly basis, a number of shares of Charter Class A common stock or Charter Holdings common units that represents a pro rata participation by A/N and its affiliates in any repurchases of shares of Charter Class A common stock from persons other than A/N effected by Charter during the immediately preceding calendar month, at a purchase price equal to the average price paid by Charter for the shares repurchased from persons other than A/N during such immediately preceding calendar month. A/N and Charter both have the right to terminate or suspend the pro rata repurchase arrangement on a prospective basis. Pursuant to the TRA between Charter and A/N, Charter must pay to A/N 50% of the tax benefit when realized by Charter from the step-up in tax basis resulting from any future exchange or sale of the preferred and common units.

In February 2021, Charter and Liberty Broadband entered into a letter agreement (the “LBB Letter Agreement”). The LBB Letter Agreement implements Liberty Broadband’s obligations under the Stockholders Agreement to participate in share repurchases by Charter. Under the LBB Letter Agreement, Liberty Broadband will sell to Charter, generally on a monthly basis, a number of shares of Charter Class A common stock representing an amount sufficient for Liberty Broadband’s ownership of Charter to be reduced such that it does not exceed the ownership cap then applicable to Liberty Broadband under the Stockholders Agreement at a purchase price per share equal to the volume weighted average price per share paid by Charter for shares repurchased during such immediately preceding calendar month other than (i) purchases from A/N, (ii) purchases in privately negotiated transactions or (iii) purchases for the withholding of shares of Charter Class A common stock pursuant to equity compensation programs of Charter.

Gregory Maffei, a director of Charter and President and CEO and director and holder of 12.6% voting interest in Liberty Broadband, is Chairman of the board of directors of Qurate Retail, Inc. (“Qurate”) and Dr. John Malone, a director emeritus of Charter and Chairman of the board of directors and holder of 45.8% of voting interest in Liberty Broadband, also serves on the Qurate board of directors. As reported in SEC filings of Qurate, Mr. Maffei and Dr. Malone, Mr. Maffei has ownership of an approximate 6.3% voting interest in Qurate and Dr. Malone has ownership of an approximate 41.2% voting interest in Qurate. Qurate wholly owns HSN, Inc. (“HSN”) and QVC, Inc. (“QVC”). The Company has programming relationships with HSN and QVC. For the years ended December 31, 2021, 2020 and 2019, the Company recorded revenue in aggregate of approximately \$48 million, \$50 million and \$50 million, respectively, from HSN and QVC as part of channel carriage fees and revenue sharing arrangements for home shopping sales made to customers in the Company’s footprint.

Dr. Malone and Mr. Steven Miron, a member of Charter’s board of directors, also serve on the board of directors of Discovery, Inc., (“Discovery”). As reported in Discovery’s SEC filings, Dr. Malone owns less than 1.0% of the series A common stock, 95.0% of the series B common stock and 3.7% of the series C common stock of Discovery and has a 26.5% voting interest in Discovery for the election of directors. As reported in Discovery’s SEC filings, Advance/Newhouse Programming Partnership (“A/N PP”), an affiliate of A/N and in which Mr. Miron is the CEO, owns 100% of the Series A-1 preferred stock of Discovery and 100% of the Series C-1 preferred stock of Discovery and has a 23.2% voting interest for matters other than the election of directors. A/N PP also has the right to appoint three directors out of a total of twelve directors to Discovery’s board. The Company purchases programming from Discovery. Based on publicly available information, the Company does not believe that Discovery would currently be considered a related party. The amount paid in the aggregate to Discovery represents less than 2% of total operating costs and expenses for the years ended December 31, 2021, 2020 and 2019.

Equity Investments

The Company and its parent companies have agreements with certain equity investees (see Note 6) pursuant to which the Company has made or received related party transaction payments for the receipt of goods or services. The Company and its parent companies recorded payments to equity investees totaling \$229 million, \$225 million and \$314 million during the years ended December 31, 2021, 2020 and 2019, respectively.

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20. Commitments and Contingencies

Commitments

The following table summarizes the Company's and its parent companies' payment obligations as of December 31, 2021 for its contractual obligations.

	Total	2022	2023	2024	2025	2026	Thereafter
Programming Minimum Commitments ^(a)	\$ 95	\$ 78	\$ 17	\$ —	\$ —	\$ —	\$ —
Other ^(b)	12,595	2,239	1,150	857	736	721	6,892
	<u>\$ 12,690</u>	<u>\$ 2,317</u>	<u>\$ 1,167</u>	<u>\$ 857</u>	<u>\$ 736</u>	<u>\$ 721</u>	<u>\$ 6,892</u>

^(a) The Company pays programming fees under multi-year contracts, typically based on a flat fee per customer, which may be fixed for the term, or may in some cases escalate over the term. Programming costs included in the statements of operations were \$11.8 billion, \$11.4 billion and \$11.3 billion for the years ended December 31, 2021, 2020 and 2019 respectively. Certain of the Company's programming agreements are based on a flat fee per month or have guaranteed minimum payments. The table sets forth the aggregate guaranteed minimum commitments under the Company's programming contracts.

^(b) "Other" represents other guaranteed minimum commitments, including rights negotiated directly with content owners for distribution on company-owned channels or networks, commitments related to our role as an advertising and distribution sales agent for third party-owned channels or networks, commitments to our customer premise equipment and device vendors and contractual obligations related to third-party network augmentation.

The following items are not included in the contractual obligation table due to various factors discussed below. However, the Company incurs these costs as part of its operations:

- The Company rents utility poles used in its operations. Generally, pole rentals are cancelable on short notice, but the Company anticipates that such rentals will recur. Rent expense incurred for pole rental attachments for the years ended December 31, 2021, 2020 and 2019 was \$200 million, \$192 million and \$180 million, respectively.
- The Company pays franchise fees under multi-year franchise agreements based on a percentage of revenues generated from video service per year. The Company also pays other franchise related costs, such as public education grants, under multi-year agreements. Franchise fees and other franchise-related costs included in the accompanying statement of operations were \$733 million, \$741 million and \$750 million for the years ended December 31, 2021, 2020 and 2019 respectively.
- The Company has \$351 million in letters of credit, of which \$37 million is secured under the Charter Operating credit facility, primarily to its various casualty carriers as collateral for reimbursement of workers' compensation, auto liability and general liability claims.
- Minimum pension funding requirements have not been presented in the table above as such amounts have not been determined beyond 2021. The Company made no cash contributions to the qualified pension plans in 2021; however, the Company is permitted to make discretionary cash contributions to the qualified pension plans in 2022. For the nonqualified pension plan, the Company contributed \$4 million during 2021 and will continue to make contributions in 2022 to the extent benefits are paid.
- In December 2020, the Company won a bidding process for \$1.2 billion in phase I of the Rural Digital Opportunity Fund ("RDOF") auction to further extend its broadband services in states where it currently operate. The Company expects to fund its multi-billion dollar fiber-based build-out over a six to eight-year period.

Legal Proceedings

In August 2015, a purported stockholder of Charter, Matthew Sciacucchi, filed a lawsuit in the Delaware Court of Chancery, on behalf of a putative class of Charter stockholders, challenging the transactions involving Charter, TWC, A/N, and Liberty Broadband announced by Charter on May 26, 2015. The lawsuit, which named as defendants Charter and its board of directors, 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 denies any liability, believes that it has substantial defenses, and is vigorously defending this lawsuit. Although Charter is unable to predict the

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outcome of this lawsuit, it does not expect the outcome will have a material effect on its operations, financial condition or cash flows.

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 the Company 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 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 the Company's provision of Voice over Internet Protocol ("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 the Company paid in November 2019. The Company 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 the Company'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. The Company 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, the Company will vigorously defend these Sprint suits and prosecute the suits it has brought against T-Mobile and Sprint. While the Company 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, the Company and its parent companies are defendants or co-defendants in several additional lawsuits involving alleged infringement of various intellectual property relating to various aspects of their businesses. Other industry participants are also defendants in certain of these cases or related cases. In the event that a court ultimately determines that the Company infringes on any intellectual property, the Company may be subject to substantial damages and/or an injunction that could require the Company or its vendors to modify certain products and services the Company offers to its subscribers, as well as negotiate royalty or license agreements with respect to the intellectual property at issue. While the Company 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 the Company's consolidated financial condition, results of operations, or liquidity. The Company cannot predict the outcome of any such claims nor can it reasonably estimate a range of possible loss.

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

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21. Employee Benefit Plans

Pension Plans

The Company sponsors qualified and nonqualified defined benefit pension plans that provide pension benefits to a majority of employees who were employed by TWC before the merger with TWC.

Changes in the projected benefit obligation, fair value of plan assets and funded status of the pension plans from January 1 through December 31 are presented below:

	2021	2020
Projected benefit obligation at beginning of year	\$ 3,688	\$ 3,361
Interest cost	97	110
Actuarial (gain) loss	(183)	436
Settlement	(173)	(166)
Benefits paid	(55)	(53)
Projected benefit obligation at end of year ^(a)	<u>\$ 3,374</u>	<u>\$ 3,688</u>
Accumulated benefit obligation at end of year ^(a)	<u>\$ 3,374</u>	<u>\$ 3,688</u>
Fair value of plan assets at beginning of year	\$ 3,462	\$ 3,198
Actual return on plan assets	219	480
Employer contributions	4	3
Settlement	(173)	(166)
Benefits paid	(55)	(53)
Fair value of plan assets at end of year ^(b)	<u>\$ 3,457</u>	<u>\$ 3,462</u>
Funded status	<u>\$ 83</u>	<u>\$ (226)</u>

^(a) As of December 31, 2021 and 2020, qualified pension plans represented \$3.3 billion and \$3.7 billion, respectively, of both the projected benefit obligation and accumulated benefit obligation, while the Company's nonqualified pension plan represented \$32 million and \$36 million, respectively.

^(b) The fair value of plan assets consists entirely of the Company's qualified pension plans.

Pretax amounts recognized in the consolidated balance sheet as of December 31, 2021 and 2020 consisted of the following:

	December 31,	
	2021	2020
Noncurrent asset	\$ 114	\$ 1
Current liability	(4)	(5)
Long-term liability	(27)	(222)
Net amounts recognized in consolidated balance sheet	<u>\$ 83</u>	<u>\$ (226)</u>

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The components of net periodic benefit (cost) for the years ended December 31, 2021, 2020 and 2019 consisted of the following:

	Year Ended December 31,		
	2021	2020	2019
Interest cost	\$ (97)	\$ (110)	\$ (129)
Expected return on plan assets	165	156	164
Remeasurement gain (loss)	237	(112)	(104)
Net periodic pension benefit (cost)	<u>\$ 305</u>	<u>\$ (66)</u>	<u>\$ (69)</u>

The remeasurement gains (losses) recorded during the years ended December 31, 2021, 2020 and 2019 were primarily driven by changes in the discount rate as well as gains or losses to record pension assets to fair value.

The discount rates used to determine benefit obligations as of December 31, 2021 and 2020 were 3.01% and 2.70%, respectively. The Company utilized the Pri-2012/MP 2020 mortality table published by the Society of Actuaries to measure the benefit obligations as of December 31, 2021 and 2020.

Weighted average assumptions used to determine net periodic benefit costs consisted of the following:

	Year ended December 31,		
	2021	2020	2019
Expected long-term rate of return on plan assets	5.00 %	5.00 %	5.75 %
Discount rate	2.70 %	3.48 %	4.37 %

In developing the expected long-term rate of return on plan assets, the Company considered the pension portfolio's composition, past average rate of earnings and the Company's future asset allocation targets. The weighted average expected long-term rate of return on plan assets and discount rate used to determine net periodic pension benefit (cost) for the year ended December 31, 2022 are expected to be 5.00% and 3.01%, respectively. The Company determined the discount rates used to determine benefit obligations and net periodic pension benefit (cost) based on the yield of a large population of high quality corporate bonds with cash flows sufficient in timing and amount to settle projected future defined benefit payments.

Pension Plan Assets

The assets of the qualified pension plans are held in a master trust in which the qualified pension plans are the only participating plans (the "Master Trust"). The investment policy for the qualified pension plans is to manage the assets of the Master Trust with the objective to provide for pension liabilities to be met, maintaining retirement income security for the participants of the plans and their beneficiaries. The investment portfolio is a mix of pooled funds invested in fixed income securities, equity securities and certain alternative investments with the objective of matching plan liability performance, diversifying risk and achieving a target investment return. Pension assets are managed in a balanced portfolio comprised of two major components: a return-seeking portion and a liability-matching portion.

The Company uses an investment strategy designed to increase the fixed income allocation as the funded status of the qualified pension plans improves. As the qualified pension plans reach set funded status milestones, the assets will be rebalanced to shift more assets from equity to fixed income. Based on the progress with this strategy, the target investment allocation for pension fund assets is permitted to vary within specified ranges subject to Investment Committee approval for return-seeking securities

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and liability-matching securities. The target and actual investment allocation of the qualified pension plans by asset category consisted of the following:

	December 31, 2021		December 31, 2020	
	Target Allocation	Actual Allocation	Target Allocation	Actual Allocation
Return-seeking securities	60.0 %	57.3 %	60.0 %	57.1 %
Liability-matching securities	40.0 %	42.6 %	40.0 %	42.8 %
Other investments	— %	0.1 %	— %	0.1 %

The following tables set forth the investment assets of the qualified pension plans by level within the fair value hierarchy as of December 31, 2021 and 2020:

	December 31, 2021			December 31, 2020		
	Fair Value	Level 1	Level 2	Fair Value	Level 1	Level 2
Cash	\$ 2	\$ 2	\$ —	\$ 4	\$ 4	\$ —
Commingled bond funds ^(a)	1,398	—	1,398	1,449	—	1,449
Commingled equity funds ^(a)	1,160	—	1,160	1,255	—	1,255
Collective trust funds ^(b)	150	—	150	178	—	178
Total investment assets	2,710	\$ 2	\$ 2,708	2,886	\$ 4	\$ 2,882
Accrued investment income and other receivables	247			19		
Accrued liabilities	(46)			—		
Investments measured at net asset value ^(c)	546			557		
Fair value of plan assets	\$ 3,457			\$ 3,462		

^(a) Commingled funds include bond funds with corporate and U.S. treasury debt securities and equity funds with global equity index, infrastructure and real estate securities that have a readily determinable fair value and are valued using the net assets provided by the administrator of the fund. The value of each fund is based on the fair value of underlying securities in the portfolio, which represents the amount that the fund might reasonably expect to receive for the securities upon a sale, less liabilities, and then divided by the number of units outstanding. Equity securities within the funds are valued using observable inputs on either a daily or weekly basis and the resulting per share value serves as a basis for current redemption value. Debt securities within the funds are valued based on observable prices from the new issue market, benchmark quotes, secondary trading and dealer quotes.

^(b) Collective trust funds consist of short-term investment strategies comprised of instruments issued or fully guaranteed by the U.S. government and/or its agencies and multi-strategy funds, which are valued using the net assets provided by the administrator of the fund. The value of each fund is based on the readily determinable fair value of the underlying assets owned by the fund, less liabilities, and then divided by the number of units outstanding.

^(c) As a practical expedient, certain investment classes which hold securities that are not readily available for redemption and are measured at fair value using the net asset value ("NAV") per share (or its equivalent) have not been classified in the fair value hierarchy.

Investments Measured at Net Asset Value per Share Practical Expedient

The following table summarizes the investment classes for which fair value is measured using the NAV per share (or its equivalent) practical expedient as of December 31, 2021 and 2020. These investment classes are not readily available for redemption. The NAV of each fund is based on the fair value of underlying assets in the portfolio. Certain investments report

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NAV per share on a month or quarter lag. There are no material unfunded commitments with respect to these investment classes.

	Fair Value		Redemption Frequency (if currently eligible)	Redemption Notice Period
	December 31,			
	2021	2020		
Alternative funds ^(a)	\$ 328	\$ 283	weekly, monthly, quarterly	1-180 days
Fixed income funds ^(b)	95	148	daily, monthly	10-40 days
Real estate funds ^(c)	123	126	quarterly	45-90 days
Investments measured at NAV	<u>\$ 546</u>	<u>\$ 557</u>		

^(a) The alternative fund investment class includes funds with various securities selected to provide complimentary sources of return with our equity and bond portfolios that better manage risk. The Company's alternative fund investments include holdings such as public equities, exchange traded derivatives, and corporate bonds, among others. A portion of the alternative funds cannot be redeemed until the one year anniversary of the purchase date.

^(b) Fixed income funds invest in residential and commercial mortgages, as well as global sovereign securities.

^(c) Real estate funds are not publicly traded and invest primarily in unlisted direct core real estate, including super-regional malls, shopping centers, and commercial real estate (e.g. education, healthcare and storage).

Pension Plan Contributions

The Company made no cash contributions to the qualified pension plans during the years ended December 31, 2021, 2020 and 2019; however, the Company may make discretionary cash contributions to the qualified pension plans in the future. Such contributions will be dependent on a variety of factors, including current and expected interest rates, asset performance, the funded status of the qualified pension plans and management's judgment. For the nonqualified unfunded pension plan, the Company will continue to make contributions during 2022 to the extent benefits are paid.

Benefit payments for the pension plans are expected to be \$227 million in 2022, \$217 million in 2023, \$206 million in 2024, \$196 million in 2025, \$188 million in 2026 and \$843 million in 2027 to 2031.

Multiemployer Plans

The Company contributes to multiemployer plans under the terms of collective-bargaining agreements that cover its union-represented employees. Such multiemployer plans provide medical, pension and retirement savings benefits to active employees and retirees. The Company made contributions to multiemployer plans of \$3 million, \$7 million and \$9 million for the years ended December 31, 2021, 2020 and 2019, respectively. As of December 31, 2021 and 2020, other long-term liabilities includes approximately \$94 million and \$98 million, respectively, related to the Company's withdrawal from a multiemployer pension plan.

Defined Contribution Benefit Plans

The Company's employees may participate in the Charter Communications, Inc. 401(k) Savings Plan (the "401(k) Plan"). Employees that qualify for participation can contribute up to 50% of their salary, on a pre-tax basis, subject to a maximum contribution limit as determined by the IRS. The Company's matching contribution is discretionary and is equal to 100% of the amount of the salary reduction the participant elects to defer (up to 6% of the participant's eligible compensation), excluding any catch-up contributions and is paid by the Company on a per pay period basis. The Company made contributions to the 401(k) plan totaling \$328 million, \$331 million and \$303 million for the years ended December 31, 2021, 2020 and 2019, respectively.

For employees who are not eligible to participate in the Company's long-term incentive plan and who are not covered by a collective bargaining agreement, the Company offers a contribution to the Retirement Accumulation Plan ("RAP"), equal to 3% of eligible pay. The Company made contributions to the RAP totaling \$167 million, \$162 million and \$152 million for the years ended December 31, 2021, 2020 and 2019, respectively.

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22. Recently Issued Accounting Standards

ASU No. 2021-10, Disclosures by Business Entities about Government Assistance ("ASU 2021-10")

In November 2021, the FASB issued ASU 2021-10, which requires business entities to disclose information about certain government assistance they receive. Such disclosure requirements include the nature of the transactions and the related accounting policy used, the line items on the balance sheet and income statement that are affected and the amounts applicable to each financial statement line item and significant terms and conditions of the transactions. ASU 2021-10 will be effective for annual periods beginning after December 15, 2021 (year ending December 31, 2022 for the Company). Early adoption is permitted. The Company is currently evaluating the impact the adoption of ASU 2021-10 will have on its disclosures.

23. Parent Company Only Financial Statements

As the result of limitations on, and prohibitions of, distributions, substantially all of the net assets of the consolidated subsidiaries are restricted from distribution to CCO Holdings, the parent company. The following condensed parent-only financial statements of CCO Holdings account for the investment in its subsidiaries under the equity method of accounting. The financial statements should be read in conjunction with the consolidated financial statements of the Company and notes thereto.

CCO Holdings, LLC (Parent Company Only)
Condensed Balance Sheets

	December 31,	
	2021	2020
ASSETS		
Cash and cash equivalents	\$ —	\$ 100
Receivables from related party	37	43
Investment in subsidiaries	59,776	71,002
Loans receivable - related party	579	567
Total assets	\$ 60,392	\$ 71,712
LIABILITIES AND MEMBER'S EQUITY		
Current liabilities	\$ 307	\$ 347
Other long-term liabilities	23,882	24,180
Member's equity	36,203	47,185
Total liabilities and member's equity	\$ 60,392	\$ 71,712

CCO Holdings, LLC (Parent Company Only)
Condensed Statements of Operations

	Year Ended December 31,		
	2021	2020	2019
Interest expense, net	\$ (1,166)	\$ (1,185)	\$ (1,067)
Loss on extinguishment of debt	(146)	(145)	(22)
Equity in income of subsidiaries	7,623	5,495	3,340
Net income	\$ 6,311	\$ 4,165	\$ 2,251

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CCO Holdings, LLC (Parent Company Only)
Condensed Statements of Comprehensive Income

	Year Ended December 31,		
	2021	2020	2019
Net income	\$ 6,311	\$ 4,165	\$ 2,251
Foreign currency translation adjustment	—	—	2
Comprehensive income	\$ 6,311	\$ 4,165	\$ 2,253

CCO Holdings, LLC (Parent Company Only)
Condensed Statements of Cash Flows

	Year Ended December 31,		
	2021	2020	2019
NET CASH FLOWS FROM OPERATING ACTIVITIES	\$ (1,200)	\$ (1,124)	\$ (1,051)
CASH FLOWS FROM INVESTING ACTIVITIES:			
Contribution to subsidiaries	(3,967)	(9,383)	(2,860)
Distributions from subsidiaries	23,246	20,636	9,068
Net cash flows from investing activities	19,279	11,253	6,208
CASH FLOWS FROM FINANCING ACTIVITIES:			
Borrowings of long-term debt	3,744	8,764	4,584
Repayments of long-term debt	(4,166)	(6,612)	(1,366)
Payments for debt issuance costs	(34)	(84)	(43)
Contributions from parent	2	51	59
Distributions to parent	(17,725)	(12,648)	(7,891)
Net cash flows from financing activities	(18,179)	(10,529)	(4,657)
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	(100)	(400)	500
CASH AND CASH EQUIVALENTS, beginning of period	100	500	—
CASH AND CASH EQUIVALENTS, end of period	\$ —	\$ 100	\$ 500

Issuers and Guarantors of Guaranteed Securities and Affiliate Securities Pledged as Collateral
as of December 31, 2021

CCO Holdings, LLC, a Delaware limited liability company (the “Company”) and each of the CCOH Obligor Subsidiaries (as defined below), have fully and unconditionally guaranteed on a joint, several, full and unconditional basis each of the debt securities listed below, unless such subsidiary is an issuer of the listed debt security. Such guarantees are secured by substantially all of the assets of the CCOH Obligor Subsidiaries, including a pledge of the equity interests of substantially all of the subsidiaries owned by CCO and the other CCOH Obligor Subsidiaries (the “Pledged Equity Interests”).

Debt Securities Issued by Charter Communications Operating, LLC (“CCO”) and Charter Communications Operating Capital Corp. (“CCO Capital”), guaranteed by the Company and each of the CCOH Obligor Subsidiaries (as defined below, other than CCO and CCO Capital) and secured by the Pledged Equity Interests:

4.464% senior notes due July 23, 2022
 Senior floating rate notes due February 1, 2024
 4.500% senior notes due February 1, 2024
 4.908% senior notes due July 23, 2025
 3.750% senior notes due February 15, 2028
 4.200% senior notes due March 15, 2028
 2.250% senior notes due January 15, 2029
 5.050% senior notes due March 30, 2029
 2.800% senior notes due April 1, 2031
 2.300% senior notes due February 1, 2032
 6.384% senior notes due October 23, 2035
 5.375% senior notes due April 1, 2038
 3.500% senior notes due June 1, 2041
 3.500% senior notes due March 1, 2042
 6.484% senior notes due October 23, 2045
 5.375% senior notes due May 1, 2047
 5.750% senior notes due April 1, 2048
 5.125% senior notes due July 1, 2049
 4.800% senior notes due March 1, 2050
 3.700% senior notes due April 1, 2051
 3.900% senior notes due June 1, 2052
 6.834% senior notes due October 23, 2055
 3.850% senior notes due April 1, 2061
 4.400% senior notes due December 1, 2061
 3.950% senior notes due June 30, 2062

Debt Securities Issued by Time Warner Cable, LLC (“TWC”), guaranteed by the Company and each of the CCOH Obligor Subsidiaries (as defined below, other than TWC) and secured by the Pledged Equity Interests:

5.750% sterling senior notes due June 2, 2031
 6.550% senior debentures due May 1, 2037
 7.300% senior debentures due July 1, 2038
 6.750% senior debentures due June 15, 2039
 5.875% senior debentures due November 15, 2040
 5.500% senior debentures due September 1, 2041
 5.250% sterling senior notes due July 15, 2042

4.500% senior debentures due September 15, 2042

Debt Securities Issued by Time Warner Cable Enterprises LLC (“TWCE”), guaranteed by the Company and each of the CCOH Obligor Subsidiaries (as defined below, other than TWCE) and secured by the Pledged Equity Interests:

8.375% senior debentures due March 15, 2023

8.375% senior debentures due July 15, 2033

“CCOH Obligor Subsidiaries”:

Bresnan Broadband Holdings, LLC
CCO NR Holdings, LLC
Charter Advanced Services (MO), LLC
Charter Communications, LLC
Charter Communications VI, L.L.C.
Charter Distribution, LLC
Charter Leasing Holding Company, LLC
Charter Communications Operating, LLC
Charter Communications Operating Capital Corp.
Charter Procurement Leasing, LLC
DukeNet Communications, LLC
Marcus Cable Associates, L.L.C.
Spectrum Advanced Services, LLC
Spectrum Gulf Coast, LLC
Spectrum Mid-America, LLC
Spectrum Mobile Equipment, LLC
Spectrum Mobile, LLC
Spectrum New York Metro, LLC
Spectrum NLP, LLC
Spectrum Northeast, LLC
Spectrum Oceanic, LLC
Spectrum Originals Development, LLC
Spectrum Originals, LLC
Spectrum Pacific West, LLC
Spectrum Reach, LLC
Spectrum RSN, LLC
Spectrum Security, LLC
Spectrum Southeast, LLC
Spectrum Sunshine State, LLC
Spectrum TV Essentials, LLC
Spectrum Wireless Holdings, LLC
TC Technology LLC
Time Warner Cable Enterprises LLC
Time Warner Cable, LLC
TWC Administration LLC
TWC Communications, LLC
TWC SEE Holdco LLC

Consent of Independent Registered Public Accounting Firm

The Manager and Member
CCO Holdings, LLC:

We consent to the incorporation by reference in the registration statement (No. 333-251186) on Form S-3 of CCO Holdings, LLC and CCO Holdings Capital Corp. of our report dated January 27, 2022, with respect to the consolidated balance sheets of CCO Holdings, LLC as of December 31, 2021 and 2020, the related consolidated statements of operations, changes in member's equity, and cash flows for each of the years in the three-year period ended December 31, 2021, and the related notes, which report appears in the December 31, 2021 annual report on Form 10-K of CCO Holdings, LLC and CCO Holdings Capital Corp.

(Signed) KPMG LLP

St. Louis, Missouri
January 27, 2022

I, Thomas M. Rutledge, certify that:

1. I have reviewed this Annual Report on Form 10-K of CCO Holdings, LLC and CCO Holdings Capital Corp.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting.
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: January 28, 2022

/s/ Thomas M. Rutledge

Thomas M. Rutledge
Chairman and Chief Executive Officer

I, Jessica M. Fischer, certify that:

1. I have reviewed this Annual Report on Form 10-K of CCO Holdings, LLC and CCO Holdings Capital Corp.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting.
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: January 28, 2022

/s/ Jessica M. Fischer

Jessica M. Fischer
Chief Financial Officer
(Principal Financial Officer)

**CERTIFICATION OF CHIEF EXECUTIVE
OFFICER REGARDING PERIODIC REPORT CONTAINING
FINANCIAL STATEMENTS**

I, Thomas M. Rutledge, the Chairman and Chief Executive Officer of CCO Holdings, LLC and CCO Holdings Capital Corp. (the "Company") in compliance with 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, hereby certify that, the Company's Annual Report on Form 10-K for the year ended December 31, 2021 (the "Report") filed with the Securities and Exchange Commission:

- fully complies with the requirements of Section 13(a) of the Securities Exchange Act of 1934; and
- the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Thomas M. Rutledge _____

Thomas M. Rutledge
Chairman and Chief Executive Officer
January 28, 2022

**CERTIFICATION OF CHIEF FINANCIAL
OFFICER REGARDING PERIODIC REPORT CONTAINING
FINANCIAL STATEMENTS**

I, Jessica M. Fischer, the Chief Financial Officer of CCO Holdings, LLC and CCO Holdings Capital Corp. (the "Company"), in compliance with 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, hereby certify that, the Company's Annual Report on Form 10-K for the year ended December 31, 2021 (the "Report") filed with the Securities and Exchange Commission:

- fully complies with the requirements of Section 13(a) of the Securities Exchange Act of 1934; and
- the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Jessica M. Fischer

Jessica M. Fischer
Chief Financial Officer
(Principal Financial Officer)
January 28, 2022